HANDCRAFTS

for Elementary Schools

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HANDCRAFTS FOR ELEMENTARY SCHOOLS

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A HANDBOOK OF PRACTICAL

Handcrafts

for elementary schools

NEWTON TRAINING COLLEGE
MADRAS

SUGGESTIONS FOR TEACHERS



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BOSTON NEW YORK CHICAGO ATLANTA SAN FRANCISCO DALLAS LONDON

Foreword

Handcrafts for Elementary Schools was written to give practical guidance in the teaching and performance of craftwork. It is offered as an aid to the satisfactory attainment of those essential results peculiar to happy coordination of mind and hand.

It is not necessary here to emphasize the place of handwork in our modern scheme of education or to indicate the growing tendency toward recognition of the need to "do it yourself." Every parent, educator, and youth adviser hopes to help children grow in self-sufficiency and in the ability to find happiness and contentment in their environment. Through craftwork one learns to appreciate the achievement of others and above all to sustain curiosity and interest in creative activities throughout his lifetime.

The material presented here provides the basic fundamentals of craft experiences. It shows how crafts may be correlated and integrated with academic subjects and how crafts may become a vital part of the experience of children. The textual content has been a part of the curriculum of the Cleveland Public Schools for the past eighteen years. It has been successfully worked out by children on the playgrounds of South Euclid and Lyndhurst, Ohio. Through its use we have found a ready response to craftwork in education. It has been based on a sound educational philosophy and its development follows a logical sequence.

Designs and patterns for many crafts are included. Projects are the choice of children, not adults. The material grew out of actual classroom experiences with children and their teachers. It was also developed for use in teacher education and training at Western Reserve University and at Kent State University.

The book contains detailed suggestions for classroom organization and administrative procedures. The authors have attempted to answer every possible question which teachers and administrators might ask about craftwork. A complete description of a craft program for all levels of education is included for the understanding and appreciation of boards of education, school administrators, directors, and supervisors.

Using this book, the teacher needs no special training in crafts, since the completely detailed chapters supply ideas and designs that children can actually use. This text has been planned to help inexperienced teachers as well as those with experience – in rural communities and in cities.

In addition to its use in elementary schools and in teachers colleges, *Handcrafts for Elementary Schools* can be used effectively in junior and senior high schools, in the home, in adult education, in playgrounds and camps, and in occupational therapy programs. The appeal of handcrafts is universal, regardless of the age of the craftsman.

In short, *Handcrafts for Elementary Schools* tells you how to do it, when to do it, and why.

THE AUTHORS

WESTON TRAINING COLLEGE
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WESTON TRAINING COLLEGE
MADRAS

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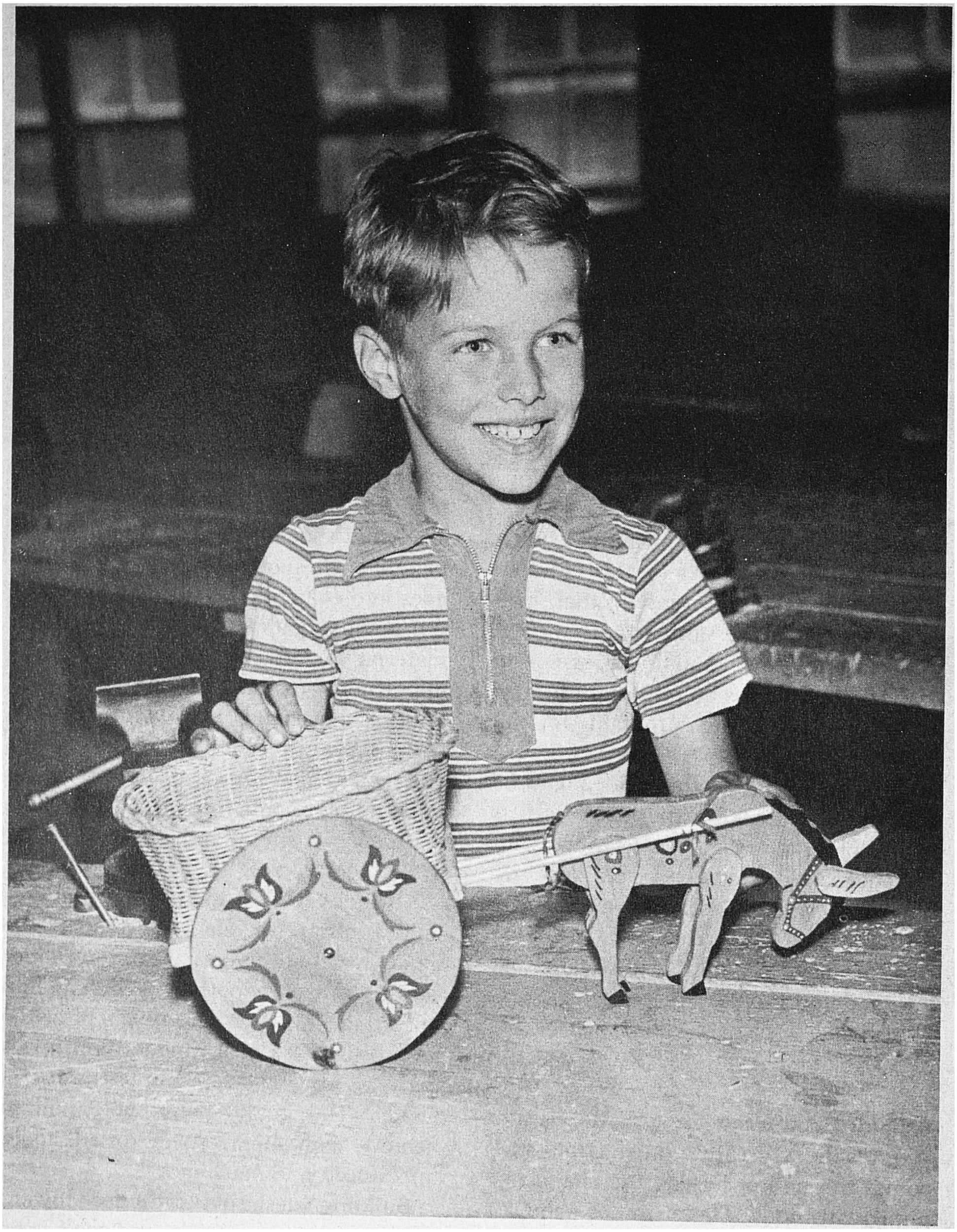
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HANDCRAFTS FOR ELEMENTARY SCHOOLS



There is a feeling of pride which comes from having performed a fine piece of work with one's own hands.

CHAPTER 1

Handcrafts in the Elementary School

Handcrafts as a Form of Expression

Children think concretely. Meanings are clarified and concepts made clear when the child can produce with his own hands the solid image of the idea in his mind. This expression, through handcraft, satisfies the child's impulses to manipulate and to experiment.

Handcraft is a natural means of expression for most children. Just as children need opportunities for intellectual, dramatic, or civic expression, so do they need opportunities for manual expression in crafts. Handcraft is an important part of a complete learning program for all children.

The curriculum for the child should be thought of as a whole experience, with as many integrations and correlations with subject matter as can be made. Integration of handcraft is essential in realizing the most from the curriculum. One of the best means of changing abstract ideas into real and lifelike situations is the use of the hands to change the form and shape of material.

Attitudes Acquired through Handcrafts

A teacher's greatest satisfaction often comes through observing the changes in pupils' attitudes. The attitudes acquired through handcraft are specific. The feeling a child has toward handwork alone is of great value, but of greater importance is his attitude toward work itself. The person to be envied is the one who has found his work his hobby and his hobby his work.

The way a child feels about a piece of wood or cloth tells us much about the inner child. Appreciation for a material requires a knowledge of that material. The child should know the source of the material. He should realize the labor that goes into changing it into a usable material, and he should discover the uses of the material in industry. All this, plus the opportunity to manipulate the material with his own hands, will give the child a real appreciation founded on knowledge and experience. Appreciation of materials can best come through handling the materials, forming and shaping them, using them to create some desired article.

Attitudes toward tools are also important. Tools are the chief assistants of the hands in all craftwork. Also, the proper care of tools is important. When a child finds that improper care of a tool or the wrong use of a tool hinders him in his activity, he will have learned a useful lesson. Handcraft should help him to achieve a greater respect for all tools, appliances, and machines.

Building desirable attitudes toward work, workers, materials, and tools is an important objective of the handcraft program. Handcraft offers the child an oppor-

tunity to develop the desirable attitude of the craftsman toward his work. The feeling of pride which comes from having performed a fine piece of work with one's own hands, the joy of creating, the feeling of satisfaction in completing a job can come only through firsthand experience.

The Development of Physical Abilities

Physical abilities are also acquired through handcraft activities. Children enjoy using their bodies to lift heavy weights, to pound wood, or to saw boards. In doing these things they are forced toward coordinated, economical, and rhythmical movement. This is a natural and simple means of physical education; however, teachers must guard against overfatigue for there will always be some children who will let their enthusiasm carry them too far. Also, eye fatigue in weaving, in metalworking, and in painting details often passes unnoticed. A change to less detailed work will relieve the strain and rest the eyes.

The Development of Mental Abilities

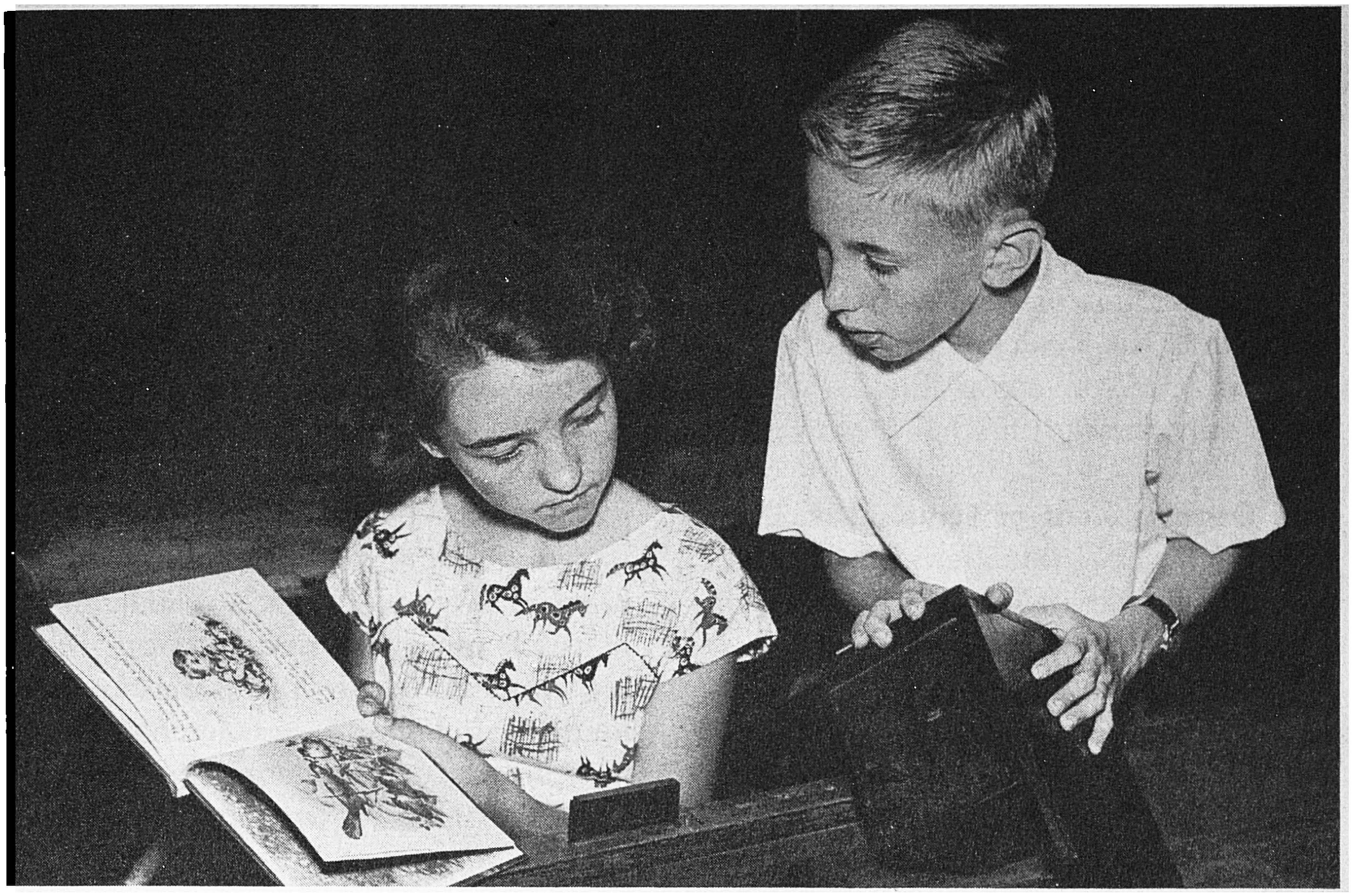
Through handcraft, mental abilities are also developed. Forethought and planning are obviously necessary. The child must analyze the saws or drill when replacing a blade or drill point for the first time. He must devise means of holding work steady. He is called upon constantly to discriminate. And evaluating is paramount in designing — when choosing color, form, material, or method. The work of the teacher is to guide the child to such problems as will tend to create increasing interest and curiosity, leading the child from simple to more complex activities.

It is evident, then, that mere manipulation of materials is definitely *not* the aim of handcraft. That was the aim of manual training in the past. The modern handcraft program should open the way to many kinds of new knowledge for children. For example, using wood to make a birdhouse is only a small part of the experience. Tracing the wood back to its source step by step, following the story of other pieces of wood into industry, caring for supplies of wood, and buying wood — all these are of equal importance to manipulating wood. In this case, knowing which kind of bird is to inhabit the house, knowing the nesting habits of the bird, finding a safe place for the birdhouse, using the right color of paint — these things, too, are necessary. Collateral learnings which grow out of handcraft are almost limitless.

The Development of Skills

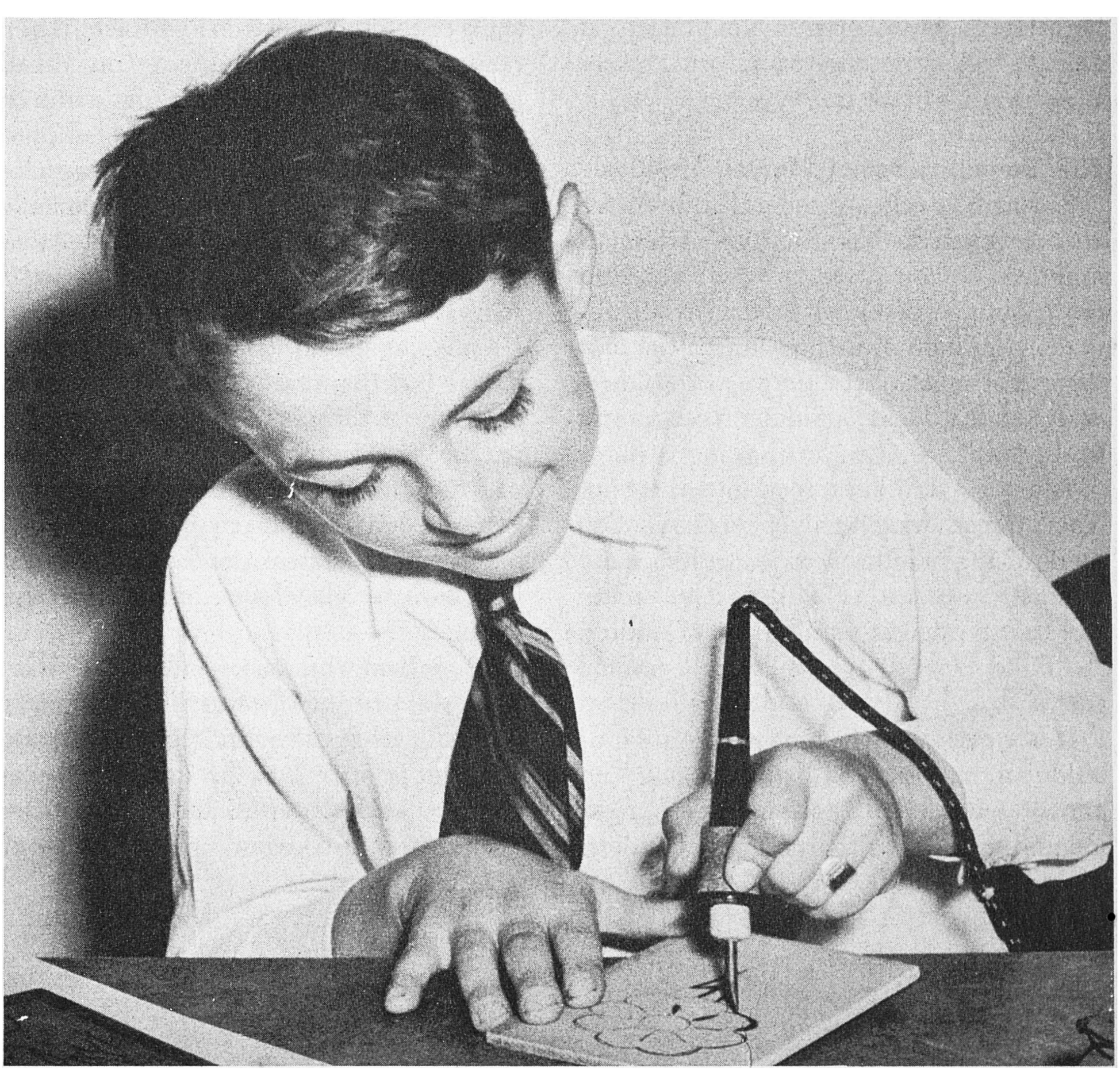
There are certain basic skills in handcraft which it is hoped each child will have the opportunity to acquire. These skills should not necessarily be set up in a definite course of study. That would tend to govern the projects to be made and to segregate handcraft from other studies. Rather a list of skills should act as a guide to the teacher so that the children may be led through as great a variety of manipulative experiences as possible. It is easy to let the child who saws well do all the sawing necessary in construction work. But that child needs other experiences more than he needs additional experience in sawing. When the child has a variety of basic skills at his command, he is then prepared for creative expression, for he then possesses the tools for expression and the knowledge and skill to use them.

In general, the basic skills desired are those skills needed (1) to form raw materials into useful articles, (2) to decorate or beautify such articles, and (3) to experiment with materials and tools in order to find new processes, new methods, or



Above. Which kind of bird will inhabit the house? What are the nesting habits of birds? Where should the house be located? Collateral learnings which grow out of handcrafts are almost limitless.

Below. Skills of various kinds are used in creative expression.



new crafts. More specifically, the basic skills are these:

1. folding, cutting, pasting, and coloring paper
2. cutting, folding, sewing, washing, decorating, and pressing cloth
3. shaping, firing, and decorating clay
4. sawing, filing, sanding, drilling, gluing, and hammering wood
5. sawing, filing, drilling, hammering, bending, and shaping metal
6. decorating wood, metal, clay, cloth, and paper — painting, woodburning, chip carving, etching, printing, dyeing

Of course, the supplementary skills are endless in number. To illustrate, the skill of sawing can easily be broken down into supplementary skills such as (1) replacing a broken saw blade, (2) turning a corner, (3) cutting with the grain, and (4) cutting across the grain.

Handcraft Materials

The four major materials commonly used in elementary handcraft work are wood, metal, textiles, and clay. This is as it should be, for these four materials are representative of the materials used in our major industries. Also, these materials vary enough in character so as to offer a wide range of possible projects and processes.

Wood is a familiar material to the child. The chances are he lives in a wooden house. The floor, the furniture, and many of his toys are made of wood. It is a material that is easy to manipulate. Children should use fairly cheap wood — wood that is straight grained and smooth, wood that is comparatively soft.

Metals differ greatly from wood. In addition to the obvious physical differences, metals are usually used for different purposes than woods. Metalworking processes, too, are somewhat different. Children should know something of metals. This is especially true today, since we are living in an age of metals. Without metals there would be no automobiles, airplanes, electricity, radio, television, telegraph, telephone, ocean liners, power looms, or printing presses.

The third of the major craft materials is clay. Clay as a craft material is unique in that it affords the child the opportunity for working in three dimensions. It is also unique in that it requires no tools for manipulation. There is a definite feeling of power and ability that comes from shaping a material with thumbs and fingers. Clay has many distinct advantages to offer as an elementary handcraft material. First, as mentioned, it gives us a three-dimensional medium; second, it is cheap (in many localities it can be dug right out of the river beds by the children themselves); third, it can be reclaimed and remodeled; fourth, it is a material used in a great many industries today — pottery, tableware, artware, tiles, bricks.

Textiles are the fourth major craft material. The textile industry is one of our greatest industries. Back through the ages to very primitive mankind, weaving has been an essential industry. Textiles can be used in many ways. They may actually be made by the children. Weaving on simple looms is easily done. The textiles may be dyed or printed. They may be decorated with stitchery or they may be made into practical and useful articles. Just as in adult life we use textiles for decoration (drapes, rugs, curtains, upholstery) as well as for utility (wearing apparel, bedding, towels), so children should use textiles for decoration and utility.

The manipulation of these four major craft materials — wood, metals, clay, and

textiles — should be a part of every child's experiences at some time in his elementary school life. In using these materials, the child has an opportunity to create a very great variety of articles; he experiences many processes; he gains an understanding of some of the qualities of the four great industrial materials.

These major craft materials should be supplemented with a great variety of miscellaneous materials. Cork and cork products, particularly linoleum, offer valuable opportunities for new experiences. The whole field of printing can be introduced through the process of linoleum block printing. This will entail the use of paper, another craft material with unlimited possibilities. Soap for carving, plaster of Paris for modeling, raffia for weaving, felt for making novelties — all offer avenues for expression.

Some materials can be reclaimed. Much can be done with such things as boxes, tin cans, toothpicks, clothespins, and spools. Novelty materials come and go. Recently, nuts, seeds, spaghetti, macaroni, noodles, vegetables, fruits, and other common materials have been used in handcraft work for a variety of purposes.

Children should have the opportunity to work with many kinds of materials. Each one offers new problems in design and construction. Each one requires the use of special tools. Each new material opens another gateway to creative expression.

The question as to which material to use at any given time is easily answered. Use that material which best fits the purpose or the need. In any activity or unit of study in the elementary school the need for craftwork is soon discovered. The project to be constructed will be an outcome of a major interest. The materials to be used will be those which are needed to build or make the project. In planning activities with the children, the teacher can help to guide them in selecting projects that will involve the use of a variety of materials.

Sources of Materials

For a long time educators have supported the idea that it is essential for children to know the source of the materials found in their food, clothing, and shelter. It is no less important that they know the source of the materials they use in handcraft. Many of the materials used are a part of their daily existence. Children live in homes made of wood and brick; they walk on floors of linoleum; they wear clothes made of textiles; they wash with soap, eat from clay dishes, and ride in metal automobiles. Knowing the sources of these materials, understanding the processes of changing raw materials into such finished materials as lumber, metal, cloth, and linoleum, and appreciating the time and labor that go into these processes and changes cannot help but make the child a more intelligent and appreciative user of materials both in handcraft and in home life. Here, visual aids and reading material become an essential part of handcraft work. Integration with the study of geography and social and physical science is unavoidable. The study of materials and resources becomes vital and real when the child uses those materials in construction. Likewise, construction becomes more than mere manipulation when the child studies the materials he uses.

History of Materials

In the history of materials may be written the history of the world. Handcraft can form an approach to history through the study of materials as they have been used in the past. Our own industrial

civilization is built on the history of metal, for example. The pewter dishes and utensils of the Colonial period were replaced by tinware. That was followed by utensils of granite-covered and enamel-coated metals. The progress made in the use of aluminum changed the situation again. Stainless steel offered another whole new line of cooking utensils. Metals and metal alloys are being studied constantly so that new uses may be found for them. New uses for metal and the building of power machines changed the whole nature of industry. Concepts like these are important if the child is to understand and appreciate history and the world in which he lives.

In studying the history of wood, many facts should be considered. Stories of the uses of wood in different eras and in different countries should be included. The history should also include a study of the wooden articles found in museums.

The history of block printing is really a history of education and of civilization. The study of printing in the past will increase the child's understanding and appreciation of printing today. In the history of block printing the child follows the history of the spread of knowledge.

Our historical museums contain excellent collections of pottery. These pieces tell much about the lives of ancient people. From the textiles found in cliff dwellings, historians deduce all sorts of knowledge of the people who lived there. The material and its uses are inseparable, so that in the study of one we become involved in the study of the other.

Archaeologists study ancient examples of arts and crafts in order to reconstruct history. The children's study of the history of craft materials and of handcrafts will vitalize their study of history and increase their understanding of peoples of the past.

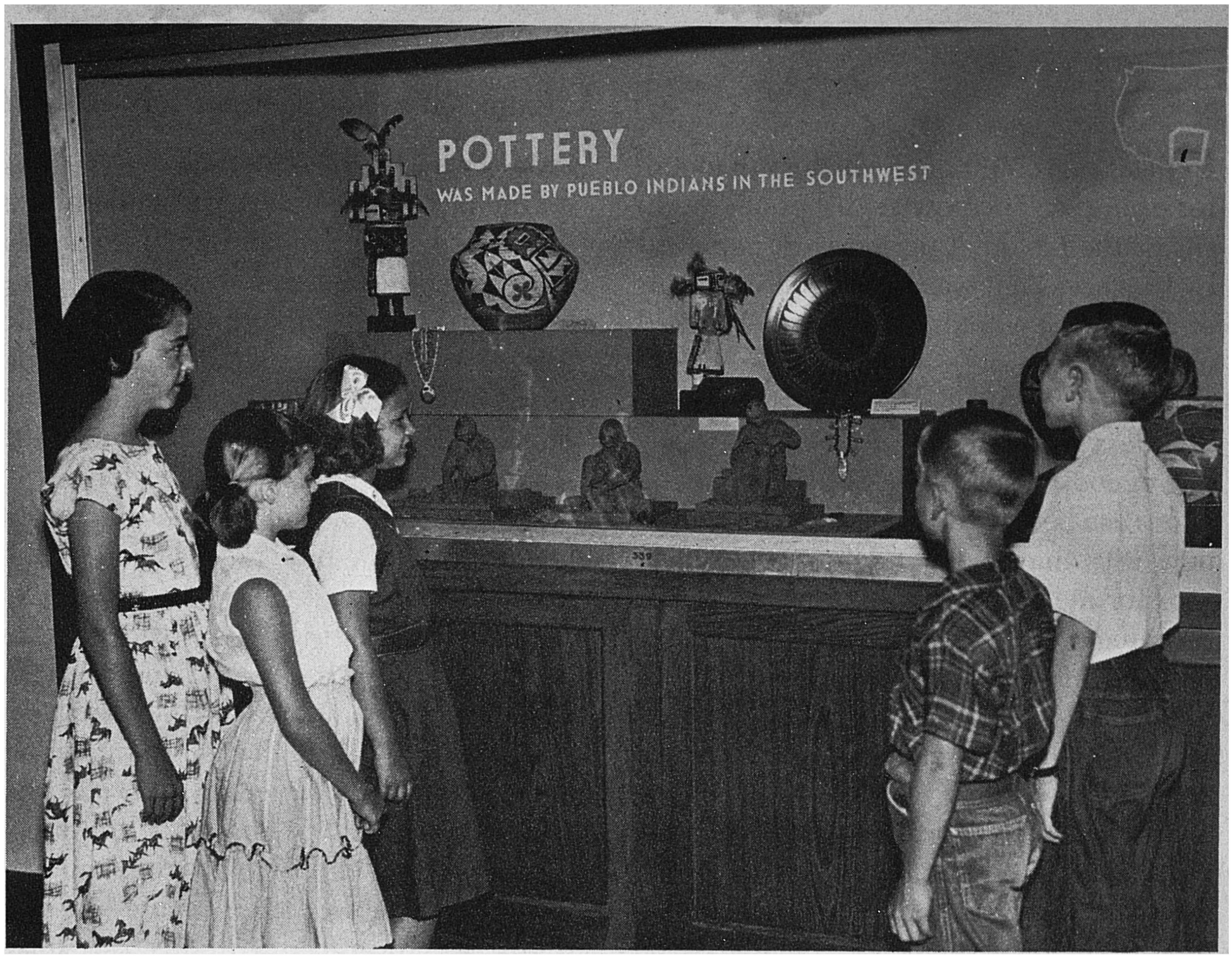
Industry's Use of Materials

One of the objectives for handcrafts is to develop an understanding of the major industrial processes of today. In using the materials found in industry, the child gains a knowledge of the limitations and possibilities of these materials. This understanding of what can be done and what cannot be done with a material will make the child not only a better user of materials but a better consumer of finished products as well. A knowledge of the great quantities of raw materials needed in industry should increase the child's understanding of the need for conservation. Conservation of materials is an essential part of education today.

Excursions to factories, mills, and shops will give the children the best understanding of how materials are used in industry. Industrial exhibits, in small traveling cases, can be obtained from some concerns. These exhibits usually show the step-by-step changes made in a raw material as it is manufactured into the finished article. Books are always an excellent source of information. By reading them the child learns much of what goes on in industry. But none of these methods will make the knowledge half as real as will handcraft in which he experiences the actual manipulation of the same materials as are used in industry.

Integration with Other Subjects

All too often we find a handcraft teacher viewing with dismay monotonous rows of plaster of Paris cats, unbaked clay trays, oilcloth-covered brick doorstops, or red, heart-shaped pincushions. The handcraft program too often becomes dull busywork. It lacks motivation, interest, and vitality. This is because the teacher has missed the real concept of handcraft. She *has* thought of it as *handwork* but has failed to see that it is more than that.



Above. Children's investigation of handcrafts vitalizes the study of history and increases understanding of other peoples.

Below. One of the objectives of handcrafts is to help children learn about common materials and industrial processes.



It must be a form of expression, a creative outlet, not mere manipulation of tools and materials.

There are many ways to break away from this old stereotyped form of handwork with the very limited values that accrue from it. Integrating the handwork with the current activity or unit of study is the most common way. Here the work takes on real meaning. The handwork is definitely motivated. Not only does the subject matter motivate handcraft; the handcraft activities promote further and much more careful study in subject matter fields. The child uses his hands to put the facts he possesses into concrete, visual form, and in doing so finds a need for further information. Building a greenhouse to shelter plants requires a definite knowledge of the appropriate structure. Measuring the framework calls for accurate use of the ruler. Flower boxes are made so that seedlings will grow. Is drainage necessary? If so, how can the box be constructed so as to offer good drainage? Plant sticks are cut out and painted. The spelling must be correct. The child must consult a dictionary. Seeds must be ordered. The child needs to know how to write a good business letter.

Making marionettes to dramatize a story calls for a careful study of the characters in the story. Building the stage requires a study of other marionette stages and planning for shifting scenery, manipulating marionettes, and closing curtains. Concepts and skills in arithmetic, art, and dramatics are involved. A knowledge of each must be used in constructing the stage. There is integration of subjects to the end that the activity may be successful.

To be most effective, these handcraft activities — the making of marionettes, the construction of a greenhouse, the building of flower boxes — must take place, not in the sixth grade during the third month of the year, but whenever the children feel a need for them, regardless of grade placement. The workmanship on the finished article should be comparable to other accomplishments of children of the same age.

Utilizing Community Crafts

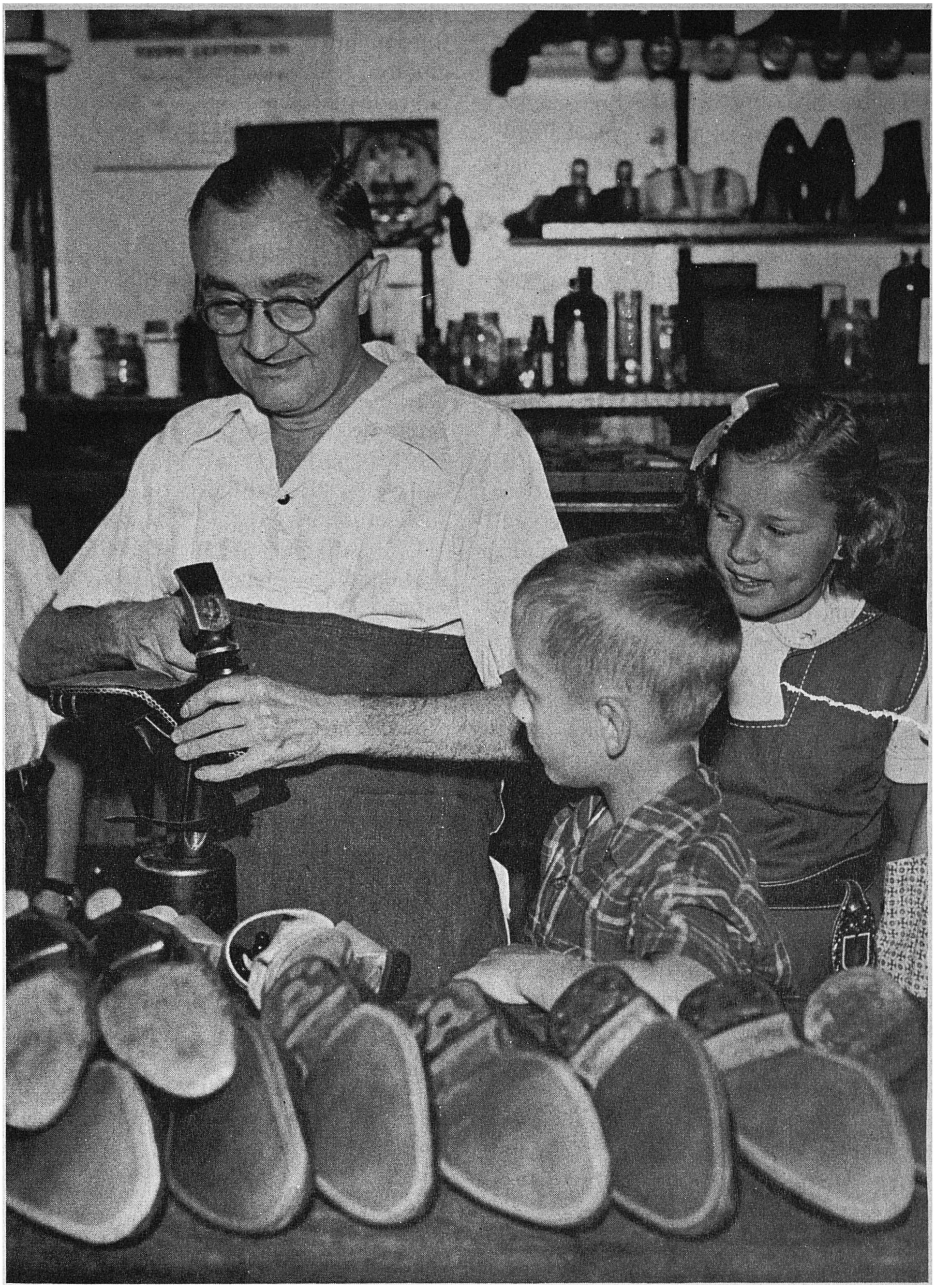
There are times when there may be little need for handwork in an activity. Some schools may be so organized as to allow for little integration of studies. This is true in many strictly departmentalized programs. In such cases the challenge is greater. A few schools, however, have carried on successful experiments to meet such situations.

Craft surveys were made of the neighborhoods in which the schools were located. Discovered were the kinds of craftsmen at work, the industries which were in operation, and the resources for handcraft activities which could be obtained for the school. Individual children or small committees of children visited the craftsmen in their shops and talked with them about their work, very often securing invitations to bring other groups to visit.

Near one of these schools was a large cemetery. Across from the cemetery the children noticed Italian marble workers and makers of plaster of Paris figures. The children watched these workers of marble and saw how they chiseled out their designs. Plaster of Paris interested them also and became a medium for their future experimentation.

One group found an expert clockmaker. They saw his skillful fingers at work. The clockmaker later visited the school and talked to the children about clocks of all centuries.

The shoe repairman taught one group of boys how to make key rings and other



In every community there are craftsmen who can help enrich the knowledge of children.

small articles out of leather scraps. In his shop he passed on to them some of his art and skill in leatherwork. The boys gained a real respect for a man they had hardly known before. Here the activity of the adult became first the play of the child and later the craft of the child.

Lumberyards are always a great source of material and they are accessible to most schools. Groups of children have watched woodworkers at their power saws, planers, and sanders. They have been given scraps of wood in all shapes. Back at school, with glue and nails and imagination, they have made many things — ships, trains, miniature buildings, animals. They have painted them with gay colors, transforming waste scraps into prized toys.

Spinning and textile mills have been centers of interest. Groups have been given remnants of yarn with which to weave and sew. They have absorbed a feeling for color and design as they watched. They have felt a desire to do something of the same sort with like materials. They have watched with great respect the work of huge machines and the skill of hands.

Industrial plants of all kinds will give groups the opportunity to see many things in the process of manufacturing. Very often a new kind of craft material is discovered by the group. Children see uses for scrap materials as they watch, and manufacturers are usually generous with their scraps.

From such experiences as these found in the community, children, and teachers too, get a new slant on craftsmanship, materials, on the neighborhood in which they live, on the industrial civilization of which they are a part, and on the men and women who work in the community.

Using Hobby Resources

There are always people in every neighborhood who have interesting hobbies — hobbies they would love to share. In the neighborhood of one school lived an elderly man who spent hours in his workshop. His wood carvings and jigsaw work took up much of his spare time. He was more than willing to demonstrate to the class and to loan his patterns for their use and study. In that same neighborhood a Ukranian woman was an expert at coloring Easter eggs. From her some of the children learned to dye eggs by the batik method. At school they told their teacher about the process, and projects in batik work soon followed — batik on paper and batik on cloth.

In every community there is a rich reservoir of materials waiting to be utilized. The number of these reservoirs tapped is dependent to a great degree on the ingenuity and resourcefulness and interest of the teacher.

SUGGESTED QUESTIONS AND ACTIVITIES

1. Why is a handcraft program important in a curriculum?
2. Give examples of ways in which handcrafts may be used to activate academic subjects.
3. Why are handcrafts important in child development?
4. Why are handcrafts important in the social and civic relationships of children?
5. How does the aim of handcraft today differ from the aim of manual training in the past?
6. Give several examples of collateral learning.
7. The manipulation of materials should be accompanied by what other activities?
8. What is the difference between handcraft and handwork?
9. Give one example of how handcraft may be motivated.

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CHAPTER 2

Handcrafts in the Home

Leisure Time

Children have more leisure time today than children ever had before. School takes up about five hours a day for approximately half the days in the year. Eating and sleeping take up about thirteen hours a day for children seven to twelve years old. This leaves an average of about eight hours of free time daily. And it is free time! Children today have few duties to perform in the home. Modern conveniences have made the mother's work simpler and quicker, and she is able to do it without the aid of her children. Moreover, misinterpreted ideas of child welfare have sometimes thrown a stigma on parents who make the child work in or about the home. The result is that children have unused and, to them, worthless time on their hands. This leisure time of childhood can be made vital, worth while, and interesting. Handcraft can help greatly in doing this.

The idle child is in danger. Every child needs something to steady him, to make life pleasant for him, and to keep him alive with feeling and thinking and doing.

Handcraft as an Educational Experience

Handcraft is needed rather than some other form of activity (such as games), for it will replace in a measure some of the education the child once received in the home and which he no longer gets. Active games are as much a part of childhood today as they ever were, but the handwork that once existed in the home is practically gone. Modern equipment has made it unnecessary and impractical for the mother to do many things by hand. Washing, ironing, sewing, and cleaning are all done by machines. Even our eggs are beaten by electricity. This is in contrast to the home of a hundred years ago where the child not only saw but took an active part in the spinning, stitching, dyeing, cooking, and other household tasks.

Today, some boys seldom see the work done by their fathers. Fathers leave home and go to work in mills, factories, or offices on the other side of town. In the early days of our country, boys worked with their fathers, learning to use hand tools and to manipulate various materials. Boys and girls alike were familiar with the elementary processes in the production of food, clothing, and shelter. They knew the materials, their sources, their possibilities, and, their limitations. They learned to use the simple tools needed to change the raw materials into finished products. They took a part in beautifying these practical articles with design or decoration. And because of these knowledges and activities they had a better appreciation for the things they ate and wore and used. They had a keener sense of the value of things.

Today children can seldom get these firsthand knowledges and appreciations from their parents. Handcraft in the home, however, will give to the modern child some of these opportunities.

Of course, it is true that there are still many things a child can do in the home. Such daily chores as washing dishes, shoveling snow, cutting grass, dusting, and going to the store have been child tasks for a good many years and they still are. Every child should feel that a share of the homemaking is his personal responsibility. The appointed tasks should be cheerfully and cooperatively accepted. Yet, however great the child's share of simple hand tasks may be, that share will not take the place of handcraft. For such tasks are almost entirely repetitious in character. They allow the child practically no opportunity for creative expression. If for no other reason, then, handcraft is needed in the home for its creative possibilities.

"Something to Do"

All parents and teachers are anxious to form ties of interest and affection between the child and the home. Handcraft may furnish a strong and lasting tie. When a child has activity in his home life — an opportunity to use tools and materials and a place to do things — plus intelligent interest on the part of the adults in the home, the result is an interested, happy child who loves his home. In contrast is the dissatisfied, uninterested child who only goes home from school or from the playground when there is nothing more to do. "Something to do" makes a world of difference to the child.

That "something to do" must absorb all of the child's attention during the time he is working. Many children today live in an atmosphere of worry and excitement. Homes are pitched to a high degree of tension; the nerves of the entire nation are stretched to a dangerous point. We do not need psychologists to tell us that relaxation is necessary. This relaxation must be of the type that will absorb our interests so completely that for the time being we forget other problems. Handcraft will do this for children as well as for adults. The child who is building a wooden train model, or dressing a doll as a princess, or carving a soap horse, or modeling a clay bronco becomes so intent on the job at hand, so lost in the project before him, that for that time at least he lives in a world free from worry, strain, or tension.

Youth Organizations

Relatively little has been done in the last several years to put handcrafts back in the home, to give children an opportunity to work with their hands. Boy Scouts, Girl Scouts, Camp Fire Girls, and 4–H Clubs have done more than other groups; yet these organizations have reached comparatively few children. Then, too, much that they have done has been done by the club group and not by the individual child in the home. Valuable as this group work is, there are those who believe that individual handcraft as education and relaxation for children must be put back into the homes.

There are still many things a child can do to help in the house!



Using the Facilities of the Store

Educators were not the first to recognize that children have a need for something to do. The buyers and manufacturers of toys led the way. They realized the need for handwork on the part of children. They were interested in satisfying that need, for only as toys prove satisfying and interesting to children will they sell. A visit to a toy shop today is a revelation. The displays no longer consist of dolls, trains, and wooden soldiers. True, these are still there. But they have been pushed to a back shelf and in the front rows are construction kits — things to make and things to do.

Recently one of the authors visited the toy departments in three large downtown stores. She called early in the morning, knowing the clerks could give her more of their attention at that time. In one store alone she found thirty-two types of construction sets, each greatly different from the others. There were electric needles for woodburning; embroidery and sewing sets; dressmaking and costume designing kits; bead craft sets for making purses, belts, bracelets, and toys; and there was a loom for weaving with beads. Crepe paper craft kits, soap sculpture sets, hammer and nail sets, plastic clay, marionette kits, and tap-it sets for working designs on metal were all on display. Perhaps the most interesting table was the one on which four types of looms were set out for children to see and try. These were for weaving with yarn, thread, rags, and beads.

At another table two men were arguing loudly and vehemently over the choice of a gift for a favorite nephew. Displayed were construction kits for the making of model airplanes, trains, boats, and cannons. Each box contained the pieces, glue, sandpaper, paint, and directions necessary for completing the model. After listening for a minute or two, a clerk turned to the author and said, "The funny part of it is that more likely than not by the time the child gets the gift, one of the men will have assembled it; then there will be no fun left in it."

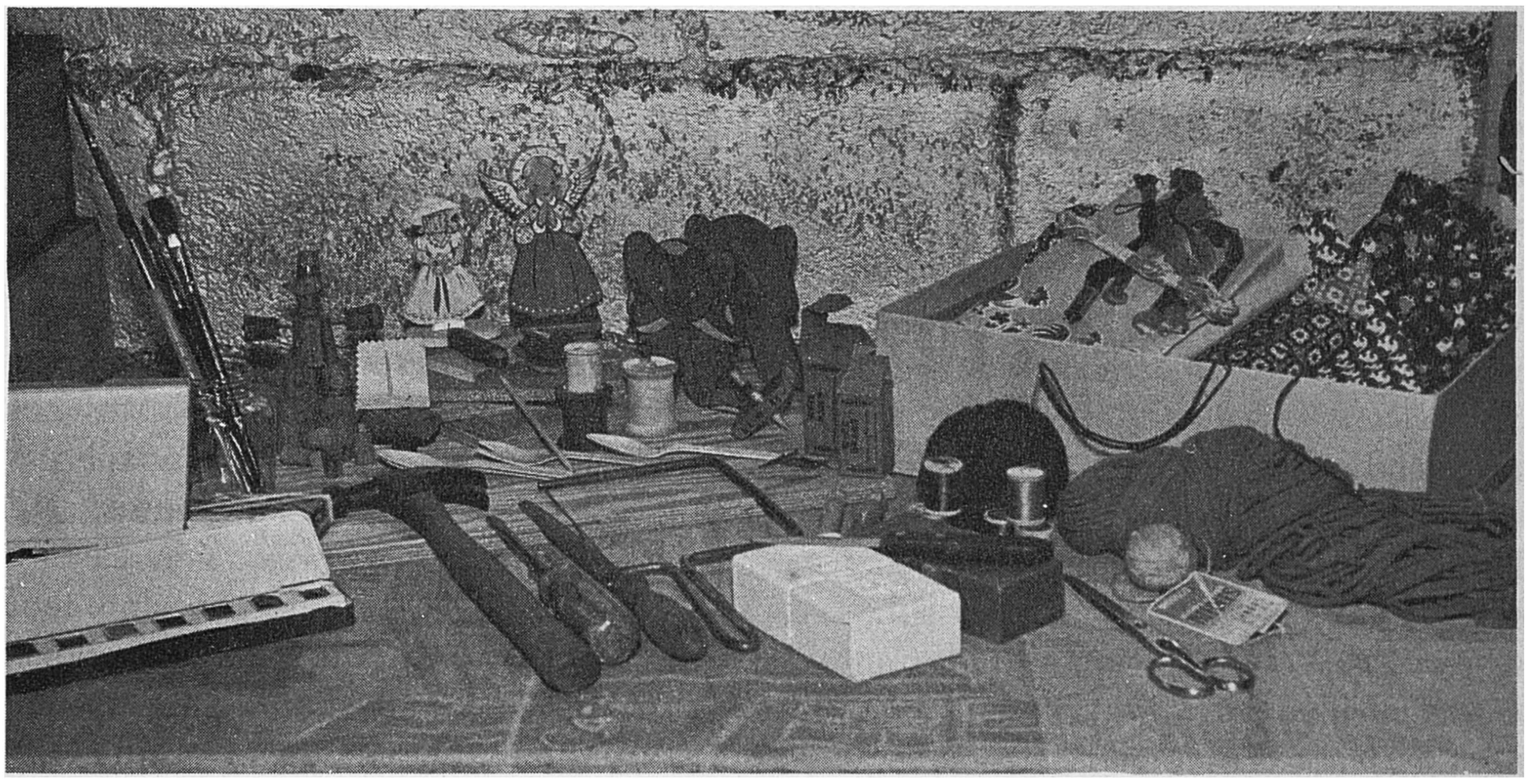
The clerk is right! There is no fun left in it when there is nothing left to *do!*

A gift that gives children something to do need not necessarily be expensive. Here is a description of a Christmas gift to a five-year-old girl in the home of one of the authors. Having ten aunts and uncles, several older cousins and four grandparents, this child received many lovely gifts — from an adult's point of view. To her, the prize present was one that had cost very little in actual money but considerably more in thought and time. In a large, heavy cardboard box she had found scissors, paste, crayons, ruler, pencils, drawing paper, colored paper, pieces of percale prints, needles, thread, modeling clay, and beads. The child forgot all about the new doll, sled, and skates, and spent most of Christmas Day making things. It was the least expensive gift she had received, but the most enjoyable.

Five-and-ten cent stores are good places to shop. They offer many kinds of construction kits at their toy counters, with new ones coming in constantly. To be found are modeling clay, marionette kits, flat Indian looms, sewing sets, art-canvas pictures, weaving frames, boxes of wooden beads, kits for constructing model airplanes, boats, and trains, and molds with stone powder for casting models. These sets are all complete and well made. They are outselling dolls, books, soldiers, and games three to one according to the buyers in the toy departments.



Construction kits outsell dolls, books, soldiers, and games three to one.



A home-assembled craft kit often makes a prize gift.

Home Assembled Handcraft Equipment

None of these commercial sets can compare, however, with the set father or mother prepares. A sturdy box containing various materials and a few simple tools is all that is necessary. Put into the box a bar or two of soap for carving, several brightly colored pieces of new percale or cotton materials, some thin, smooth, clean lumber (white pine, yellow poplar, or red gum can be purchased for a few cents a foot at any lumberyard), some yarns and colored threads, and a few simple tools. In practically every home there are hammers, screw drivers, needles, and thread. Buy a coping saw and a wood file at the dime store. Add to this a paring knife and some lollipop sticks or meat skewers and the set of tools is complete, for the children then have the minimum of tools needed for simple woodworking, sewing, soap carving, clay modeling, and paper construction. The child should have an old table or bench to use and a place to keep his supplies.

Handcraft Classes Offered by Stores

Department stores in cities frequently offer other handcraft values to boys and girls in the form of instruction. One large department store, for example, holds regular classes in sewing and in marionette making during the vacation months. The children are started on an activity in a class at the store and they are encouraged to carry on the work at home. The only "string" tied to these classes is that all materials used by the children must be purchased by them in the store. The instruction is free. Another company offered free lessons in constructing model airplanes for several years. The boys and girls met in the store on Saturday mornings and received the help they needed to carry on construction at home during the following week.

Contributions of Various Community Agencies

Settlement houses have also become interested in helping children discover handcrafts. In several cities groups in soap carving, wood carving, clay modeling, basket weaving, knitting, metalworking, plastics, block printing, and woodworking are meeting regularly. The work of the individual in these groups has been very commendable but there is little evidence of a carryover into the home. The child has not attained enough skill, interest, or knowledge of how to obtain tools and materials to carry on by himself.

In one social agency some effort is being made to interest the older girls in sewing and needlework. The instructor is trying to get each girl started on some piece of work that is so interesting and so desired that the girl will want to take it home and finish it and do more. This is a definite step forward.

The Junior Red Cross has done much to interest children in knitting. Both boys and girls have become so fascinated as to spend hours of leisure time in this work. Worth while as this work is, an objection to it is that there is little or practically no provision for progress or creativeness. The child may knit faster or more evenly but he continues to knit six-inch squares and more six-inch squares.

Newspaper Efforts

Newspapers have, from time to time, instigated movements for more handcraft in the homes, but these efforts usually fade out after a short time. Lack of the personal element so needed by children is, perhaps, the chief reason for this. Two kinds of newspaper programs, however, have achieved worth-while results and have existed for a surprising length of time. In several cities junior aviator clubs, through membership cards, buttons, cer-

tificates of achievement, annual field meets, school recommendation, plenty of publicity, and an enterprising editor, have forged ahead in this field. The cooperation of the schools in forming branch units of the clubs has helped to give them the personal element. Teachers acting as counselors and instructors have helped the children interpret the newspaper articles and directions. Also, the fact that fathers often are as interested as sons may have helped keep the activity alive.

Junior homemaking clubs, sponsored by some newspapers, have been somewhat less popular than the aviation clubs, but there still are many live organizations. Their activities are more in the field of cooking than handcrafts, but at times some needlework is suggested. The usual practice is to publish daily articles for girls between the ages of eight and fourteen. Directions for activities are clearly given. Again the great lack is the personal element. The child needs the appreciation and interest of another person to encourage him to carry on.

A Radio-promoted Handcraft Program

Recognizing the deficiencies of handcraft programs of other agencies, the Cleveland schools have tried an experiment in radio handcraft work. Looking ahead to a summer when children would have too much free and unsupervised time on their hands (because of both parents working and because of inadequate playground facilities), an attempt was made to plan with the children some way in which to meet the situation.

During the last ten years the Board of Education radio station, WBOE, has been broadcasting each week during school hours to approximately five thousand children in the elementary schools, attempting to arouse interest in handwork, to suggest various, inexpensive, creative activities in handwork, and to develop an appreciation for handwork.

Except for a small group at one elementary school, there had been little participation on the part of the children in planning or broadcasting these programs. This group was called together early in May and the problem placed before them. The children were between the ages of nine and thirteen. They knew what had been done in the radio handcraft programs for they had taken an active part in producing them. Challenged with the problem of interesting boys and girls throughout the summer in some form of handcraft activity, they became very seriously concerned. Their remarks are worth noting.

"No kid wants to work all alone. He needs someone to argue with and talk to." This from Richard, age nine.

"We'll have to think of something that doesn't take much material or many tools, 'cause they won't have them at home." Mary Ann is ten and has been broadcasting for two years.

"How will we know whether anyone is listening or doing what is suggested?" asked Eli.

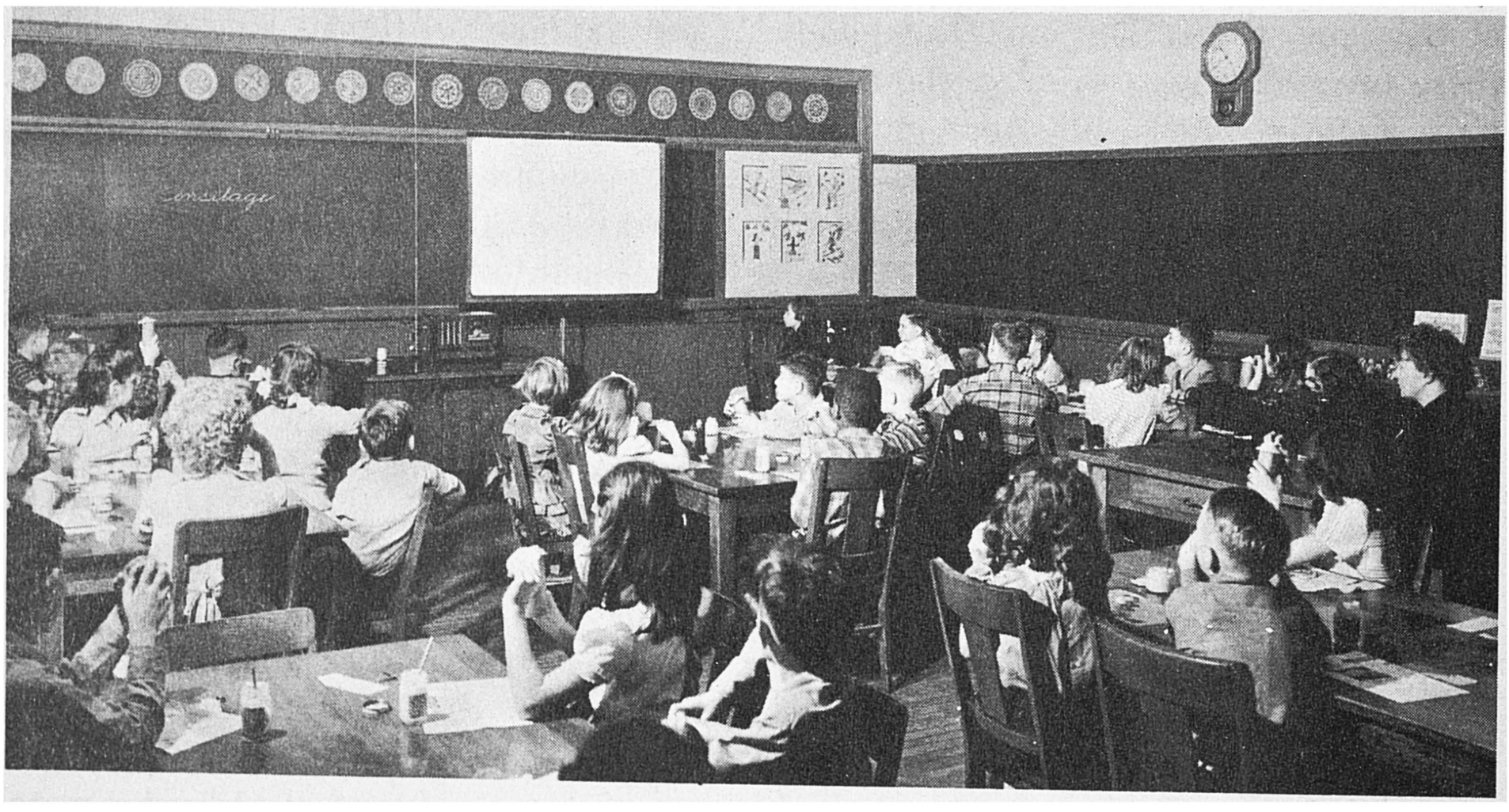
"And how can we check up on what is done? Cleveland is a big city."

"If we are going to plan what *other* children would like to do, all we have to do is plan what *we* would like to do. Other children are just like us."

This last remark was made by John, a twelve-year-old boy and captain of the safety council. The children considered his suggestion seriously, decided it was a good one, and acted upon it. Discussion of the question led them to the conclusion that they would like to form a handcraft club and make things. The teacher then stepped back into the group and asked them how this could be done over the air. The meeting broke up with this



In the studio a "control" class helped produce the broadcasts . . .



. . . while seven thousand children in their classrooms learned about handcrafts.

question hanging fire. The children had decided to consider the question and meet again in a day or so to pool their ideas.

Out of this beginning grew the Cleveland Radio Handcraft Club. The group just described held its first meeting over the air. They came together (in the broadcast), decided on a purpose and a meeting place, elected officers, and laid plans for a summer of fun and work in handcraft. The second meeting was broadcast, and during the broadcast a week later, members of the group showed articles and pictures of articles they wanted to make. There were short discussions by the children as to the possibilities and limitations of materials and tools. As the group mentioned the articles, pictures were shown in the classrooms where the broadcast was being received. As for all broadcasts of the handcraft program, each elementary school was supplied with handcraft slides numbered to correspond with the pictures being used in the broadcasting studio. This enabled the broadcaster to call for a slide and be assured that all listeners were looking at the same thing. The aim throughout these broadcasts was to make the meetings sound so interesting that children throughout the city would want to be members of such groups. The results were gratifying.

In the third broadcast of the series a city-wide Radio Handcraft Hobby Club was announced as open to all the boys and girls who had been receiving radio handcraft lessons. Rules and regulations, dear to the hearts of boys and girls in clubs, were announced. In order to form a section of this club, at least six, and not more than ten, children had to agree to become members of a unit. Sheets were distributed through the school mail and club members signed up in units. This paper called for other information. The names of the club unit, the president, the secretary, and the meeting place were asked for. There was a place for each child to write in the name of the craft in which he was most interested.

As nearly as could be estimated, 3,200 children heard the broadcasts and 1,472 children signed to become club members. One hundred fifty-three neighborhood clubs were formed, named, and had elected officers. The next step was to send each of these 1,472 club members an official membership card inscribed with the child's name and the name of his school. The children who planned the club filed the sheets as they came in and they made out the membership cards and mailed them to the various schools.

These numbers, of course, are no real measurement of the success of the experiment. Certificates of award were granted to each club member who successfully completed the making of three articles during the summer.

Attempts have been made at other times to use the radio handcraft program in building closer ties between the child and the home. After making a T puzzle in a radio lesson during the school year, it was suggested that the child take the puzzle home to see if his parents could solve it. At the same time he was asked to explain to his parents all the things he had learned in making the puzzle as well as to share with them the fun of solving it.

Suggested Action for Schools

The schools can help! If at school the child becomes interested in handcraft activities that require the materials and tools he could secure at home, there is little doubt that the carryover is good. Too often the school activity involves the use of many tools and of expensive materials or materials that are difficult for

children to obtain. Of course, there should be projects that do this. Activities in which the child can experiment with new and different materials, plastics, metals, and others open up the way for valuable experiences. A balance of both types is necessary. But to help make the child craft-minded in the home, using material and tools that are easily obtained is of greater importance.

Schools can help in another way. The attitude of the teacher toward work done at home sometimes has done much to discourage children. No one expects the perfection of workmanship to be as high when the child works alone as when he works under skillful guidance. The important fact, overlooked by so many teachers, is that the piece made at home is creative, original work, that it has involved planning and ingenuity in discovering materials and methods for developing the idea. The teacher can sometimes help by suggesting ways of improvement so that the child can take his work back home and make it better. An intelligent and understanding raising of the standards of home craftwork will keep the child interested. The home project often provides more real educational experiences than is apparent in the crude but original article that the child brings to school.

Whether or not the child continues to work at home will depend to a great extent, therefore, on the teacher's attitude toward his work.

The school should give credit for work done at home. Teachers should recognize the imagination, the planning, the effort, and the thought the child has put into the work. Schools might well exhibit home craftwork. These things the school can do to encourage children to work at crafts at home.

The Home Workshop

Building up the home workshop idea is also important. It is an easy thing to interest the children. It is a strange child, indeed, who is not interested in having a place of his own to make things. Selling the idea to the parents is sometimes more difficult. Many fail to realize the necessity for such a place for children to work. They object to the clutter, to the cost, to the danger, or to the noise. These points appear to be negligible. If there is a definite place for the child to work, a place where he may carry on his activities, then only one small section of the house need be involved. The child should be trained from the first to keep his workshop in order, to clean up after he is through working. The cost can be kept at a minimum.

The schools can help in keeping the cost of materials down. Teaching the children to reclaim and use secondhand materials, helping them to discover new uses for old materials, to use different materials for old uses, all will help in keeping down the cost.

There is a special type of satisfaction to be found in the construction of a worthwhile article from a seemingly worthless piece of material.

An old packing box or a discarded sturdy table can be made into an excellent workbench. Wooden boxes with lids hinged in place can be hung on the wall to make tool cupboards. Storage space can be provided on shelves under the workbench.

A few simple and inexpensive tools are necessary. A hand saw, a hammer, and a screw driver are already available in any home. Add to these a hand drill and a wood file and you have the essential tools for beginning woodwork. No tools are necessary for clay work. A potter's best



A home workshop does not have to be elaborate. Many of the essential tools are available in every home.

tool is his thumb. Tools for sewing are in every home. Metalwork requires special tools and equipment, it is true, but every parent faces the problem of choosing gifts for children that will be welcome and appreciated. Why not give tools? They will provide the child with endless hours of pleasure.

There are many pastimes far more dangerous than work in the home shop. Surely, thinking parents will prefer the risk of a cut finger to the danger of a bored child. They will prefer a prick or a scratch from a saw to the possible consequences of riding bicycles on busy streets or watching crime or sex movies. They will prefer any type of handcraft to the problems of delinquency which come when a child is bored or has nothing to do. The greatest danger in the home workshop lies in tools used. Too often adults think that children's tools should be play tools — dull and small in size. This is a serious mistake. Full-size, sharp tools in good condition are safe tools.

It is true that there is some noise involved in working with some tools. Normal children are bound to make noise in

any activity and normal children are active. It is then a matter of a choice. Do you prefer the noise of the drill or the hammer or do you prefer the blare of the radio, or the tussling around the house or the yells of cops and robbers or, "What shall I do now?"

The schools can help parents to see the real values in the home workshop idea. In Parent-Teacher Associations, through exhibits of homemade craftwork, and in conferences with parents, teachers can arouse interest in the home workshop.

Neighborhood Assistance

Recognition on the part of the school of the craft ability of people living in the neighborhood will do much toward encouraging handcraft in the home. No matter how poor or how rich the neighborhood, whether it be rural or urban, there is always an excellent craftsman to be found. It may be someone who weaves beautiful coverlets, a man who carves horses, a woman who dresses Czechoslovakian dolls, a grandmother who knits grand skating mittens, a mother who colors beautiful Easter eggs, an aunt who makes colorful suspenders, an uncle who builds wonderful ship models, a cousin who makes miniature airplanes — there are some in every school district. Bring these people into the school. They have much to give, and, upon approaching them, you will find them enthusiastic and anxious to share their beloved hobby with others. Through knowing people with genuine interests in handcraft, people who find much enjoyment in working at home, children become enthusiastic over the idea of home craftwork for themselves.

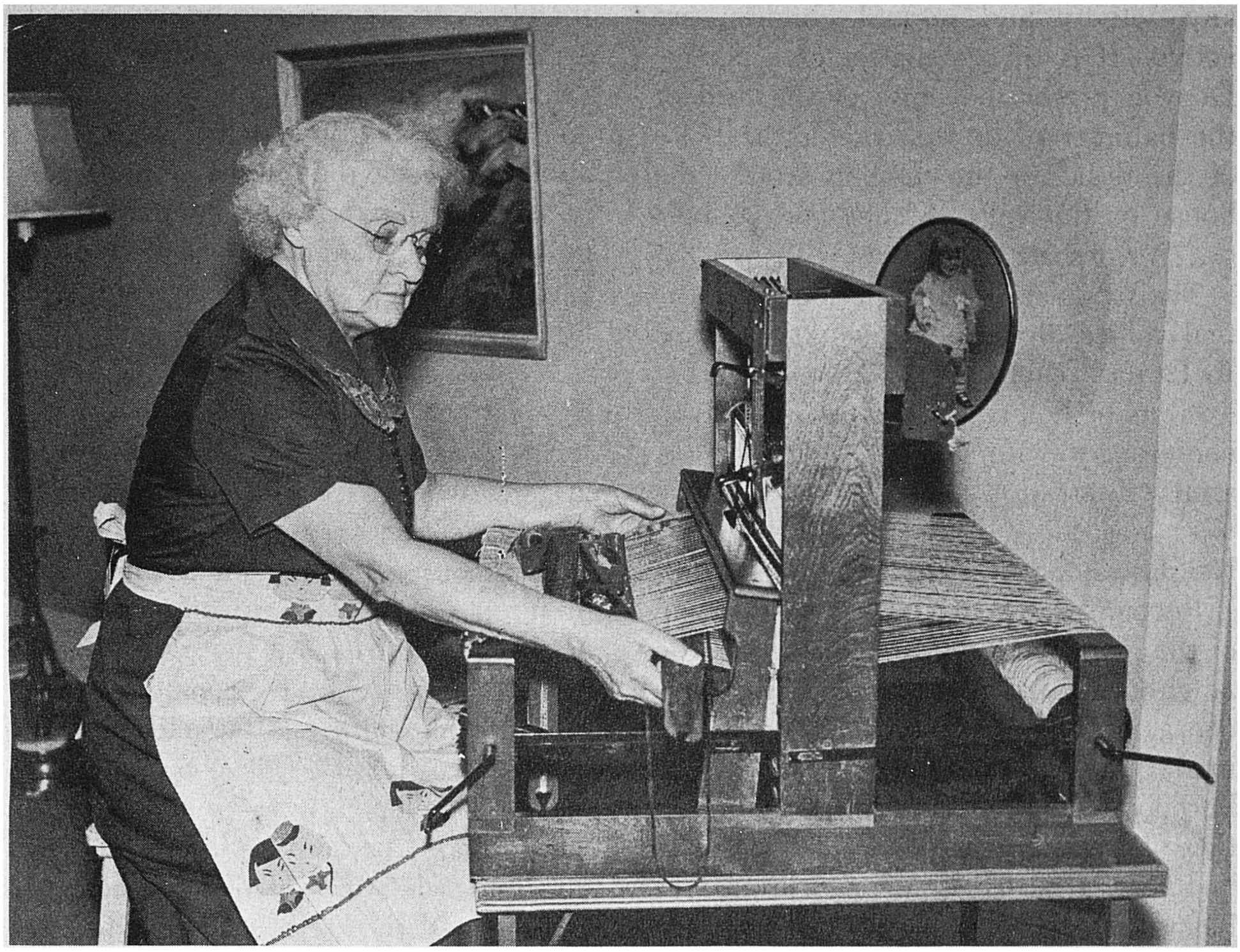
Exhibiting the handwork of the children's parents in the school arouses further interest. Children take great pride in exhibiting the talents of their parents; therefore, it is comparatively easy to arrange such a display. Planning the exhibit so that it coincides with a mass meeting of some type assures a good-size audience. Once the interest in handwork is aroused the start is well made. But unless there is immediate follow-up to keep the interest alive, the opportunity is lost.

Home Handcraft Groups

Teachers have sometimes been helpful in the formation of small handcraft groups which meet in homes of the members. These groups might be made up of children or adults. One ideal group is a mothers' and daughters' club in which mothers pass on to the girls interests and skills in homecrafts. Father and son clubs have equal merit. The companionship that is developed when a boy and his father share the same interests and enthusiasm, when they share long hours of handwork, is the kind that makes for lifelong ties of affection and respect. This sharing must be a give-and-take sharing with no dictation on the part of the parent.

But these clubs will not develop of themselves. Someone must take the initiative. Teachers are often the natural leaders to instigate the movement. By getting the interested persons together, by sharing enthusiasms and ideas, by discussing plans and gradually drawing in more interested people, the organization will wax and grow strong. If teachers are truly interested in the home activities of the children, they will seize upon opportune moments to instigate the formation of any group that will further these ends.

There are some activities that will be motivated by peculiar circumstances. An unexpected snowstorm might be the occasion for a modeling fete. Families in the neighborhood in striving to create unique



Elementary handcrafts lead to life-long hobbies.

snow figures would enjoy healthy exercise, friendly competition, and greater appreciation of all modeling.

A certain man once said the most memorable party he ever attended was the one where each guest was given a lump of clay and was told to model the head of one of the guests present. The success of that party stands out in his memory. He declares that it was the best entertainment for all concerned that he had ever seen provided. A few of these people became so interested that they have continued to meet once a week for over two years. From clay modeling they went on to soap carving and then to wood carving. Now at each meeting some member demonstrates a new step or shows a new article he has made.

SUGGESTED QUESTIONS AND ACTIVITIES

1. How does handcraft help the child in the home?
2. What types of materials and equipment are best for a child to use in his home?
3. Suggest programs for child-parent or child-neighborhood handcraft activities other than mentioned in Chapter 2.
4. Make a list of seemingly worthless materials which you would divert into interesting articles by handcrafts.
5. How can a teacher encourage handcraft interest and participation outside of school?
6. From your observation of children in their homes, what kinds of constructive activities do they enjoy?
7. Work out a plan for exhibiting projects children have made at home.

SUGGESTIONS FOR FURTHER READING

See bibliography on page 13.

CHAPTER

Classroom Organization and Administrative Considerations

The Handcraft Teacher

Obviously the teacher who has had experience and training in handcraft work and elementary art is the ideal person to conduct a handcraft program. However, since the program in its most elementary phases is not complicated, the training or experience need not be extensive. One of the purposes of this book is to explain handcraft procedures so simply that any teacher with little or no experience can conduct successful activities. The most important consideration is the enthusiastic desire of the teacher to help children satisfy their urge to work, learn, and play together constructively.

In the kindergarten and primary grades, handcraft activities are regularly accepted as a part of the teacher's work because handcrafts are an integral part of the program. Beginning about grade four, however, the children's interests and capacities for handcraft activities become more ambitious and present special problems to the teacher — problems such as equipment, supplies, arrangement of the room, and storage of incompleted work. In an effort to overcome such problems, some city schools have assigned special teachers to teach handcrafts. Far more common, however, is the practice of having each teacher — through grade six, at least — responsible for the handcraft program in her own room. The question concerning specialist handcraft teachers deserves additional comment.

Handcrafts have been described as both educational method and content. When the purpose of the activity is to reinforce other classwork such as a social studies lesson, it is an integral part of a learning program much broader than handcrafts alone. In such instances handcrafts are an activity phase of an instructional unit which is jointly planned and carried out by the class of children and their teacher. When the activity has as its objectives learning about crafts and craft materials or actually producing craft articles for gifts or for personal enjoyment, handcrafts may themselves be the unit of instruction. It is unrealistic, however, to assume that handcraft objectives are ever totally separate from other educational goals. Ideally, then, every elementary teacher should be wholly responsible for all handcraft activities engaged in by her class. She could thus insure a maximum of integrated learning. The same reasoning could well apply to art, music, and physical education — other areas in which specialists are sometimes employed. Regardless of whether the classroom teacher or a specialist is responsible for handcrafts, the classroom teacher must always be concerned with the program if it is to function optimally in the education of children.

As in the case of art and music activities, the elementary teacher may at times have need for assistance from a handcraft specialist. Some school systems provide for this through assigning industrial arts teachers and home economics teachers as elementary education consultants. Such people have command of technical information and facilities which will be of great help to the elementary teacher. As suggested by Newkirk,[1] however, it is well to keep in mind the objectives of handcrafts as somewhat different from the objectives of industrial arts and homemaking at higher grade levels.

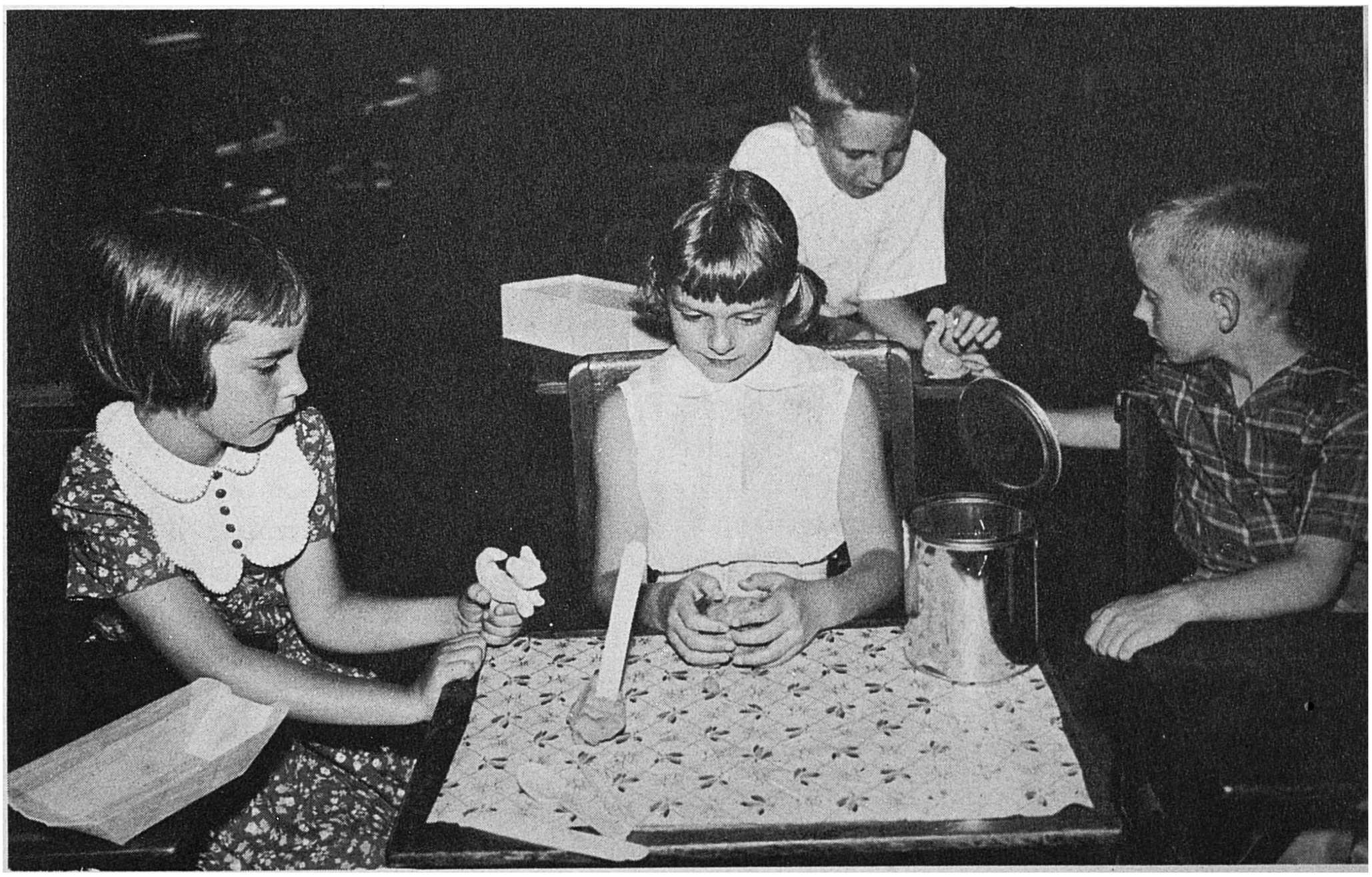
Arrangement of the Classroom

It is not necessary to purchase elaborate equipment or supplies to conduct a program of handcrafts. In the primary grades no equipment need be added. Ordinary tables are excellent for work with such materials as paper, cardboard, clay, and textiles. Even the traditional classroom seats which are screwed to the floor can be used effectively for many types of handcraft. The following simple suggestions have been found to facilitate certain handcraft work in the regular classroom:

1. Work with clay on tables and desks can be done without harm to the furniture if twelve-inch squares of oilcloth, beaver board, or cardboard are provided for each child. These are inexpensive, easily cleaned, and easily stored.
2. Pressed paper or wooden meat containers (available at butcher shops) and tin cans are easily available for storage of crayons, beads, clay, paste, and other materials.
3. Tin cans with covers will keep clay articles moist for many days.
4. Tongue depressors and wooden stirring spoons are excellent for spreading paste.
5. Shoe boxes and cigar boxes are practical means of storage for each pupil.

[1] Newkirk, Louis V., *Integrated Handwork for Elementary Schools.* New York: Silver Burdett Company, 1940, p. 12.

A piece of oilcloth, a covered can, a box, and wooden utensils make an ordinary desk into a work table.



Naturally, the handcraft program is limited by the facilities available; but facilities frequently are limited only by the teacher's lack of resourcefulness. Simple woodcrafts, for example, can be done on V boards (see page 163) clamped to a table, properly covered, of course, with oilcloth, cardboard, or newspapers. The addition of a metalworking vise (see page 215), which also may be clamped on the table, facilitates such further processes as drilling and filing. Excellent handcraft work has been done in schools with tools brought from home by children for the duration of a special project. Lack of physical facilities will be no deterrent to the resolute teacher.

Makeshift equipment, on the other hand, has numerous shortcomings. Desk tops may become scuffed or soiled. The table may wobble and cause a saw blade to break. Some processes done with improvised equipment are unsafe. Painting done in a place not designed for such activity is a constant invitation to disastrous results. Further, housekeeping becomes a major problem when books, maps, music, and other classroom paraphernalia are in too close proximity to hammering, sawing, and painting.

If the classroom is equipped with movable seats, a rearrangement of furniture might well permit establishing a craftwork center or corner in which may be concentrated all handcraft facilities. In such an arrangement an important piece of equipment is a good workbench equipped with a simple woodworking vise. Benches are available in different heights to suit the needs of children of various ages. A workbench is recommended for all types of simple work that involve the use of the large muscles, such as making a framework for a play store or greenhouse.

Tools for Use in a Classroom

The tools and supplies used in a handcraft program which is conducted in the regular classroom, of course, are dependent upon many factors such as the kind of craft activity, the number of children in the class, and the available space for craftwork. In the chapters of this book which give specific suggestions concerning the various crafts will be found lists of equipment and supplies from which selections can be made.

The following list of tools should be included in a craft center or corner that might be placed in the regular classroom.

Tool List for Kindergarten and Primary Grade Rooms

- 1 Workbench with vise
- 1 Handy saw, 12″ (for crosscutting and ripping wood)
- 1 Coping saw
- 1 Hammer, claw, 7 ounce
- 1 Ruler, 12″
- 1 Yardstick, 3 foot
- 1 File, 6″ half round, wood
- 1 Counter brush
- 1 V board

Tool List for Fourth, Fifth, and Sixth Grade Classrooms (in addition to tools listed for kindergarten and primary grade rooms)

- 1 Hand drill, ¼″ chuck
- 1 Set twist drills, ⅛″, 3⁄16″, ¼″
- 1 Carpenter's steel square
- 1 Try square, 6″
- 1 Screw driver, 6″
- 1 Center punch, 4″
- 1 C clamp, 4″
- 1 Brace
- 1 Set bits, ¼″, ⅜″, ½″
- 1 Countersink
- 1 Nail set
- 1 Pliers, side-cutting
- 1 Plane, 9″ smooth
- 1 Compass, pencil

A box or cabinet to contain these tools when not in use would be highly desir-



Above. In the traditional classroom handcraft activities may be concentrated in a handcraft "corner" or "center."

Below. "A place for everything and everything in its place" is a good rule for keeping handcraft tools and materials in order.



able. A specific place for each tool, properly labeled, would be ideal. A cabinet mounted on the wall is recommended. Such cabinets are available complete with tools.

In the regular classroom it is obvious that all the children cannot conveniently engage in the same craft activity simultaneously. For each child in a class of thirty to use a coping saw at the same time, for example, would require thirty saws, thirty V boards, and possibly thirty or more C clamps. Nor is it necessarily good educational practice to have every child do exactly the same craftwork. Through having various resources available, some children may work with clay or textiles while others are using the limited facilities for woodcrafts or metalcrafts.

The Special Handcraft Room

In the foregoing discussion it is apparent that a handcraft program in the regular classroom — particularly in the traditional room with stationary desks — presents problems, principally the problem of a place for children to work. Some schools have found it advantageous to provide a separate handcraft room to which children in grades four and above may go for handcraft activities. Planning the location of a handcraft room in a school is similar to planning the location of a music room or a gymnasium: consideration should be given to the relationship to classrooms. The noise of sawing wood, driving nails, and hammering metal, while perfectly appropriate in a handcraft program, can be quite distracting to classes engaged in reading or other traditional studies. In considering the equipment and arrangement of the handcraft room, the needs of all the children who will use the room must be taken into account. Planning the handcraft room, then, is a schoolwide problem.

The principal justification for a special handcraft room as opposed to having all handcraft work done in the regular classrooms is to provide a more adequate place for children to work. The handcraft room serves only as an extension of the classroom. To assure the sound functioning of the program, the handcraft room should always be thought of in that manner.

When a handcraft room is being planned for a new school building, it is possible to arrange for every conceivable need. When selecting a room for handcrafts in an old school, attention should be given to such things as electrical outlets, running water, and space for material and project storage. The picture on page 31 illustrates a traditional classroom which has been remodeled into a functional handcraft room. The floor plan on page 32 suggests facilities and arrangement for a newly constructed handcraft room.

Since a handcraft room is a place to work, the most important consideration is the number of work stations. There must be one work station for each pupil. A room that is to accommodate thirty-six to forty children must have thirty-six to forty work stations. The nature of the handcraft program will determine how many work stations should be available for each type of handcraft.

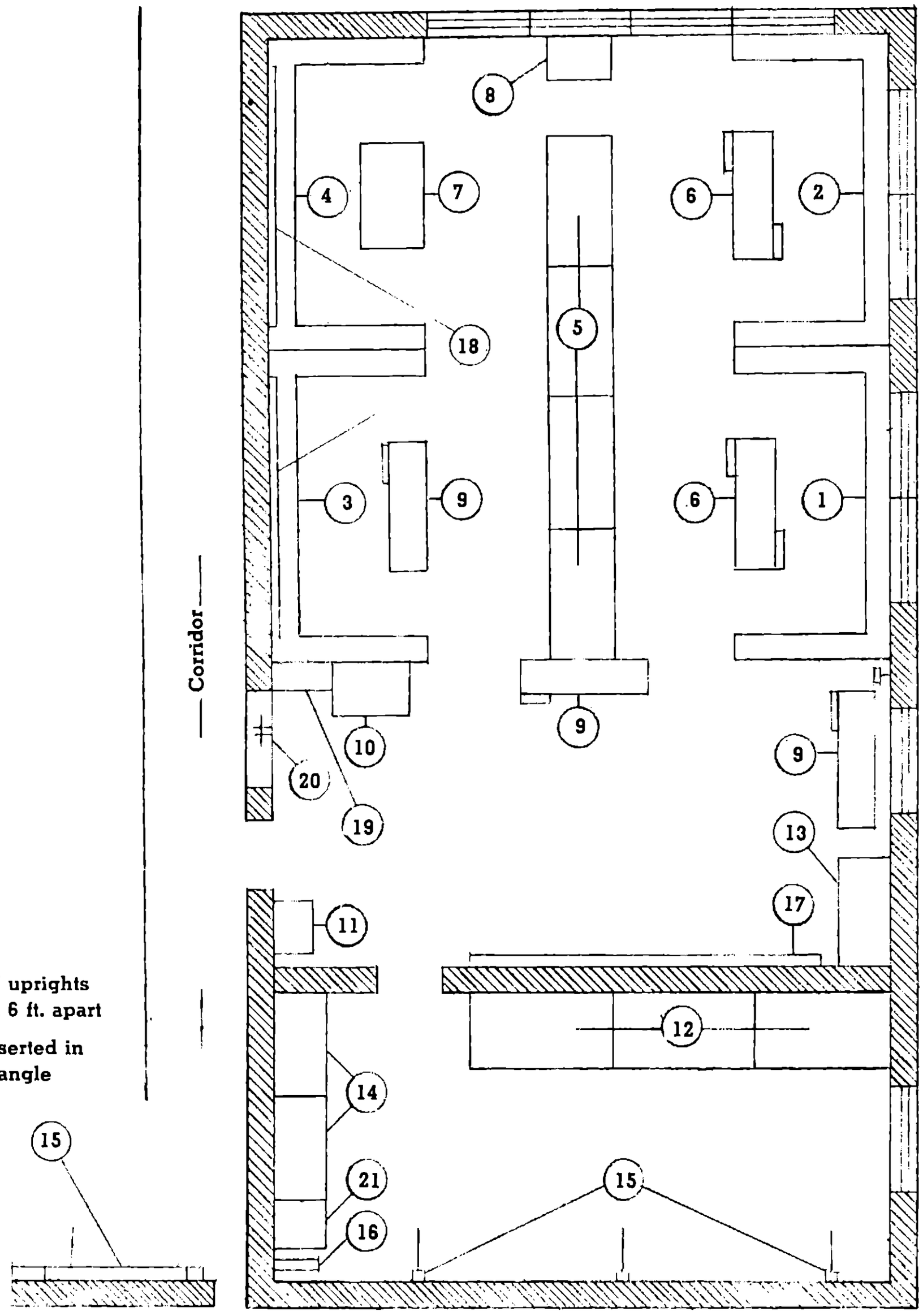
In some schools the work stations are arranged in craft cottages, each of which accommodates ten pupils. The cottages serve as workbenches. Four such cottages are placed in each handcraft room, representing woodcrafts, metalcrafts, ceramics, and decorating and painting. Tables in the center of the room are used for textile crafts. Each cottage is appropriately designated with an orna-



In the special handcraft room there should be a work place for each pupil.

HANDCRAFT ROOM

Cottage Plan Layout

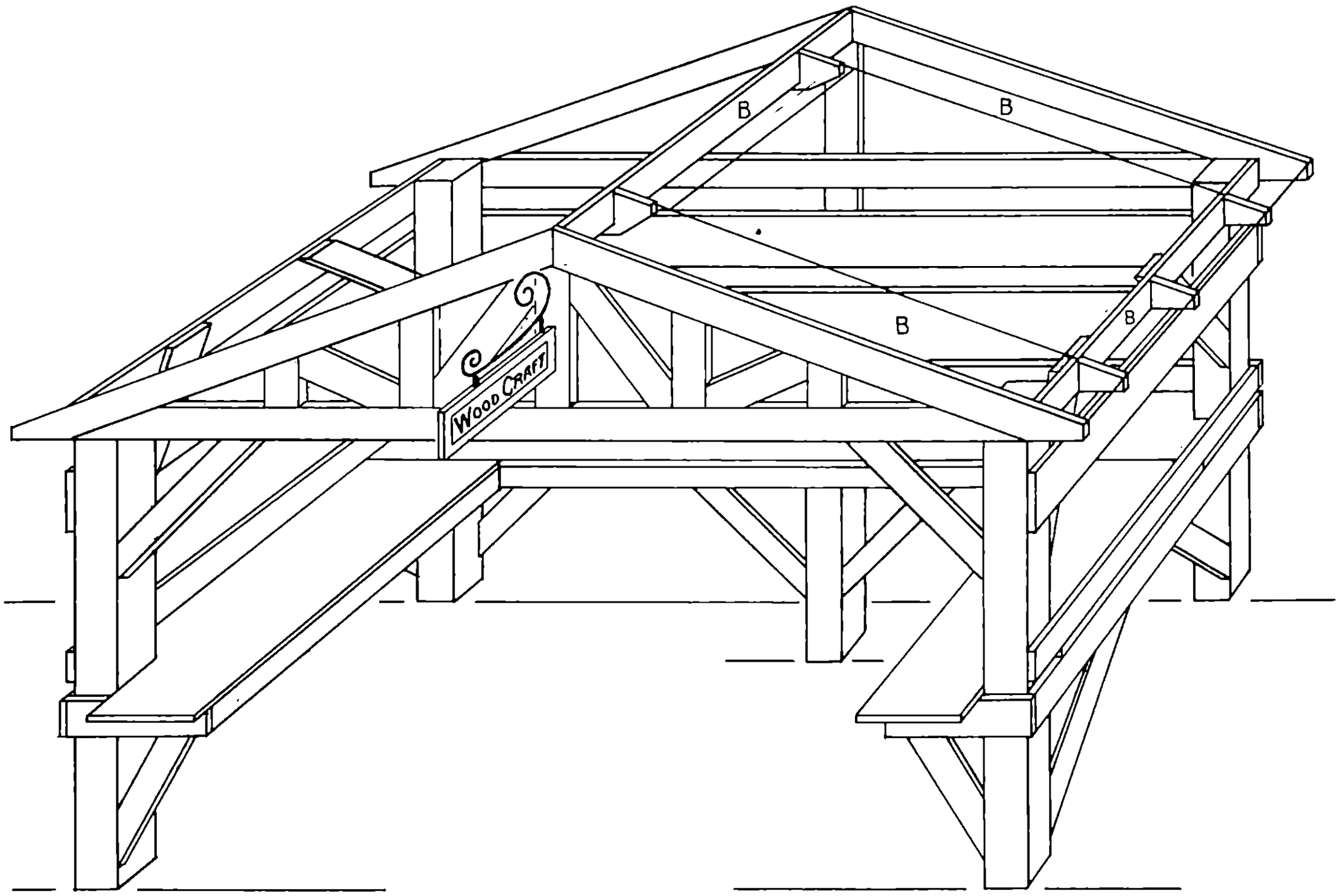


Lumber Rack

Three 4" x 4" uprights bolted to wall 6 ft. apart

Four pipes inserted in each upright angle

1. Woodcraft Cottage
2. Metalcraft Cottage
3. Ceramic Cottage
4. Finishing Cottage
5. Textile Tables
6. Two-Student Bench
7. Stain Cabinet
8. Sewing Machine
9. One-Student Bench
10. Teacher's Desk
11. Sink-Fountain
12. Project Storage
13. Tool Cabinet
14. Supply Cabinet
15. Lumber Rack
16. Ironing Board
17. Blackboard
18. Cork Board
19. Filing Case
20. Display Case
21. Teacher's Cupboard



Craft Cottage (10 pupils)
Size: 6 feet wide, 12 feet long
Bench height: 30 inches
Bench width: 12 inches. Line the inside of bench boards with 1¼" angle iron.
Lumber: All lumber ⅞" thick, except posts which are 3" square.
Roof: Open except for 5" strips of Masonite shown at B
Construction: All major parts fastened with screws
Paint: Two coats of brown on Masonite and wood parts

mental sign signifying the craft carried on within its area. Groups are rotated through the various cottages so experience may be gained with several crafts. The cottage plan appeals to the children. The cottages provide proper tools and equipment for each craft and a work station for each child, which simplifies classroom organization.

In other schools, workbenches and tables accommodate the pupils. This is a less expensive type of layout for a craft room.

Equipment for Handcrafts

In the following paragraphs general handcraft facilities for the handcraft room are discussed in some detail. It should be recognized that all the items are desirable but not entirely essential. Substitutions can easily be made for some, while others may be omitted without seriously affecting the program.

Workbenches. As mentioned earlier, benches are available in a variety of heights. They are also available in various styles, such as two-pupil and four-pupil

benches, with and without storage space beneath the working surface. A drawing is shown of a ten-pupil bench which can be manufactured by a local woodworking company. Benches should be fastened securely to the floor so as to prevent their moving during work.

Vises. Such operations as planing wood are difficult unless the work is held securely in a vise. Also, nailing pieces of wood together neatly and accurately is greatly facilitated if the pieces are clamped in a vise. Most satisfactory for woodworking is the regular woodworking vise which is built into a bench. A vise with eight-inch jaws costs from ten to fifteen dollars. The machinists' vise is satisfactory for holding small pieces of wood and for metalwork. This is the kind of vise the child is most likely to have at home. A machinists' vise with smooth, three-inch jaws costs from one to three dollars. For ten woodworking stations two or three woodworking vises are recommended; the balance of the stations may have machinists' vises.

Tables. Sturdy tables twenty-four to thirty inches high should be supplied for textile crafts, ceramics, plastic crafts, and similar activities. Ample table space to accommodate eighteen to twenty children should be provided for a class of thirty-six to forty pupils.

Stools. Every pupil should have a stool. A height of eighteen inches has been found to be most satisfactory. Rubber tips on the legs of the stools will help lessen noise in the craft room.

Storage cabinets and shelves. An orderly and accessible place to store tools, materials, and pupils' work is very important to the efficient conduct of a craftwork program. A separate cabinet (preferably metal) makes an excellent tool cabinet. This cabinet should have convenient shelves and should be supplied with a lock. A satisfactory size for such a cabinet is thirty-six inches wide, six feet high, and sixteen inches deep.

Built-in shelves in the cloakroom or in some other available space provide ample storage space for pupils' unfinished work. These shelves can be left open in the front. When divided off with partitions, many classes can have sufficient storage space. Wooden boxes, properly labeled, can be used for the storage of small articles. These boxes should be designed to fit into the partitioned shelves.

Paint cabinet. A cabinet for storing paints and stains is desirable but not absolutely necessary. A good cabinet can be made by a local carpenter. It should be table height and covered with tin plate or sheet zinc. A good size is eighteen inches deep, forty inches wide, and thirty inches high. Tin plate or sheet zinc lining and covering will make the cabinet safe for storing inflammable liquids. It will also make the cabinet easy to clean. A covered metal container twelve inches in diameter and fifteen inches high is recommended as a companion to the stain cabinet. It provides for the safe storage of rags which have become moistened with inflammable liquids.

Lumber rack. Some type of rack should be provided for lumber storage. Boards should be stacked one on top of the other so as to lie flat and to prevent warping. Various thicknesses of lumber should be kept separately. A simple lumber rack can be designed of three uprights from the floor to the ceiling and bolted to the wall. These uprights should be about four inches square and placed about eight feet apart. Pieces of ordinary water pipe, forced into holes bored into the uprights, provide the rack. These holes should be bored at a slight upward angle and spaced about fifteen inches apart. Pipe with about a one-inch outside diameter



A special cabinet for storing finishing materials is desirable.

and about fifteen inches long is recommended. The lumber rack should be placed in the cloakroom or in some convenient space in the building. A pair of ordinary sawhorses are convenient companions to the lumber rack.

Utilities. The availability of running water and electricity will simplify many handcraft problems. An ordinary sink with hot and cold water is satisfactory for work with clay, for soaking raffia, for cleaning water-color brushes, and so on. Electrical outlets are convenient for using electric woodburning needles and for supplying current for a hot plate.

Tools. The kinds and amounts of tools must be determined on the basis of the program to be conducted. The very best hand tools are the cheapest and most satisfactory in the long run. Power tools *have no place* in an elementary school, and only simple hand tools are recommended. The following list is suggested for a balanced program of handcrafts in a special handcraft room which will accommodate forty pupils. The list is comprised of tools for a varied craft program including work with paper, novelties, textiles, ceramics, wood, plastics, and metal. Many of the tools are used in all crafts.

Suggested List of Tools for a Handcraft Room

1 Bench drill (optional)
1 Bench shear (optional)
1 Bit, auger, ¼″
1 Bit, auger, ⅜″
1 Bit, auger, ½″
1 Brace, for bits, 8″ ratchet
10 Brushes, counter or bench, 7″
1 Can, oil
1 Can, oily waste, 12″ x 18″
1 Carpenter's steel square, 12″ x 24″
1 Chisel, wood, ¼″
1 Chisel, wood, ½″
1 Chisel, wood, 1″
2 Clamps, 4″ malleable
2 Cleaners, file, wire No. 2
2 Compasses, pencil
1 Countersink, rose
1 Cover, ironing board (optional)
2 Crocks, 4-gallon with cover
1 Dividers, 6″ wing
6 Drills, 1/16″
1 Drill, ⅛″
1 Drill, 3/16″
1 Drill, ¼″
1 Electric iron, pressing
6 Files, Swiss needle, cut 2, 5½″ long (12 files per set)
20 Files, half round wood, 6″
10 Files, half round wood, 8″
10 Files, mill smooth, 8″
20 Frames, coping saw
2 Hammers, ball pein, 4 ounce
2 Hammers, claw, 7 ounce
6 Handscrews, wood, 10″
1 Hand drill, ¼″ chuck
1 Ironing table, 5 foot
2 Knives, sloyd
1 Mallet, rawhide, 6 ounce
1 Miter box, 26″ saw (optional)
2 Nail sets, knurled
1 Oil stone, medium, 1″ x 2″ x 7″
1 Pad, ironing board
2 Pans, dust
12 Pans for water colors
2 Planes, 9″ smooth
1 Pliers, 6″ side-cutting
2 Punches, center
10 Rulers, metal, 12″
20 Rulers, wood, plain, 12″
1 Saw, crosscut, 9 point, 22″
1 Saw, rip, 7 point, 24″
10 Saws, handy, 12″
10 Saw frames, jewelers, 5″ deep
20 Scissors, 5″
1 Scissors, 10″ straight trimmer
10 Scratch awls
2 Screwdrivers, 4″
1 Sewing machine, foot operated (optional)
10 Tape measures, 60″ long
20 Tools, modeling
20 Try squares, No. 20, 6″
10 Woodburning needles

Supplies for a Handcraft Program

The amounts of supplies are dependent upon the number of students, the time allotted to the program, the kind and size of the projects, and the various activities selected for the program.

The following list is suggested for a balanced program of handcrafts in a special handcraft room which will accommodate forty pupils. The estimates are for one school year.

Suggested List of Supplies for a Handcraft Room

4 pints	Alcohol
12 doz.	Blades, coping saw
1 lb.	Brads, 1″ No. 16
1 lb.	Brads, ¾″ No. 18
1 lb.	Brads, ½″ No. 19
10 lbs.	Brass, 12″ squares, 18 gauge
6	Brushes, watercolor, sable, No. 12 (for shellac)
500 lbs.	Clay
As needed	Cloth, cambric, in colors
10 lbs.	Cloth, wiping
As needed	Cloth, flannel
As needed	Cloth, gingham
As needed	Cloth, lawn
As needed	Cloth, longcloth
As needed	Cloth, muslin
12 sheets	Cloth, emery #00
12 sheets	Cloth, emery #1
As needed	Oilcloth, black and white

1 jar each	Colors, tempera, as needed
10 lbs.	Copper, 12″ squares, 18 gauge
1 lb.	Cotton batting
1 box	Crayon, colored
1 pint	Enamel, various colors
1 pint	Glue, cold
1 yd.	Linoleum, ¼″
100 sq. ft.	¼″ Yellow poplar No. 1 K.D., S4S, 6″ wide or wider
100 sq. ft.	⅜″ Yellow poplar No. 1 K.D., S4S, 6″ wide or wider
100 sq. ft.	½″ Yellow poplar No. 1 K.D., S4S, 6″ wide or wider
1 lb.	Nails, various sizes
1 doz.	Needles, various sizes
10 lbs.	Nickel silver, 12″ squares, 18 gauge, cut 6″ squares
1 pkg.	Paper, construction, various colors
1 ream	Paper, tracing
1 pint	Paste, library
12	Pencils, various colors
6 boxes	Pins, common
1 each	Plexiglass or Lucite, red, blue, green, yellow, ¼″ x 12″ x 24″, ⅛″ x 12″ x 24″
As needed	Red gumwood in ¼″, ⅜″, and ½″ thicknesses and in desired widths
12 each	Rods, dowel, ¼″
12 each	Rods, dowel, ⅜″
12 each	Rods, dowel, ½″
6 each	Rods, dowel, ⅞″
10 each	Rug, roving, various colors
20 sheets	Sandpaper, No. 00
20 sheets	Sandpaper, No. 0
20 sheets	Sandpaper, No. ½
20 sheets	Sandpaper, No. 1
As needed	San silk, various colors
1 box	Screws, wood, various sizes
1 gal.	Shellac, white
5 lbs.	Steel wool, No. 000
2 spools	Thread, various colors
10 yds.	Toweling, crash
10 yds.	Toweling, huck
1 qt.	Turpentine
As needed	Warp, in colors
1 lb.	Wax
As needed	Wool, chain, in colors
As needed	Yarn, in colors

Fitting Handcrafts into the Schedule

When the handcraft program is under the complete direction of the classroom teacher, the amount of time devoted to handcrafts is dependent only upon the over-all educational objectives for the particular grade. Generally, younger children will be given more time for activities because their span of attention to reading materials is somewhat less than that of older children. Care must be taken by the teacher to see that time for the handcraft program is in appropriate balance with the time devoted to the rest of the school activities. It is easy to make the mistake of allowing children to spend undue time on handcrafts. On the other hand, sufficient time should be allowed to permit the children to enjoy the satisfaction of completing the projects started. In the following chapter of this book is a discussion of the selection of appropriate projects.

Because of the attendant distractions of handcraft work, it is generally not advisable to permit part of a class in the same room to work at handcrafts while the rest of the class engages in some other study. Better, have all the children enjoy their craftwork at the same time. In the regular classroom, following that procedure permits putting away books and papers and shifting classroom furniture as necessary to facilitate handcraft activities.

It is impossible to say here, in terms of minutes per day or days per week or year, just how much time should be given to any phase of the elementary school program. It is suggested, however, that the teacher should discuss this problem in detail with her supervisor or principal before making definite plans for handcrafts.

Where a separate handcraft room is used instead of the regular classroom, the problem of scheduling is somewhat different. If there is a special teacher, classes may be scheduled for handcrafts just as they are for music, physical education, or other subjects in a departmentalized program. In such situations it is strongly recommended that the classroom teacher accompany her class to the handcraft room and participate with the children in the activities. Not to do so would seriously lessen the possibilities of properly relating the handcrafts to other classwork. The special handcraft teacher is an extension or supplement to the elementary teacher just as the special handcraft room is only a supplement to the regular classroom.

A successful scheme for using the handcraft room when a special teacher is not employed is for each teacher to take her class to the room as occasion warrants. Arrangements, of course, must be made with the principal in advance so as to avoid conflicting schedules. Also, each teacher must be held responsible for seeing that the room is left in good order with all tools, supplies, and unfinished work properly put in assigned places.

Classroom Procedures

Because an activity program involves such a variety of activities, it has been found advisable to establish a definite procedure to be followed each handcraft period. Children readily see the necessity for rules governing the period, and the skillful teacher should have little difficulty in drawing from her class a satisfactory procedure. The following routine which was planned by one teacher and her pupils has been found very workable:

1. Upon entering the craft room, boys and girls occupy assigned seats.
2. Tool inspectors check to see that all tools are in proper places.
3. The teacher gives general instructions to the class.
4. Monitors pass out work to each pupil.
5. Groups go to work, and teacher gives individual and group assistance as needed.
6. At given signal, all groups clean benches, replace tools and materials, and prepare incompleted work for storage.
7. Monitors group all projects for storage.
8. Pupils return to assigned seats.
9. Tool inspectors check to see that all tools have been replaced.
10. Class is dismissed.

Children enjoy sharing in the responsibilities of managing the craft room and in keeping it orderly. An ideal procedure for starting and ending the activity session would be one in which every child has a prescribed assignment. Operated properly, the classroom procedure can well be an important educational experience, for certainly such things as learning to give and take directions, to assume responsibility, and to work cooperatively with others are worthy educational goals.

Financing the Program

Handcraft facilities — the room and its equipment — like other educational facilities, should be furnished by the school. There are differences of opinion, however, concerning responsibility for the cost of supplies which are consumed by children in making articles which they themselves may keep when completed. Actually the cost of supplies consumed by an individual pupil is relatively small. Purchases are usually made in large quantities and the children use only small amounts.

Teachers who urge that the school should pay all costs of a handcraft program argue that more than the cost is saved in avoiding record keeping. They

Pupil monitors are of great assistance in helping check tools and materials, and in storing unfinished work in proper places.

PURCHASE REQUISITION

BOARD OF EDUCATION

CLEVELAND

PURCHASE ORDER No. _____

REQUISITION No. H 2888

DATE _____ 194__

DATE ISSUED _____ 194__

ITEM No.	QUANTITY	DESCRIPTION
	100 bd. ft.	1/4" Yellow Poplar #1-2 K.D. - $25
	100 bd. ft.	3/8" Yellow Poplar #1-2 K.D. - $25
		Recommend Hinchcliff Lumber Company

SCHOOL OR DIVISION: Dunbar School

ACTIVITY: Elementary Handicraft

BUDGET ACCOUNT: 6421-3

JOB NUMBER:

THIS SPACE FOR THE BUREAU OF PURCHASES

REMARKS

APPROVED BY _____ ISSUED BY _____

FORM NO. 6 600 PADS 10-48 STOCK NO. 3643

Left. A requisition for supplies

Below. An inventory form

CLEVELAND PUBLIC SCHOOLS—DIVISION OF INDUSTRIAL ARTS

School _____ *Instructor* _____ *Inventory-Elementary Craft Rooms*

EQUIPMENT	Date	Date	Date	Remarks
Bench Shears				
Benches—2 Student				
" —10 "				
Bits, Clark Expans.				
" Dowell 1-4"				
" " 3-8"				
" " 1-2"				
Brace, for Bits, 8"				
Brushes, Counter 7"				
Cabinet, Stain				
Cans, Oil				
" , Oily Waste				
Centerpunch				
Chisels, Wood 1-4				
" " 1-2				
" " 1"				
Clamps, 4" Mall.				
Compass, Pencil				
Cottages				
Countersink, Rose				
Crocks, 4 Gal				
Drill, Bench No. 9				
" , Hand				
Drills, 3-16"				
" , 1-4"				
" , 1-8"				
" , 1-16"				
Files, Needle Hf. Rd.				
" " , Equal.				
" " , Flat				
" " , Knife				
" " , Round				
" " , Square				
" , 6" Wood				
" , 8" "				
" , 8" Rd. Wood				
" , 8" Metal				
Frames, Coping Saw				
" , Hacksaw				
" , Jeweler's Saw				
Gauges, 3-8"				
" , 3-4"				

EQUIPMENT	Date	Date	Date	Remarks
Hammers, Ball Pein				
" , Claw				
Ink Brayer, 4"				
Ironing Board				
Iron, Electric				
Knives, Sloyd				
Linoleum Block Tools				
Mallet, Rawhide				
" , No. 0 Wood				
Mitre Box				
Nail Set, Knurled				
Oilstone				
Planes, 9"				
Pliers, 5" Flat Nose				
" , 5" Rd.				
" , 5" Side Cut				
Rulers, Metal 12"				
" , Stanley 12"				
Saws, 22" Cross Cut				
" , 12" Handy				
" , 24" Rip				
Scissors, 5"				
" , 6"				
Scratch Awls				
Screws, Handscrews				
Screw Drivers				
Square, Carpenter's				
Stools				
Tape Measures, 60"				
Tin Snips, 10"				
Tools, Modeling				
Try Squares				
Vises, 3" Jaw				
Wood Burning Needles				
Wrenches, Monkey 8"				
Miscellaneous Tools				

BOARD OF EDUCATION
Cleveland, Ohio
Industrial Arts
RECEIPT for Supplies

Date

Project

Amount .....

Pupil .....

L 82902

Board of Education
Cleveland, Ohio
Industrial Arts
OFFICIAL RECEIPT
For Supplies Used in Making

Project

Amount

Pupil

Teacher

L 82902

A receipt for supplies purchased

also suggest that children who cannot afford to pay for materials need not be embarrassed. Those who feel that each child should pay for his own materials suggest that the child's interest and appreciation is increased because he has an investment in the material, no matter how small. Perhaps both are right. Certainly for class projects such as dioramas and puppet shows, all costs should be borne by the school. For the more elaborate articles children may make for themselves or for gifts to their parents — a hooked rug, for example — the cost might properly be charged to the child. In order to avoid possible difficulties in this regard, it is well to establish rather specific regulations concerning handcraft supplies.

In most schools the teacher is required to keep accurate records of materials and particularly of any money involved in the handcraft program. The requisition, receipt, and inventory forms shown on these two pages were developed by one school for this purpose.

Perhaps the simplest and best way to handle the cost of larger individual projects, such as the hooked rug mentioned, is to have the child bring the materials from home. Salvaged materials — remnants of cloth, for example — will lessen the cost slightly, but their use is not generally advised because such materials often are not satisfactory for children's activities.

SUGGESTED QUESTIONS AND ACTIVITIES

1. What is the most important consideration of the beginning handcraft teacher?
2. How do objectives of elementary handcrafts differ from the objectives of higher level Industrial Arts or Homemaking?
3. Prepare a list of equipment for a handcraft program in your own classroom.
4. List the minimum of equipment needed for a handcraft room in your school.
5. How can limited facilities be made to serve larger groups?
6. Justify the special handcraft room.
7. List the general handcraft facilities for the special handcraft room.

SUGGESTIONS FOR FURTHER READING

See bibliography on page 13.

WERTON TRAINING COLLEGE
MADRAS

CHAPTER

General Suggestions to Teachers of Handcrafts

What Shall Be Constructed?

In the following chapters will be found many suggestions for handcraft projects which children will enjoy making. In the pages that have gone before, the principal educational bases for handcraft activities have been presented. The purpose here will be to suggest procedures for joining the philosophy of handcrafts with the actual making of things by children.

In general, there are two types of projects: those made by an individual pupil, and those made by a class of pupils or a group of pupils within a class or school. Typical individual projects are such things as a toy, a lapel pin, an apron, or a vase — things that the child can take home and use. Group projects are those in which a group of children or the entire class work together to produce a finished project. A diorama for the classroom, a Noah's Ark, or the toy village described on pages 209–210 are typical group projects.

A group project such as a diorama or a classroom greenhouse offer great socializing values, but they are lacking in one important respect — they usually do not result in some tangible thing a child can take home. A compromise can be effected in such group projects, however, if individual children make pieces such as the animals in a circus parade. It is a group project when assembled for display, but the separate parts have the characteristics of an individual project.

The following criteria are suggested as guides in considering the selection of projects:

1. So far as possible, is the project the choice of the children?
2. Have the individual differences of the children been considered?
3. Is the project of real interest to the pupil or pupils?
4. Will the making of this project satisfy the child's desire for manipulation and play?
5. Does the making of the project take into consideration previous experiences in handcrafts?
6. Does the project offer opportunities for growth in handcraft ability and understanding?
7. Are the tool techniques within the range of the pupils' ability?
8. Can the project be completed within the available time?
9. Can the project be correlated with other class activities?
10. Is the project of value to the entire group rather than to only a few who actually participate in the construction?
11. Can the project be constructed with the available facilities?
12. Can the needed materials and supplies be obtained?

If the answer to each of the above questions is in the affirmative, the teacher can be reasonably sure that a good project has been selected.



Instruction in how to use tools is given as needed.

So far as reasonable, the children should be permitted to make their own choices of the projects they wish to construct. However, guidance is necessary here as in all teaching. Children have "big eyes." They have exaggerated ideas of their own abilities. They envision the finished project gilded with beauty before they ever take a tool in hand. In the lower grades it is best to consider projects that can be completed in not more than three handcraft periods, because the interest span of young children is relatively short. When children choose to make projects that are too difficult or too time consuming, the teacher must guide them into other choices. This is not depriving the children of freedom of choice; it is guaranteeing them satisfactory results. The child who achieves a high degree of workmanship with a simple project has gained more in skill and in interest than the child who has made a failure of a job that was too difficult for him.

Another factor to guard against is the desire of the child to continue working with certain tools and materials simply because he has enjoyed the satisfaction of doing a good job with them. He should be led to work with other tools and materials and on projects of increasing difficulty. This does not mean that a child who is proficient in modeling with clay should be denied the privilege to work in clay but that he should be led to work with other materials as well.

Analysis of Tool Processes

The tool processes involved in the construction of a project should be carefully analyzed. Having materials ready-cut to size, e.g., strip lumber or other pieces for woodworking projects, will simplify the work for little children. First graders will be able to make a top 2″ x 2″ with a ¼″ dowel, for example, if furnished with ¼″ x 2″ strip lumber and ¼″ dowel rod. For the tool processes then involved are only:

1. Sawing off a 2″ piece from the strip lumber
2. Filing and sanding the pieces
3. Drilling a ¼″ hole through the center
4. Cutting off 2½″ of ¼″ dowel rod
5. Sharpening the end in the pencil sharpener
6. Pushing the dowel rod through the hole

A suggestive chart for woodcraft tool processes for different grade levels is shown below. Similar charts are given for the other crafts in the respective chapters. The teacher must consider that any beginner, regardless of age, must begin with the simple tool processes and proceed with practice to the processes requiring more skill.

The processes listed for each grade include all the processes listed for previous grades. Thus the tool processes listed for grade six is a composite of all the processes listed for grades one, two, three, four, five, and six. If handcraft activities are not introduced until the fourth grade, the processes listed for grades one, two, and three in the charts would be covered in grade four as well as the processes listed for grade four.

Standards of techniques should increase with each year of work. The sawing and filing done by second grade children should be less crude than the same processes done by first grade children. The average fourth grader should do rather fine work after three years of practice. The teacher must continually strive for higher degrees of perfection in craftwork. Children should have examples of good work before them so that they can compare their own work with that of better craftsmen.

Beginners will require much individual help from the teacher, but they should

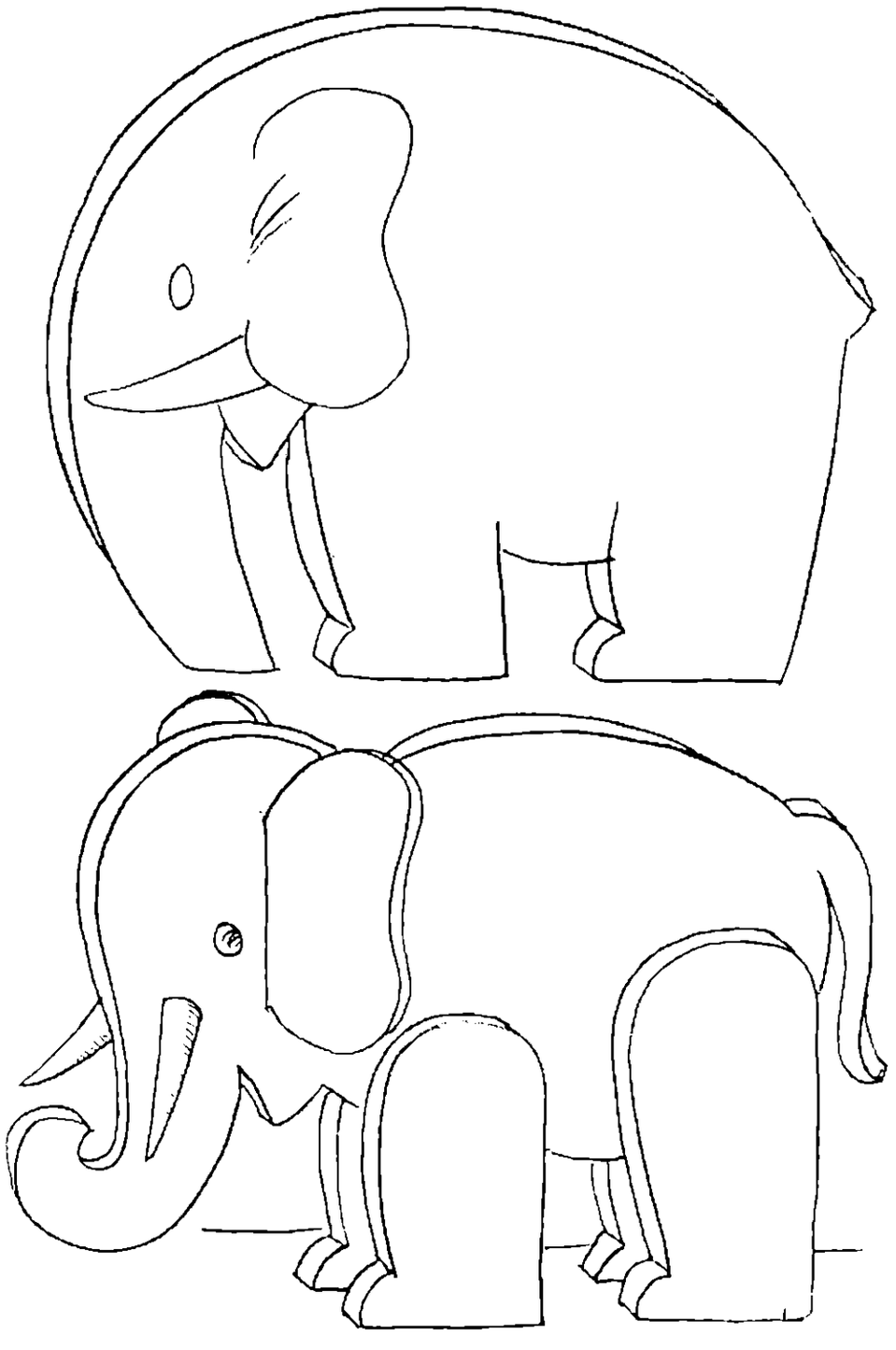
Grade Placement of Tool Processes in Woodcraft

GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Coping saw (simple curves) Filing Sandpapering Drilling (hand drill) Crayoning Shellacking	Processes in preceding grade Tracing Measuring Gluing Nailing Sawing (handy saw) Woodburning	Processes in preceding grades Coping saw (more intricate curves) Screwing Cutting wire with pliers Finishing Tempera painting	Processes in preceding grades Coping saw (detailed work) (inside cuts) Boring (bit and brace) Countersinking Squaring a line Carving (sloyd knife) Enameling	Processes in preceding grades Coping saw (side of blade) Cutting with tin snips Sawing (miter box saw) Waxing Varnishing	Processes in preceding grades Coping saw (scroll work) Planing edges

learn to work independently as soon as possible. The performance of each new tool process should be carefully supervised until the child and the teacher are confident of his ability to proceed alone.

Complexity of Design

The complexity of the design is another factor that must be considered in choosing the project. A suitable project for beginners must be simple in contour and made of few parts. In woodcraft projects the outline shape must have no thin projections that might break or split in the sawing or filing processes. For example, an elephant might be so designed as to make a very simple project for beginners. The elephant shown in the first drawing below would be an easy toy for children in the first or second grade to make. It is cut from a single thickness of wood and the contour is an incomplete circle with very simple breaks for the legs and trunk.



The next drawing shows an elephant cut from nine pieces of wood. The body is made of ½″ wood. The ears are made of ¼″ wood and they are fastened at right angles to the body. The tusks are made of ¼″ dowel rods sharpened at one end and glued into holes bored at a 45° angle. The legs are made of ⅜″ wood. The curling trunk and thin tail offer problems in sawing and filing. This toy would be suitable for children in the fourth grade.

Most projects can be simplified in contour, size, number of pieces involved, or type of finish. It is this element of design — simplicity — that must be carefully considered in the selection of projects.

Grade Placement of Projects

In each of the chapters of this book pertaining to the various craft materials is a chart in which the grade placement of typical projects is suggested. (See pages 63, 108, 141, 177, 241, 284, and 304.) As in the case of the tool process chart, if handcraft work is first done in grade four, the children should begin with the processes suggested for the preceding grades. The suggestions given in these charts must be interpreted to fit the needs of each class, the equipment available, and the time available for craftwork. Obviously a child in the fourth grade doing first grade work would advance much more rapidly than a child in the first grade doing the same work.

Group or Class Projects

Group projects are those in which a group of children or the entire class work together to produce a finished project. The circus parade mentioned before, a miniature farm, a doll house, an Indian village, a Noah's ark, toys for a children's

hospital at Christmas time, and favors for a school party are considered group projects. They may be made by several children in a cooperative endeavor.

Projects such as these are a very desirable phase of craftwork. There is no question that children derive much satisfaction when they work on a project alone, but there are many factors in group work that cannot be found in individual work. Planning together toward a desired outcome calls for cooperation, consideration, and a realization of interdependence. A group project requires the individual to give of his time and effort toward an outcome that will be shared by many. Children need to learn this to work together understandingly. The choice of group or class projects must be governed by the same factors as those suggested for choosing individual projects, but three of the criteria are of special importance: (1) the possibility of correlation with other studies; (2) the value of the project to the entire group; and (3) the manipulative and play instincts common to the group.

Group projects often may be correlated with the social studies, science, or reading lessons of the group. These studies open rich fields of ideas for projects. The construction of the projects adds interest to the study and the study furnishes the ideas, designs, details, and motives for the group project. For example, a class of children studying the Indians of the Southwest will read with greater interest when they wish to know how to build a miniature home, how to dress an Indian doll, what animals to show in an Indian village, or what to use for a background for an entire Indian diorama. Likewise the project will be one of finer design and greater authenticity when it lies within the interest and the knowledge of the group.

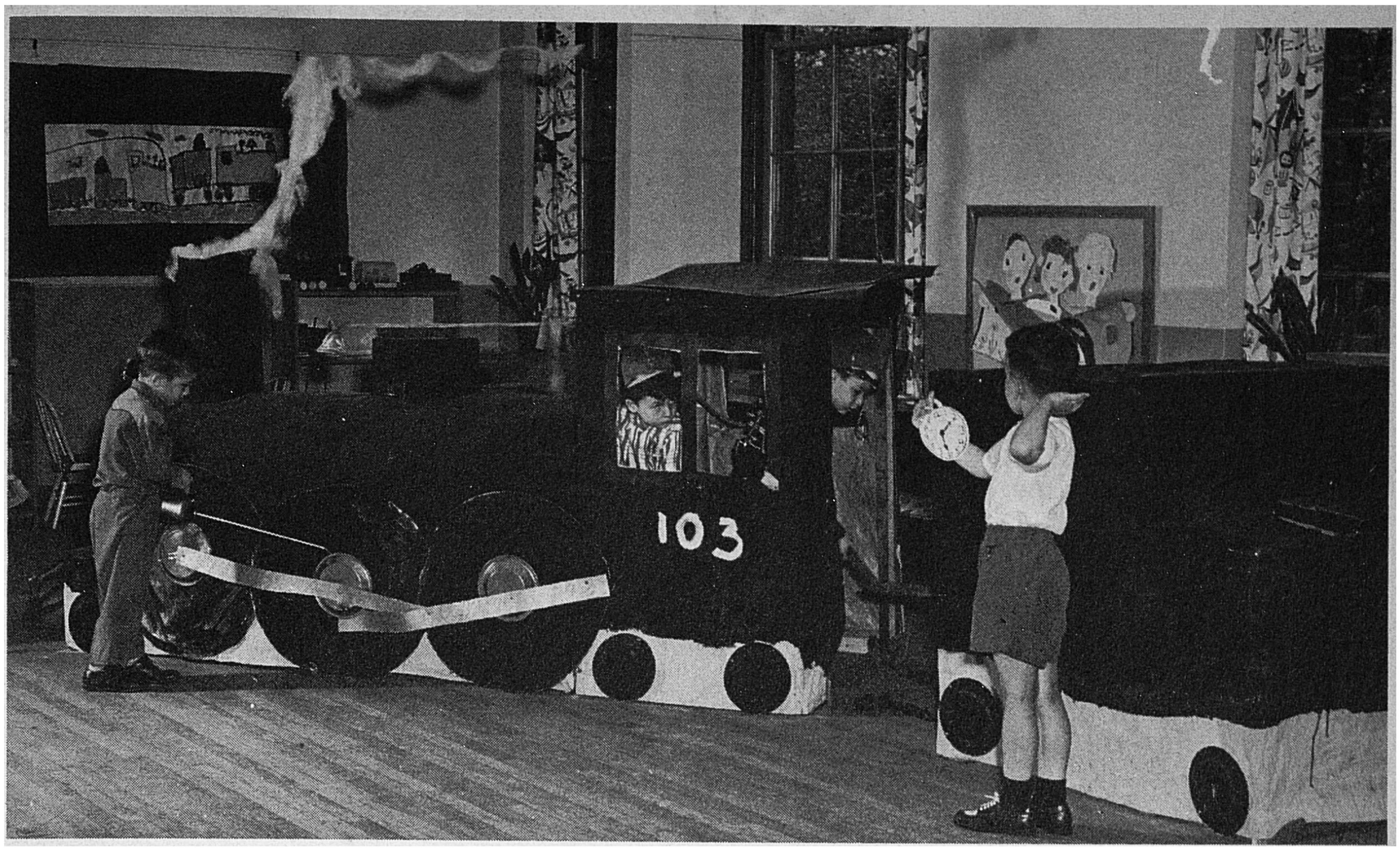
This simple question asked by the teacher, "What can we make to show that we understand what we have been reading and studying?" will bring a more excited response from the class than almost any other question she can ask. The first answers may offer crude, impossible suggestions. But children are critical, and, as they continue to discuss the possibilities of a group project, they will sift out the good ideas from the poor. The teacher frequently must contribute her own ideas for their consideration. She must lead the children to make sensible decisions. If necessary she must exercise her power to veto.

Group or class projects should be selected and constructed with at least one of several purposes in mind.

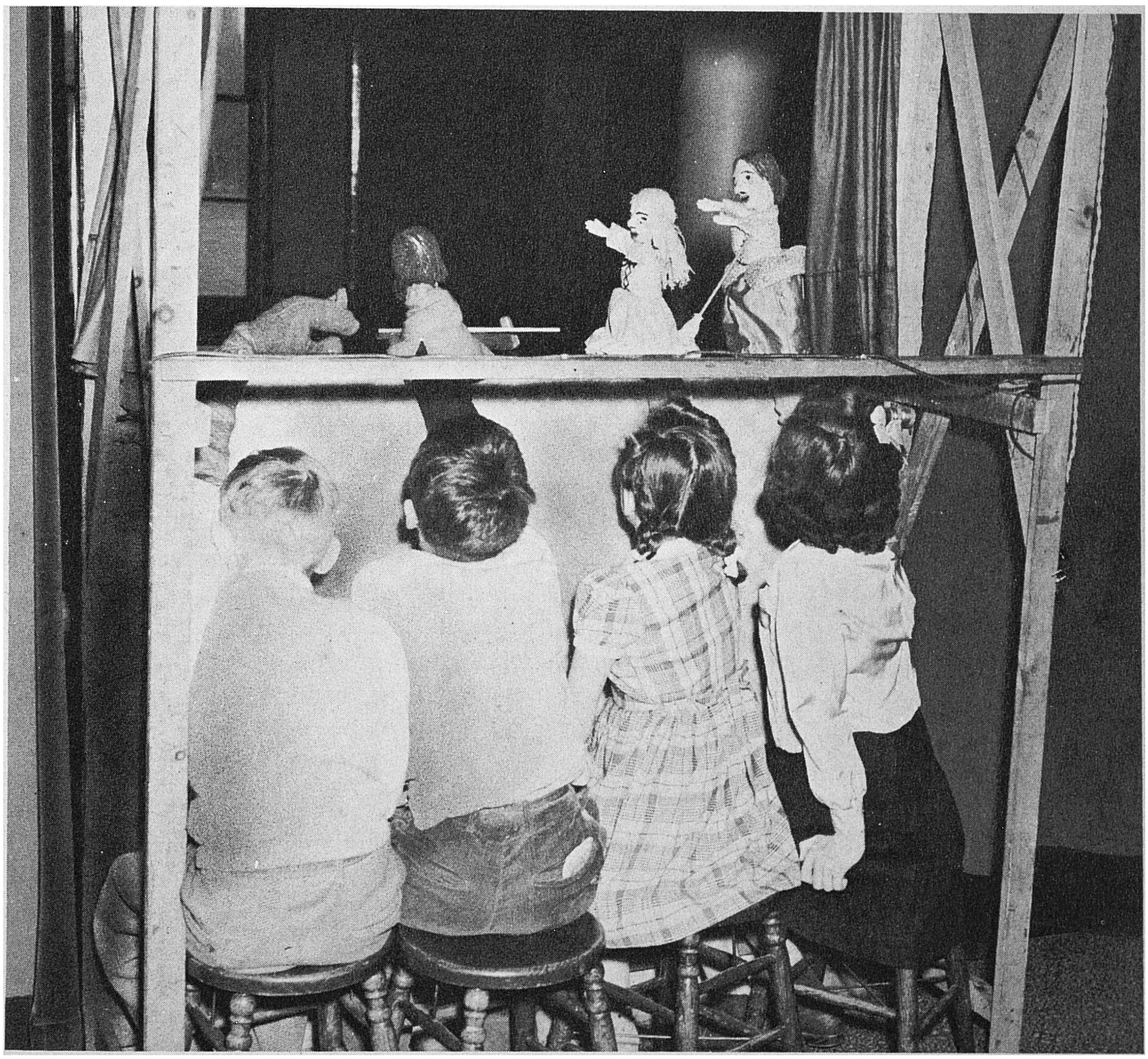
1. To teach children to work together for a common cause
2. To add to and to clarify the knowledge gained in book learning
3. To furnish an outlet for expressing the ideas gained in the study of science, social studies, or reading. Handcraft affords a concrete expression of the abstract.
4. For pure enjoyment

And the last is not the least. To teach children to enjoy a hobby or worth-while activity is to teach them to make good use of leisure time.

The completed project that affords opportunity for play is of greater value than one that can only be displayed. A toy village with movable cars lends itself to the practice of safety lessons. Rearranging the houses, streets, trees, and people offers a chance for better planning. The miniature post office that will serve as a stage set for the dramatization of a post office story is an educational aid. The puppets and stage that can be used to entertain another class serve a threefold purpose. First, they are an expression of



Group projects that afford opportunity for play are of greater value than articles that can only be displayed.



the ideas and a result of the work of one group. Second, they convey the thoughts and ideas of the manipulators to the audience. Third, they furnish amusement and entertainment for the audience.

Never construct a project for exhibit purposes only. Let the children play and manipulate the things they make. A well-worn, battered project is a sign of continued interest on the part of the children. It shows that it has been used — used to advantage. The project is for the group. The group should plan it, make it, evaluate it, and use it.

Arousing Interest in Projects

Children's interests must guide the selection of the project. However, their interests are easily aroused, and the clever teacher can find many ideas for articles that will stimulate the children's enthusiasm. Children are so keen to use the tools and construction materials that most of them will be anxious to start on the first project they see.

Little children are particularly interested in the making of toys, such as single-thickness animals, simple applied-parts toys, boats, tops, trains, snow men, and cowboys. Older boys and girls like to make more complicated toys such as dolls, puppets, Dancing Dans, sailboats, action toys, carts, and wagons. At Christmas time their thoughts turn to gifts and they are interested in making any object that they feel will be of use or interest to their parents. Book ends, doorstops, boxes, trays, wall shelves, pin-up lamps, plaques, and table decorations satisfy the children at this time. Whatever the project may be it should be one the child truly desires to make.

Often reading, geography, history, or science lessons of the class will suggest the article to be made. A scrapbook or a file of sketches, drawings, photographs, or advertisements of possible projects will serve as a constant source of ideas. Children can be encouraged to add to the collection. Books on handcrafts furnish another source for obtaining ideas. The toy departments at Christmas time are a wealthy storehouse of toys that can be reproduced in a simplified form.

There are many ways to present the choice of projects to the children. Each teacher will no doubt have her own ideas for arousing interest and for creating a desire in the children to begin the construction of certain projects. However, it might be of help to suggest several ways that have proved satisfactory.

Perhaps one of the simplest methods to get children interested in making projects suited to their ability and to the materials and tools on hand is to set up a display of such articles in the classroom. These should be well made, colorful, and attractively displayed. A display of this type might be arranged in one of several ways. The teacher could make two or three of the articles herself. There need not be many in the group. (It is always wise for the teacher to make a project before attempting to teach children how to do so, unless the teacher is an expert in the field of handcraft.) Many art museums have lending exhibits of wooden articles, metal articles, textiles, dolls, and toys. Sometimes it is possible to buy samples of the projects or to borrow them. If the actual projects cannot be obtained for display, pictures or drawings of them may be shown. For example, the pictures in this book will interest children.

It is the exceptional child who will not be interested in a small, but well-planned exhibit of a finished article or two, especially if the exhibit also includes the tools and the materials. The suggestion is evident: "Here is the material; here are the



"What can we make to show that we understand what we have been reading?"

tools. You can make one of these attractive projects."

Many teachers are adept at leading class discussions. Leading children to discuss their own abilities in the craft desired and considering the materials and tools they have available, the teacher would then list the projects the children consider possible in the light of their discussion.

All children are interested in movable toys. There will never be any difficulty in interesting them in a top that spins, a puppet that jigs, a boat that sails, a doll that stands, a lawn figure that nods its head, or a wagon with wheels that turn. Just make one of these toys perform in front of the children and you will have their immediate attention. Explain to them how they can construct a similar toy with the tools and materials on hand and you will have all the interest you can manage.

Design of Projects

After a possible project has been decided upon there are several ways to obtain patterns. The most desirable way from the standpoint of developing creative ability is to let each child design his own. However, this is time consuming and does not always yield the best results.

Searching for patterns in craft books and magazines will often prove worth while. These can then be traced. Many times a design or drawing found in an art magazine or coloring book can be adapted or changed to meet the needs of the child. The art teacher or supervisor or some child with special ability may be willing to design the project to meet specifications. No one way will prove to be the best way. Use the method that is best and easiest for the particular problem at hand. See pages 56–57 for suggestions on tracing patterns and on enlarging or reducing the size of patterns.

Suggested Projects

In the various chapters on materials are given several detailed suggestions for projects. Below is a more complete list. The handcraft teacher should realize, however, that no project list is ever complete. There are always new ideas to be found in current magazines, in toy shops, and in artware departments. Companies selling craft materials and supplies are a constant source of new suggestions.

List of Suggested Projects for Various Crafts

Textiles

Mittens
Belts
Suspenders
Beanies
Hats
Purses
Vests
Slippers
Lapel ornaments
Bean bags
Dolls
Stuffed toys
Aprons
Simple skirts
Simple blouses
Pot holders
Luncheon sets
Towels
Doll clothes
Knitting or sewing bags

Ceramics

Tiles
Pins
Bowls
Trays
Boxes
Animals
Birds
Fish
People
Imaginative forms

Wood

Single-thickness toys
Applied-parts toys
Doorstops
Weather vanes
Book ends
Pin-up lamps
Small table lamps
Tops
Dolls
Puppets
Puzzles
Trains
Boats
Airplanes
Napkin holders
Wall shelves
Candlesticks
Boxes
Trays
Kites
Letter holders
Pins
Wood carvings
Plaques
Benches
Doll furniture
Lawn figures
Plant sticks
Dancing Dans
Kiddie Kars

Metal

Copper or Brass
Paper knives
Letter files
Pins (lapel)
Blotter corners
Book ends
Trays
Plates

German Silver
Bracelets
Pins
Lockets
Napkin rings

Stenciling

Cards
Programs
Place cards
Aprons
Bibs
Curtains
Luncheon sets
Blouses
Skirts

Group Projects
(Miniature models)

Circus parade—basically of wood, bits of feather, felt, leather, raffia, etc.
Farmyard—basically of wood
Toy village—solid wood blocks—(2 x 4 x 6 inches)
Doll house—and furnishings—wood and textiles
Creche—(wood or ceramics)
Zoo
Story of transportation
Southern plantation
Model houses
Playground
Ranch and cowboys
Village—Mexican, Indian, Swiss, Danish, jungle, Dutch, Chinese, etc.
Toys—(puppets, puzzles, tops, etc.) for orphanage or hospital
Wall hangings
Block-printed or stenciled books

Group Projects
(Half or three-quarter size)

Greenhouse
Barn
House
Post office
Log cabin
Tepee
Mexican hunt
Windmill
Toys for an orphanage or hospital
Toys for the kindergarten
Train
Streetcar
Bus
Fire engine
Milk wagon

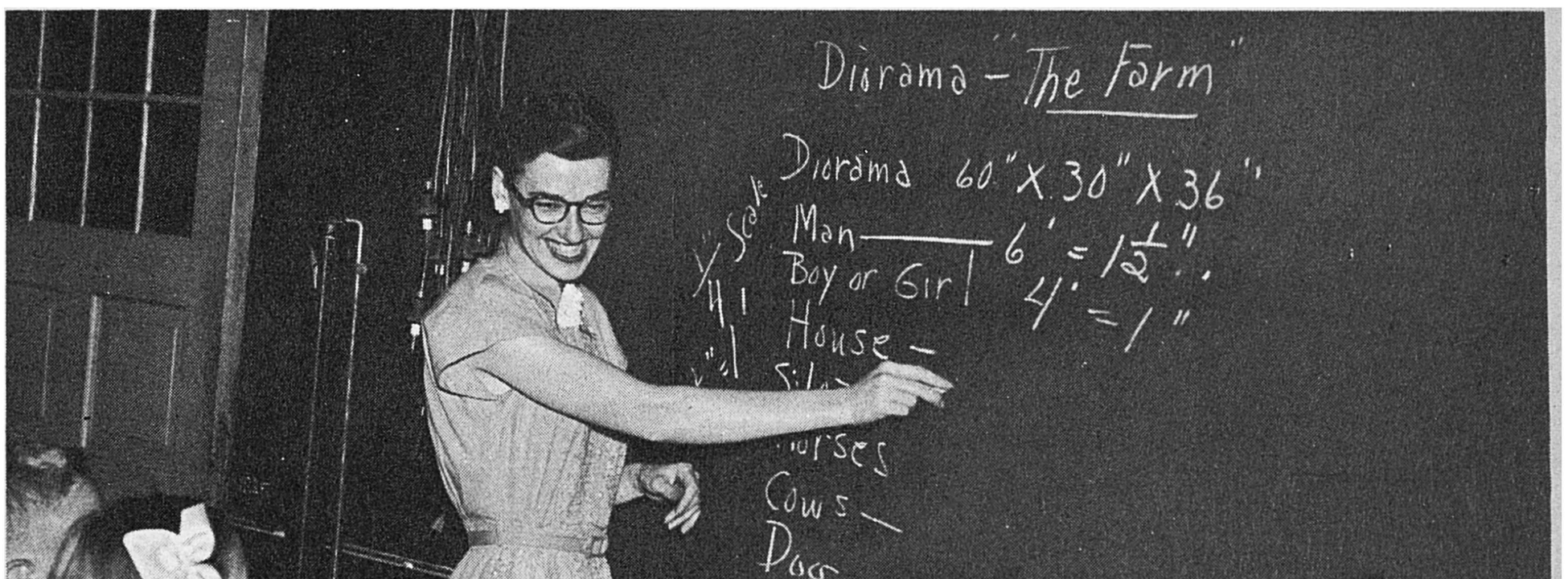
Planning and Designing

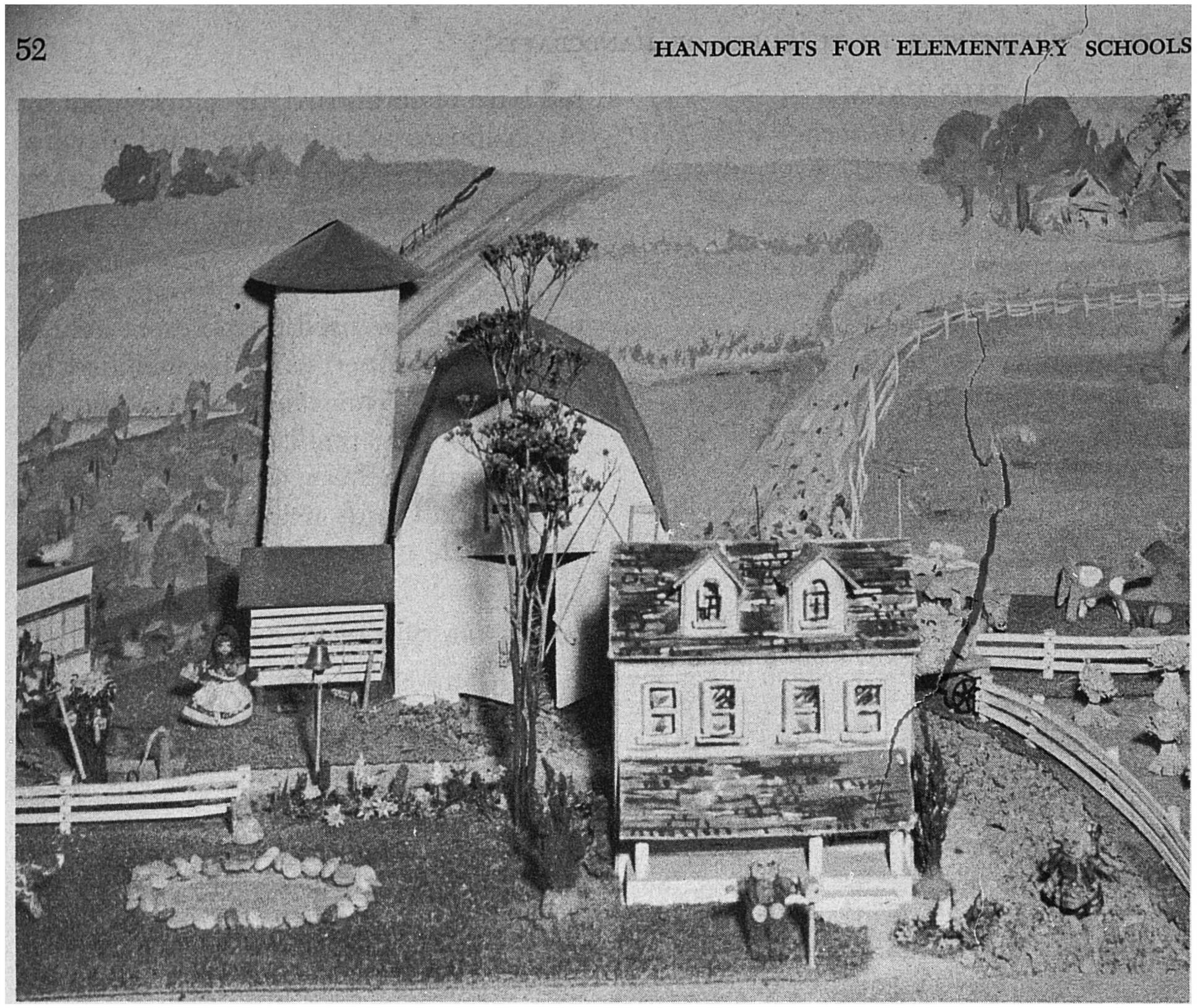
Handcraft should stimulate purposeful planning. After the project has been chosen, the child must plan his work. This planning involves the making of many decisions such as the materials required, the size and design of the object, the tools needed, the processes involved, the decoration or ornament to be applied, and the type of finish to be used. Each step in the construction of the project should be outlined in the mind of the child before he begins to work.

For a group project, the planning in itself becomes a part of the project. Cooperation between group members becomes necessary. There must be consideration of the other person's abilities and shortcomings. Each part must be planned so that it will be an appropriate part of the whole. Size, design, material, and finish must blend into a satisfactory unit. Workmanship must be fairly uniform.

Planning is directing thought toward creating and constructing a project. Designing is planning the form or shape of an object as well as the decoration that

Cooperative planning is an essential step in group activities.





Planning the farm diorama provided an opportunity to apply arithmetic skills and correlate many areas of learning.

is to be applied to it. The chief objection to the old type of manual training was that it did not provide for experiences in planning and designing. The children learned tool techniques through the construction of set projects—forty identical necktie hangers or forty identical footstools being constructed at one time.

Planning for the production of a diorama such as the farm shown on page 52 is of utmost importance. The plan should be developed on the blackboard with pupil participation. The details follow.

The scale is essential. What should be the height of the buildings? What should be the height of the figures? How high should the trees be? What about the wheat sheaves? What is the size of our diorama? How many inches should represent one foot?

If we have a diorama that is 60 inches wide, 30 inches deep, and 36 inches high, a good scale would be one quarter inch to the foot.

A man six feet tall would be made six quarter inches or 1½″ tall.

A boy or girl four feet tall would be made four quarter inches or 1″ tall.

A house 24 feet high would be made 24 quarter inches or 6″ high.

After the scale has been decided upon, the teacher should develop the contents of the diorama with the pupils. The plan might work out as follows:

THE FARM

1. The foreground (60 inches wide and 30 inches deep). Select a committee to make a full size plan.
2. The background (36 inches high and 90 inches wide). The background is curved. Select a committee to make a full size plan of the background.
3. The farmer's house. Select a committee to make the house to scale.
4. The silo. Select a committee to make the silo.
5. The big red barn. Select a committee to make the big red barn.
6. The chicken house and yard. Select a committee to make the chicken house and yard.
7. The corn crib. Select a committee to make the corn crib.
8. The trees. Select a committee to make the trees.
9. The characters. Select a committee to make the figures.
10. The fences, the tractors, the horses, the pigs, the wheat sheaves. Select committees.

Each committee is to produce replicas of their assignments using any media to produce the best replica. As examples, the farmer's house may be made of cardboard, the silo of an oatmeal box, the big red barn of cardboard, the chicken house of cardboard or paper, the yard of wire screen, the trees of goldenrod, the grass of toweling dyed green, the driveway of fine slag and sand.

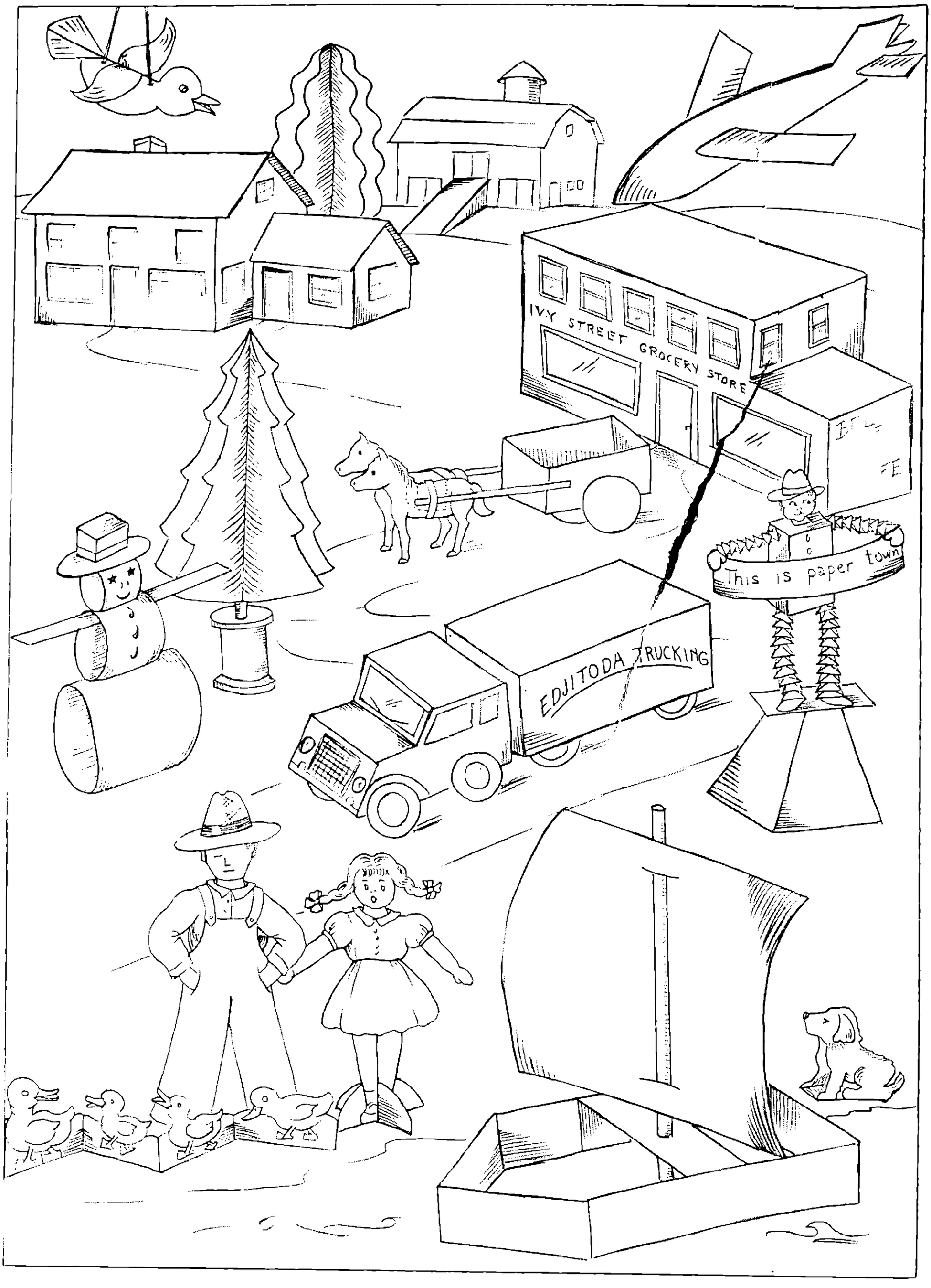
Many, many more substitutions of materials could be used to represent actual replicas of properties to be included in the diorama. This can be left to the ingenuity of the pupils and the teacher. The skillful teacher will appoint pupils of varying skills and artistic abilities to the appropriate committees.

SUGGESTED QUESTIONS AND ACTIVITIES

1. What are the values of group projects in handcrafts?
2. What are the deciding factors in the choice of individual articles?
3. What is the principal guide for the selection of any project?
4. Handcraft stimulates purposeful planning. What are some of the rewarding values resulting from planning?
5. What are some of the advantages of the new handcraft work over the old manual training?

SUGGESTIONS FOR FURTHER READING

See bibliography on page 13.


IVY STREET GROCERY STORE
This is paper town
EDJITODA TRUCKING

CHAPTER 5

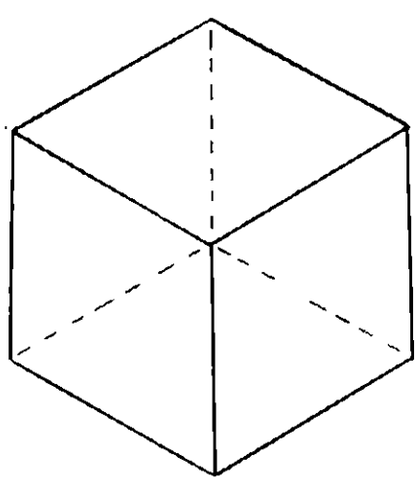
Paper Crafts

The Most Available Craft Material

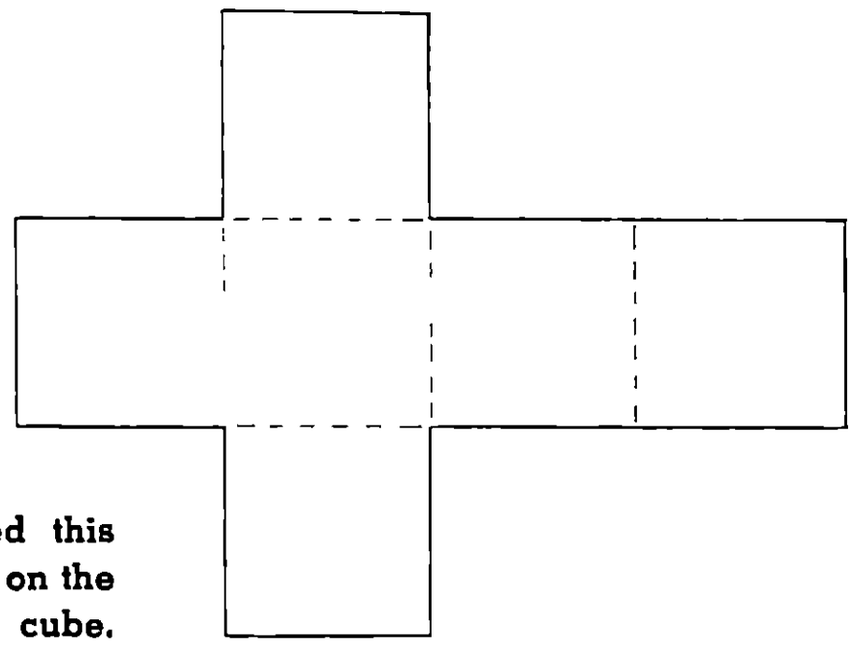
Paper, found in every home and in every school room, is one of the easiest, cheapest, and most popular materials one can use. In all its many forms — crepe paper, construction paper, cardboard, cellophane, lace doilies, boxes, newspaper, paper towels, paper plates, and bags — it lends itself to the construction of a variety of projects of endless interest. Even before kindergarten days children begin working with paper to make projects. Yet children never lose interest in paper construction, for projects may be simple enough for four-year-olds to enjoy or difficult enough to challenge the abilities of adults.

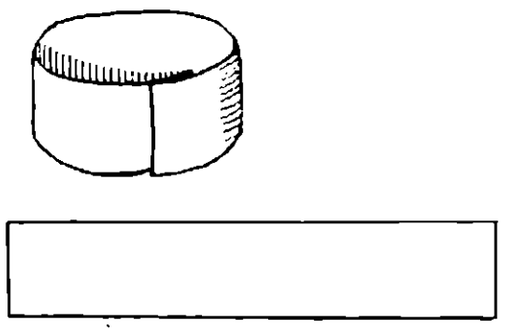
The tools required for working with paper are few in number and easily obtained. Scissors, rulers, pencils, and paint brushes are essential. Add paints, crayons, paste, paper clips, paper fasteners, and Scotch tape and your paper craft kit will be complete.

Paper can be folded, rolled, curled, twisted, and modeled. Models and figures are made in three dimensions through using the basic forms of cubes, rectangular boxes, cones, cylinders, and pyramids.

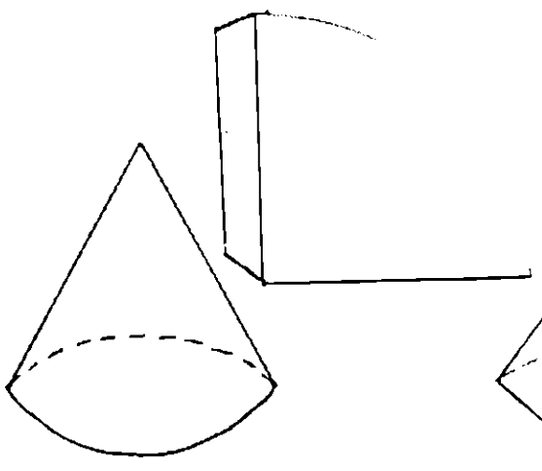


Six squares arranged this way and then folded on the dotted lines form a cube.

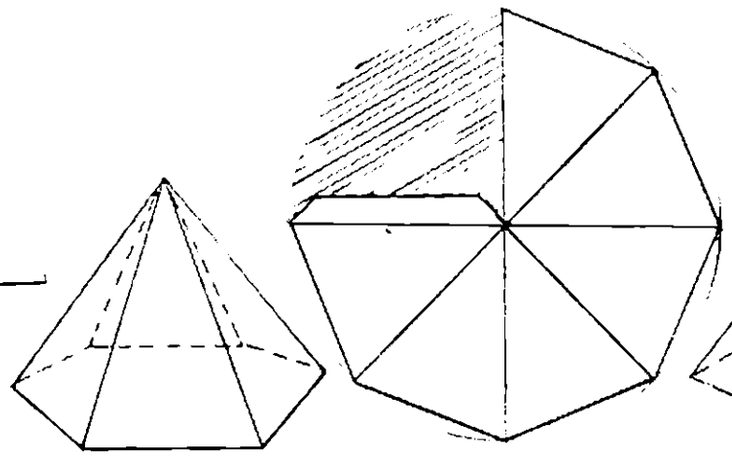




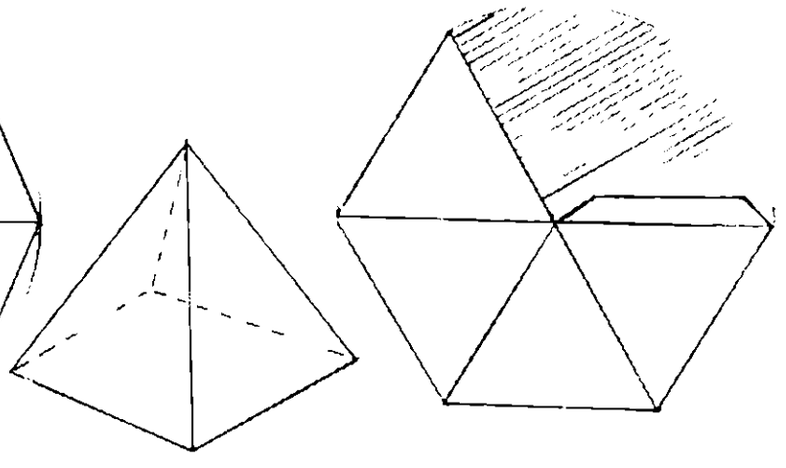
A strip of paper can be rolled and pasted into a ring or cylinder.



One fourth of a circle can be rolled and pasted into a cone.



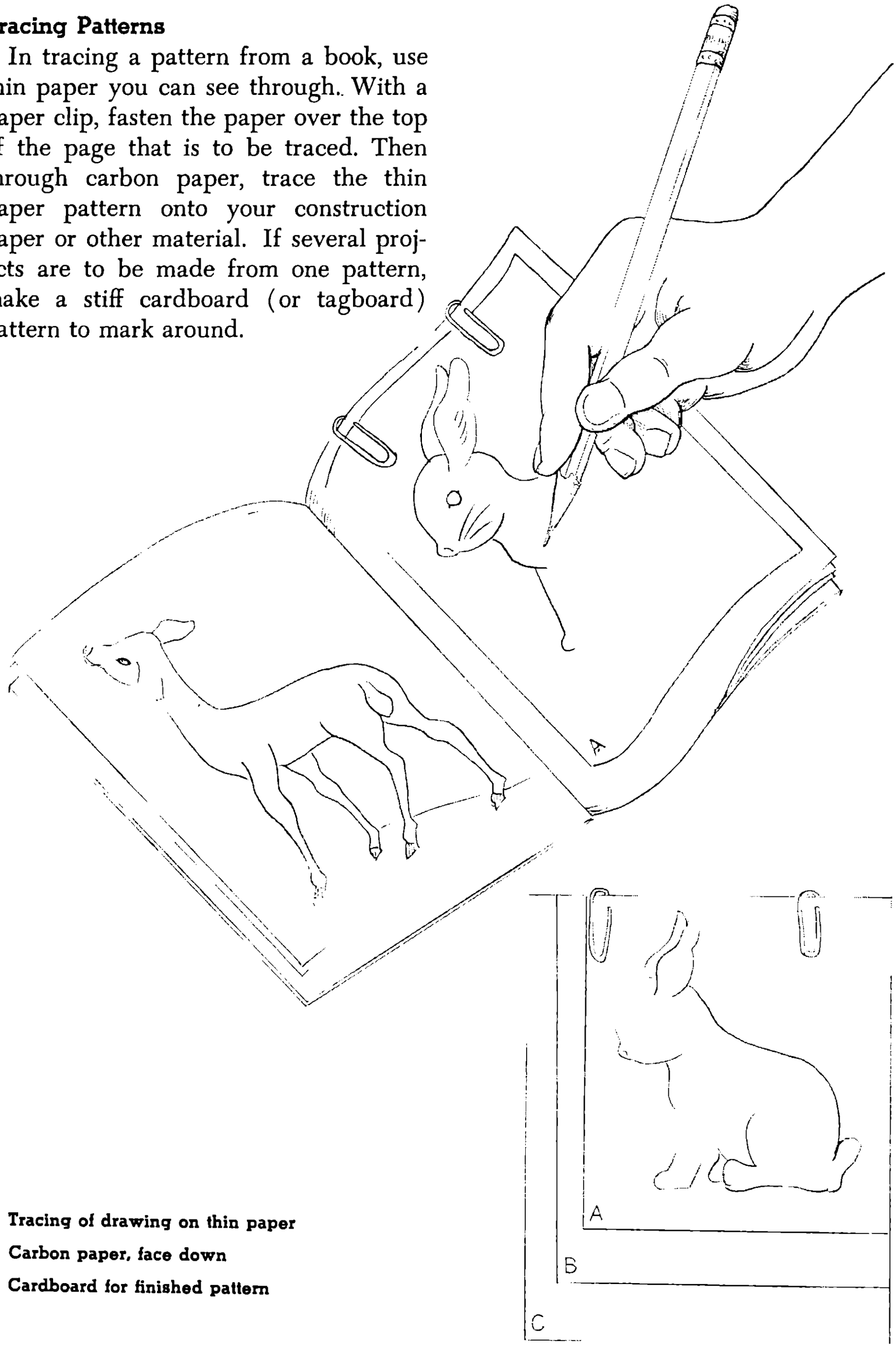
Divide a circle into eight equal parts. Use six of the parts to make a six-sided pyramid.



Divide a circle into six equal parts. Use four of the parts to make a four-sided pyramid.

Tracing Patterns

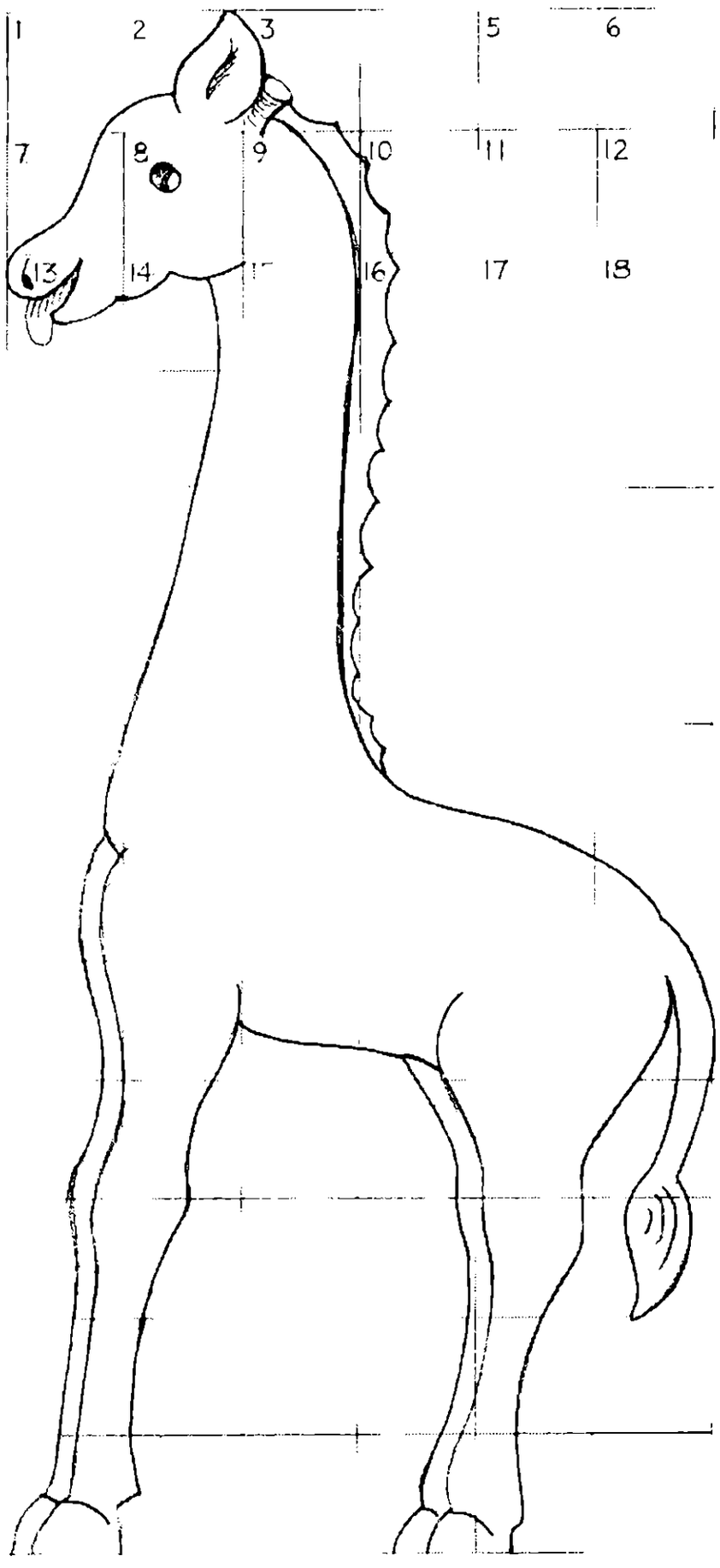
In tracing a pattern from a book, use thin paper you can see through. With a paper clip, fasten the paper over the top of the page that is to be traced. Then through carbon paper, trace the thin paper pattern onto your construction paper or other material. If several projects are to be made from one pattern, make a stiff cardboard (or tagboard) pattern to mark around.



A. Tracing of drawing on thin paper

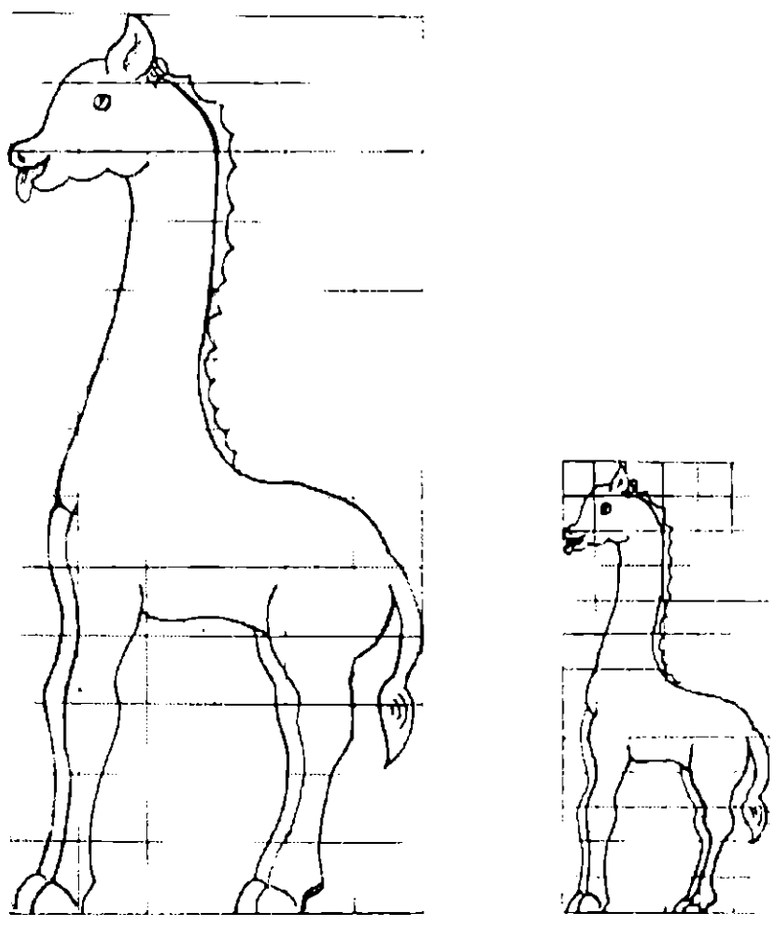
B. Carbon paper, face down

C. Cardboard for finished pattern

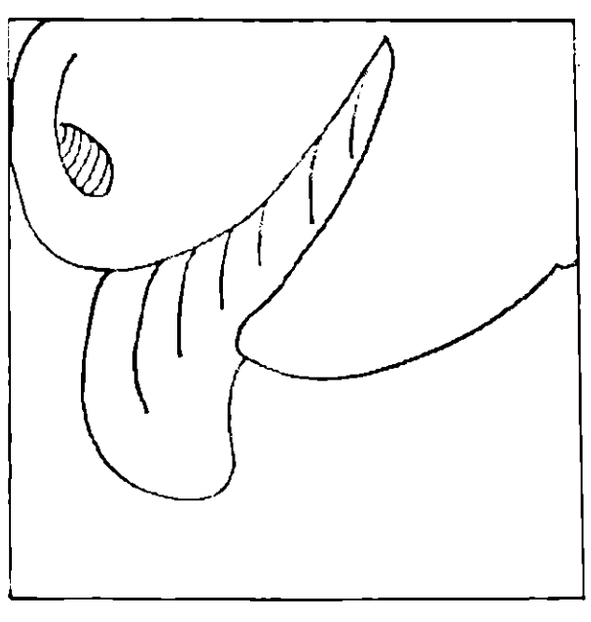


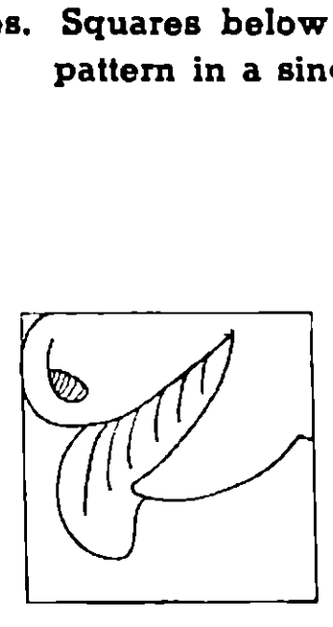
Enlarging Patterns

If a desirable pattern is found in a book, on a Christmas card, on wallpaper, or on a textile and it is not the right size, it can be easily reduced or increased in size by using the squared paper method. Rule the pattern off in ¼″, ½″, or 1″ squares, depending on the size and complexity of the pattern. There should be at least six or eight squares across the pattern. Rule off a piece of paper with squares twice as large to double the size of the pattern. Use squares four times as large to make the pattern four times larger. Or, use squares half the size of those on the pattern to make a new drawing half the size. Number the squares. Follow the line pattern through each square.

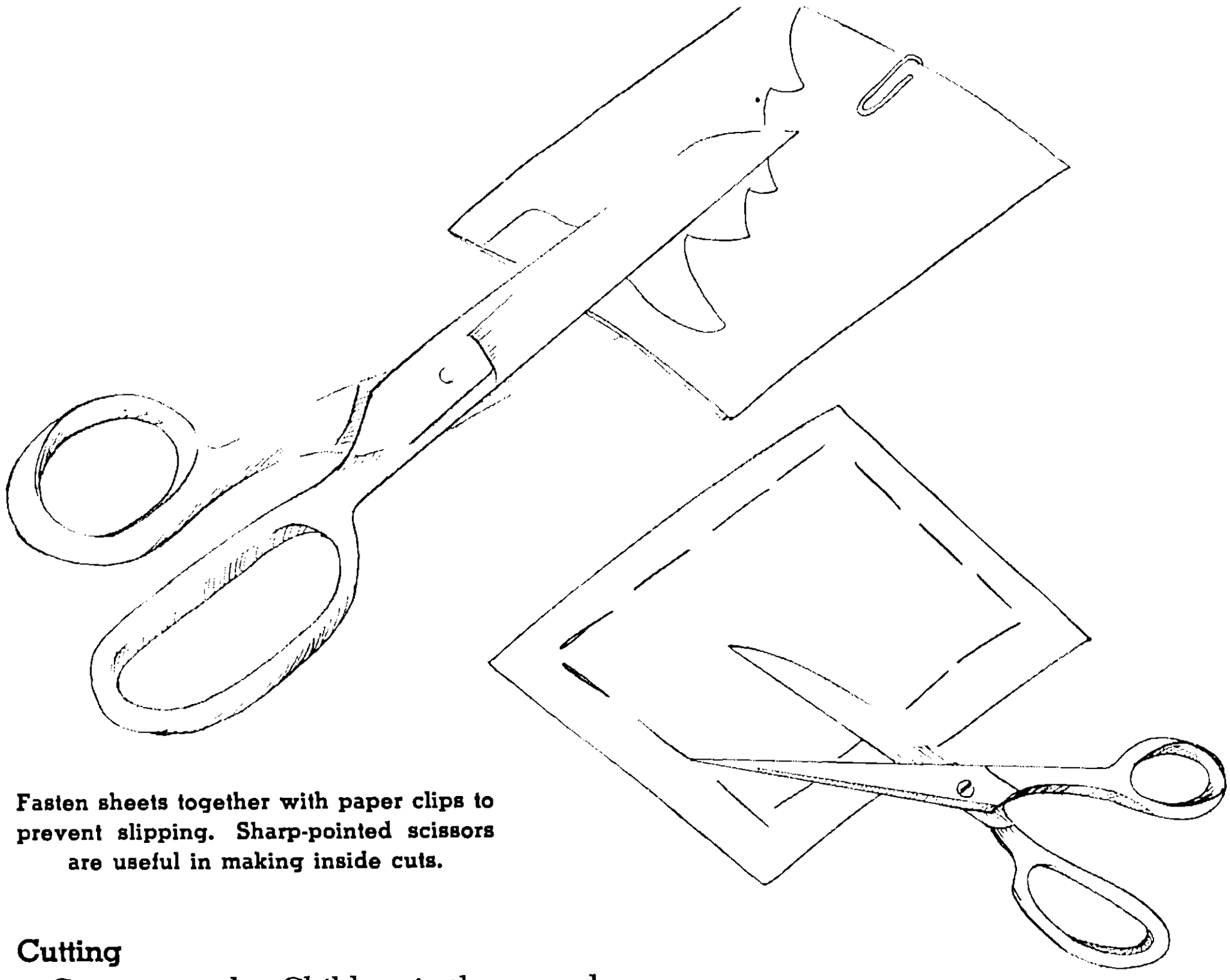


The size of the pattern varies proportionately with the size of the squares. Squares below show enlargements of the pattern in a single square.









Fasten sheets together with paper clips to prevent slipping. Sharp-pointed scissors are useful in making inside cuts.

Cutting

Cut accurately. Children in the second grade or older can use sharp, pointed scissors. Younger children should be given round-end points on scissors that will cut. Otherwise they will tear the paper. There are plastic scissors available for pre-kindergarten children. These scissors will cut paper but will not cut hair or cloth.

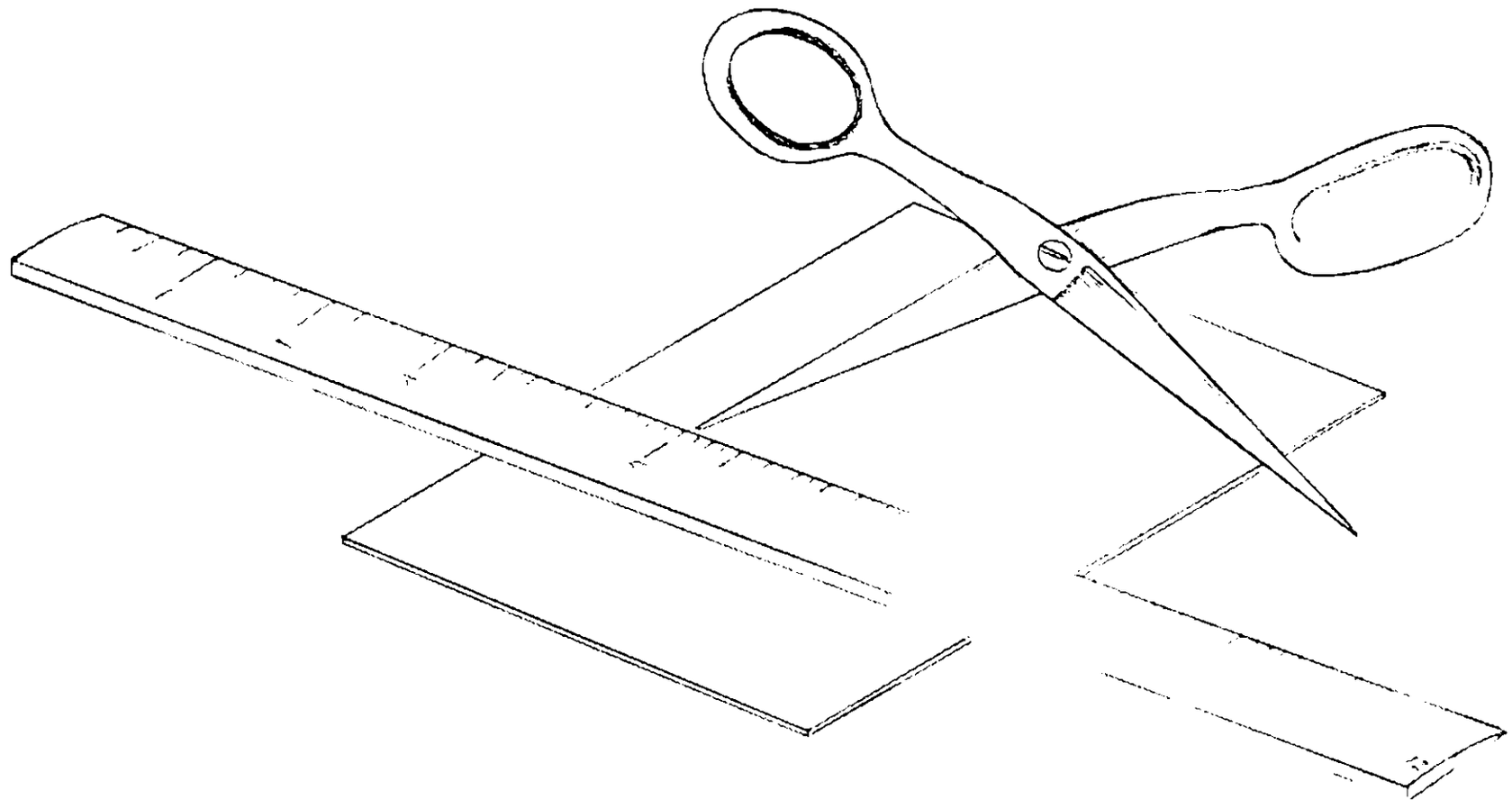
In the illustrations in this chapter all cutting lines are shown with a heavy solid line.

When cutting slits, use sharp-pointed scissors. Insert the point of the scissors in one end of the slit then snip slowly and carefully to the other end. When cutting double, as through folded paper or duplicate patterns, hold the paper tightly together. If the paper slips, the patterns will not be identical. Pieces may be held together with paper clips to help prevent slipping.

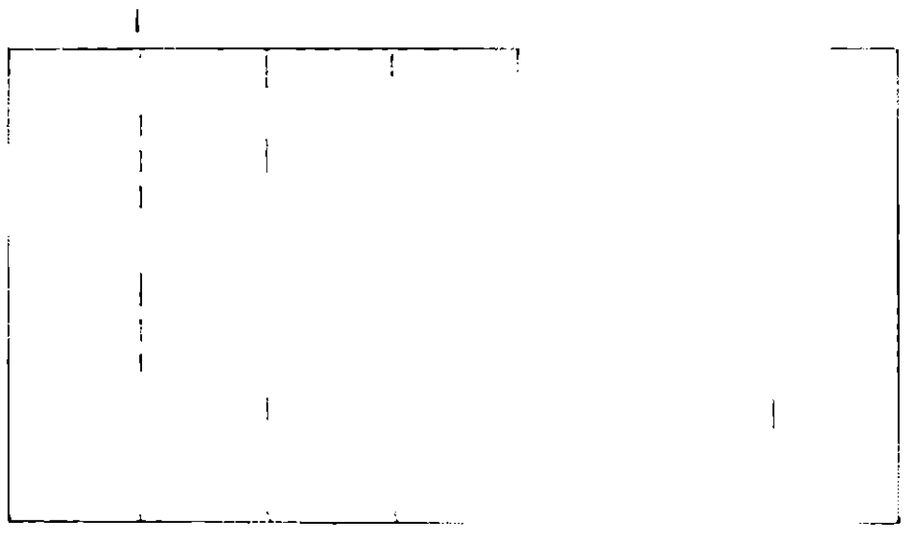
Folding

Make exact folds. When folding thin paper such as tissue, typing paper, newspaper, or wrapping papers, run the thumbnail over the crease to make it sharp. When folding heavy paper, stiff paper, or cardboard, it is necessary to *score* the line to be folded. Do this by placing a ruler along the line to be folded and then running the point of the scissors over the line. This will cut through the top surface of the paper to be folded and make it possible to fold accurately. The heavier the cardboard is, the deeper the scoring must be.

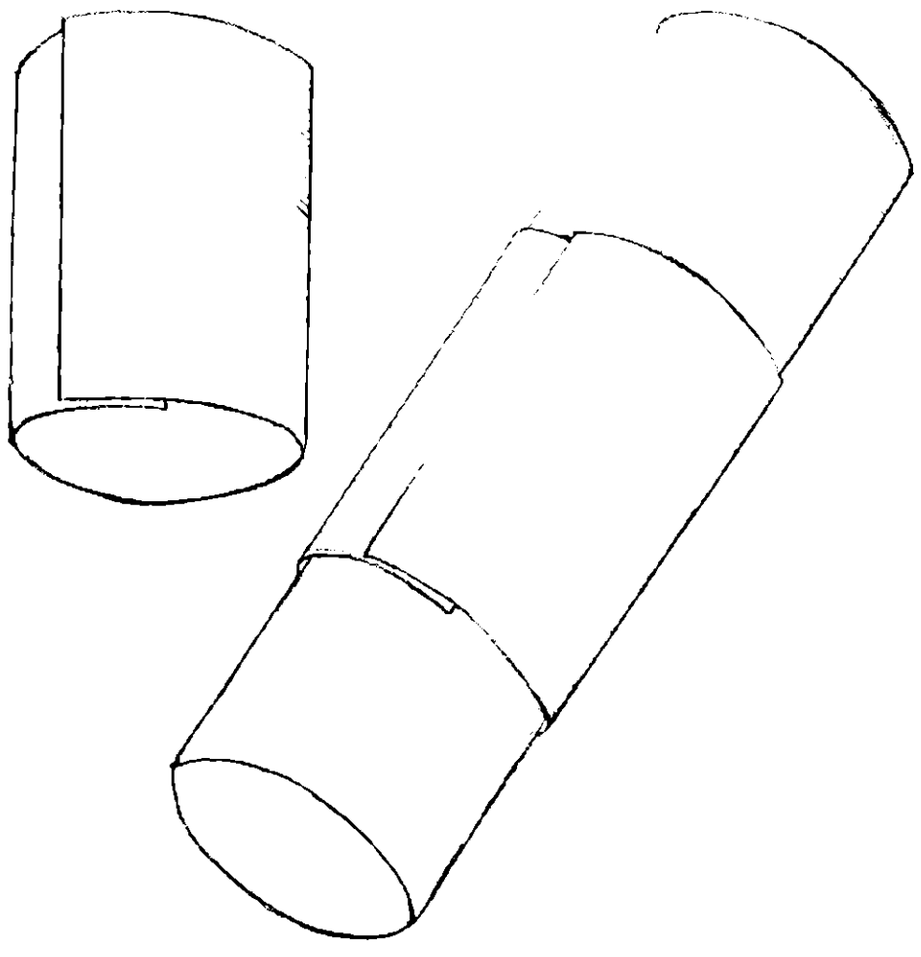
In this chapter folds are shown with dotted lines. Notice whether directions ask for the dotted line to be folded so that the line is inside or outside the crease.



Heavy paper and cardboard usually must be scored before folding.



Dotted lines on patterns indicate folds; solid lines indicate cuts.



A broomstick or drinking glass helps form large tubes or cylinders.

Rolling

Rolling paper into cylinders or tubes is done by bringing one end around and over the other end. However, some papers are stiff and will spring back into flat sheets before the paste is dry. To simplify the pasting process, roll the paper into position several times before applying the paste. Paper may be rolled around pencils to make small tubes. To make larger tubes or cylinders, roll the paper around broomsticks or drinking glasses. Avoid kinking the paper or the tubes will not be round.

Curling

The ends of paper strips may be curled in several ways. The simplest way is to wrap the end of the strip tightly around a pencil, making two or three complete wrap-arounds with the paper. Unwind and the strip of paper will have a permanent curl on the end. This method is easiest for very little children.

Another way to curl paper strips is to place the strip flat on the desk. Place the edge of the ruler over the middle of the strip. Press down on the edge of the ruler as you pull the strip of paper out from underneath it. Repeat this process two or three times and the end will roll into a perfect curl.

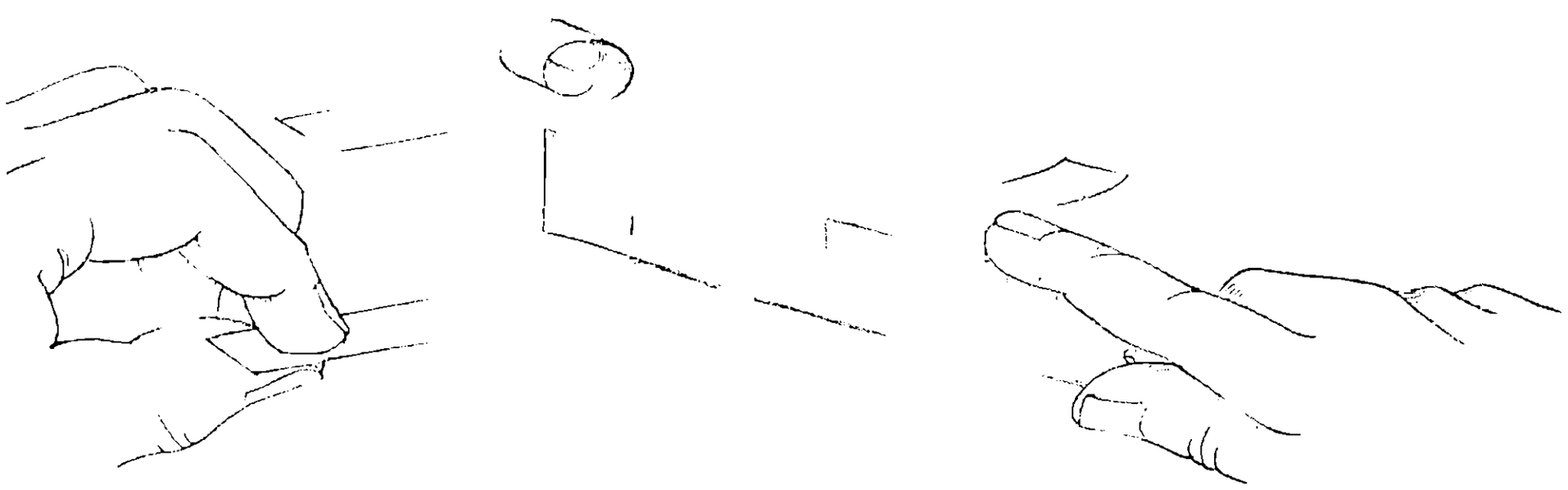
A third way is to pull the strip of paper over the edge of the cutting blade of the scissors. This method is suggested for older children.

Fastening Paper Together

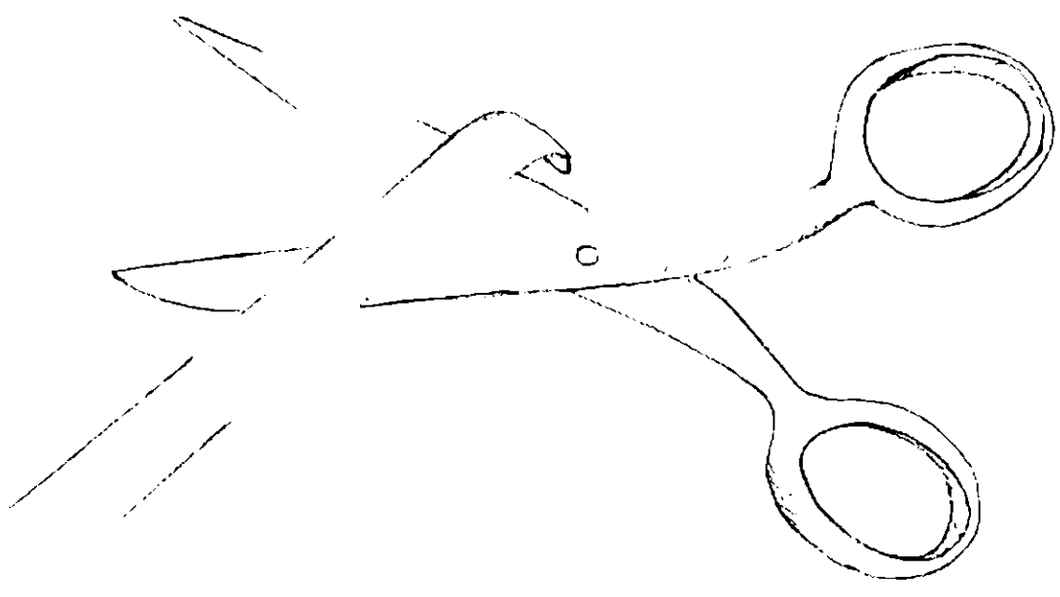
The most common way to hold pieces of paper together is to paste them together. Use a good grade of white school paste. Paste should be applied smoothly and evenly. Avoid using too much paste, yet make sure that the surface is well covered. If too much paste is used it will squeeze out along the edges when pieces are pressed together. If too little paste is used the joint will not be tight or strong.

Apply the paste up to the very edge of each part to make the finished article appear as neat as possible. Wipe off excess paste. Paste may be applied with a brush or with the fingertip. If using the finger, keep a damp cloth or paper towel handy to clean the hands and insure neatness.

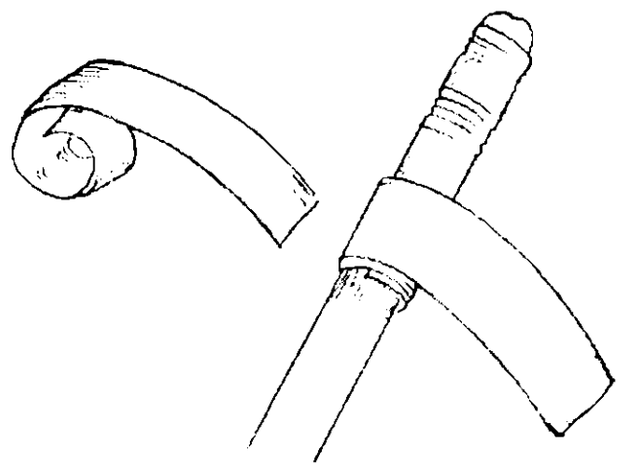
Hold pasted parts together until dry enough to stick. Keep the paste jar cov-



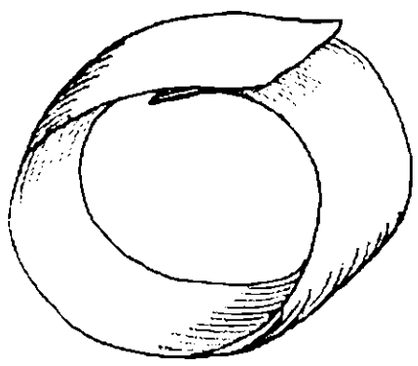
To curl end of paper strip, place strip flat on desk. Hold edge of ruler down tight over paper. Pull strip from under ruler.



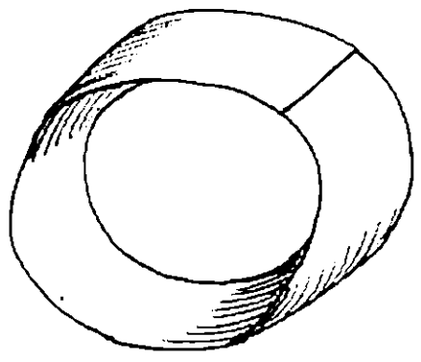
Pull the end of a strip over a cutting blade on the scissors. Repeat process two or three times for permanent curl.



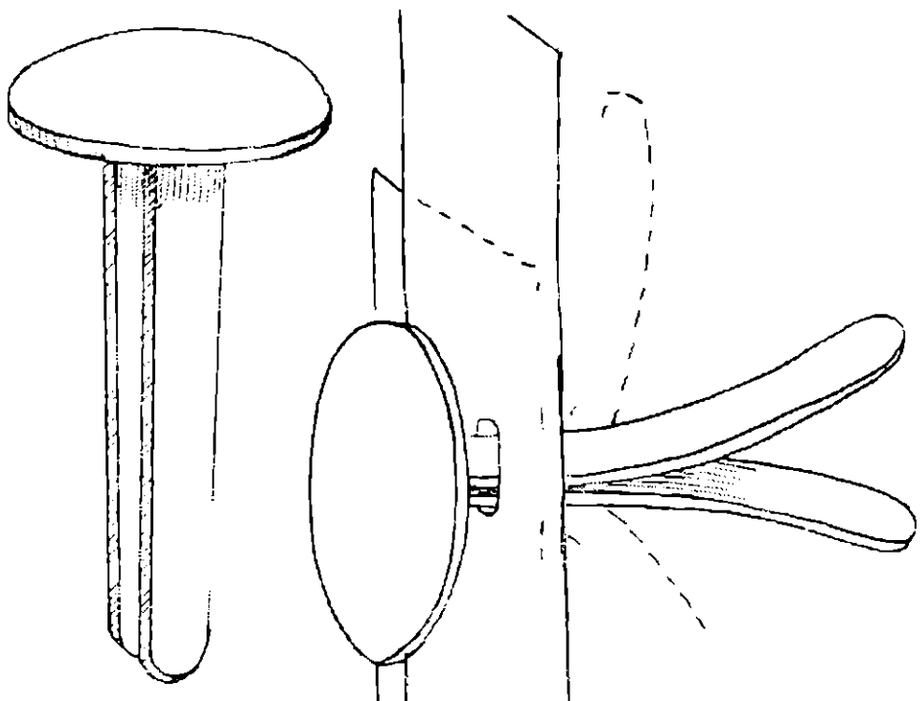
Curl paper by wrapping it around a pencil.



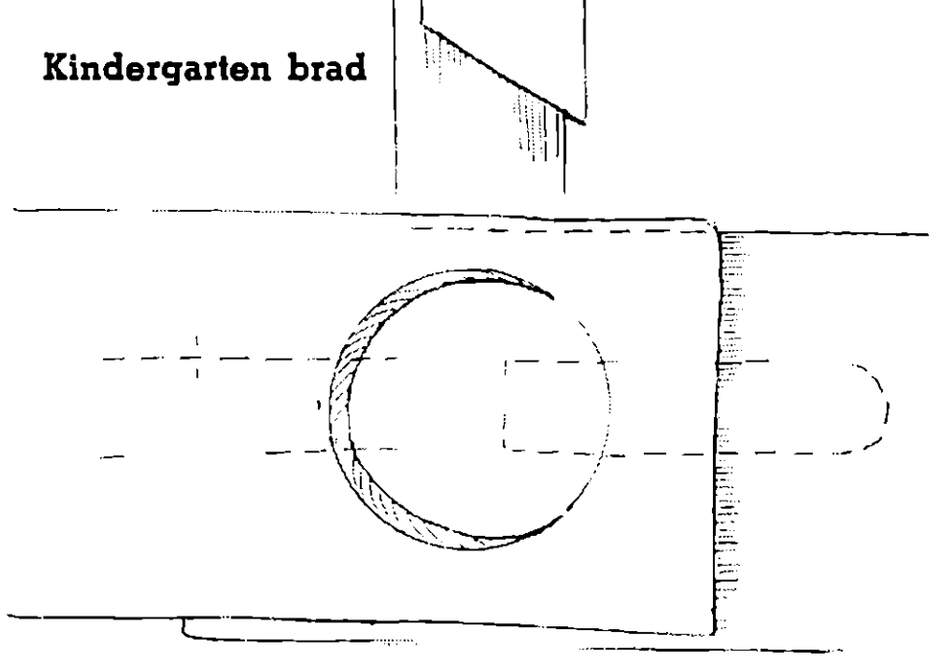
Poorly pasted cylinder



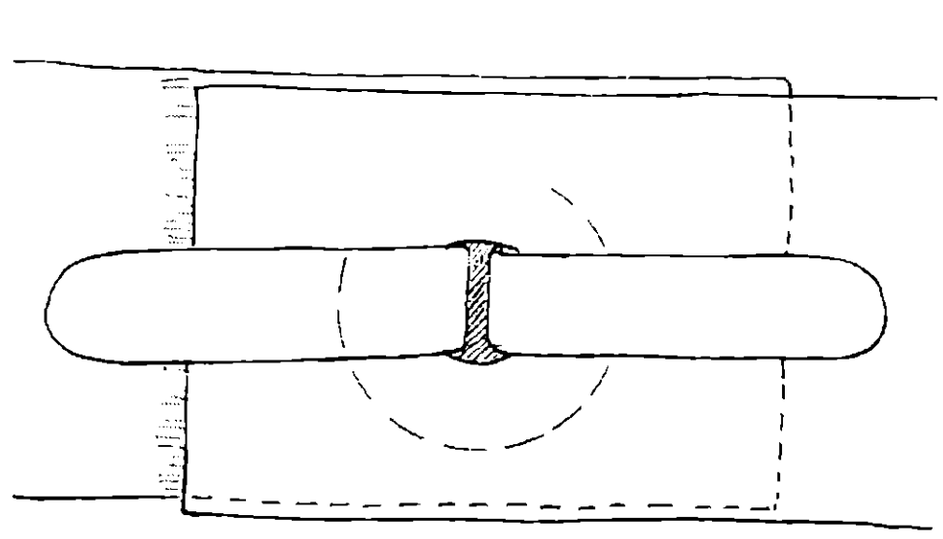
Properly pasted cylinder



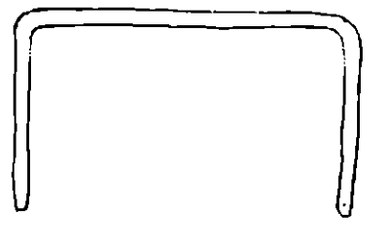
Kindergarten brad



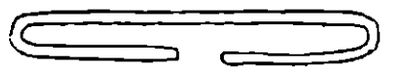
Top



Bottom

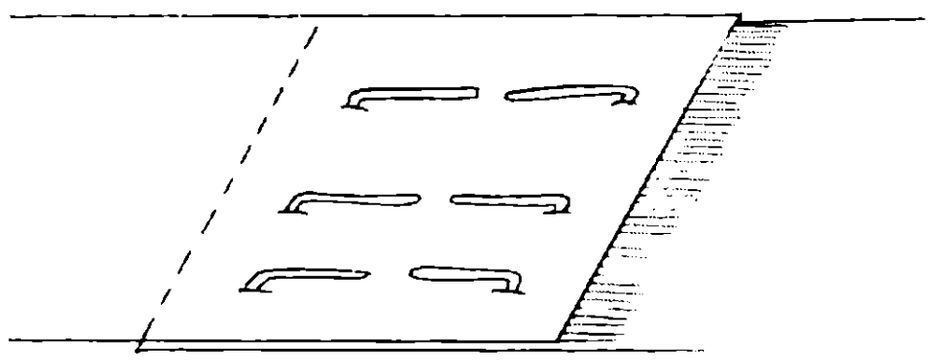


Before using

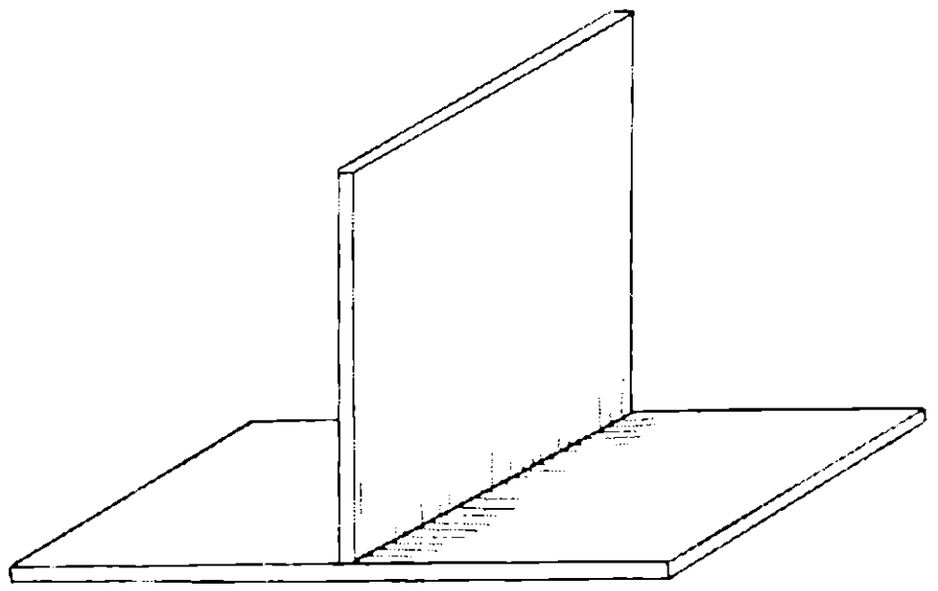


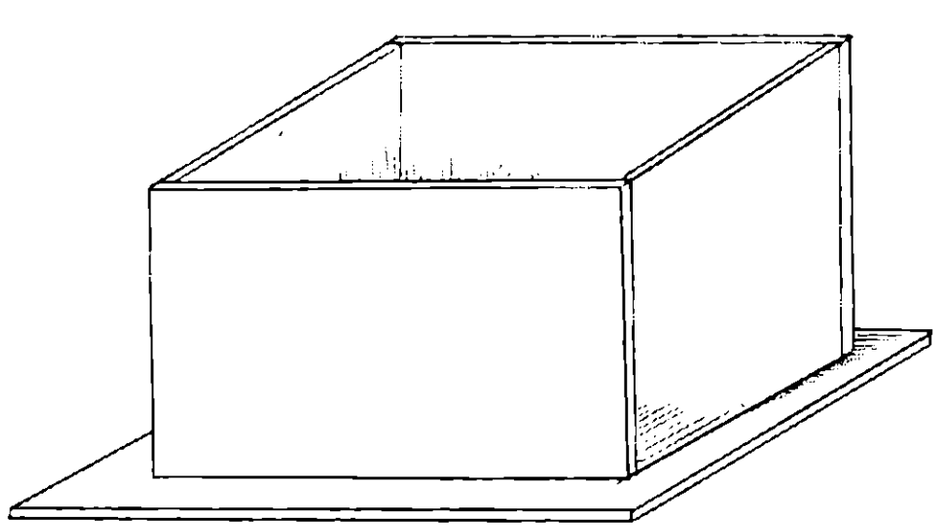
Bent as a clamp

Top of stapled pieces



Bottom of stapled pieces





Heavy cardboard pieces can be glued together at right angles with quick-drying cement or glue.

ered when not in use. Dry, lumpy paste is difficult to use.

Some projects may be held together with staples. These are small pieces of wire that bend and form a clamp when forced into position with a small hand machine called a stapler. Most school offices have staplers.

Paper fasteners, or kindergarten brads, as they are sometimes called, are made of brass or nickel-plated metal. They consist of a head and two prongs. The prongs are pushed through holes in the pieces of paper. The prongs are then spread apart and opened flat.

Heavy cardboard can be held together with quick-drying glue or cement such as is used in making model airplanes. If the cardboard is stiff enough, pieces may even be glued at right angles to each other with this type of glue. Hold the pieces in place until the glue or cement is set.

Difficulty of Paper Craft Skills

As in all craftwork, certain skills in paper crafts are more difficult than others. Also, each skill may vary greatly in difficulty. For example, a simple pattern is easier to trace than a complex pattern. The following chart provides the approximate grade levels at which the various tool processes in paper crafts can be performed successfully. In the chart on page 63 paper craft projects are listed by grades on the basis of complexity of the tool processes involved.

Paper Craft Projects

The variety of projects that can be made of paper is unlimited. In this chapter there are suggestions for making simple paper articles which can be used in miniature scenes, as table decorations, or as toys. Once children understand basic principles of construction they will be able to create original models. The teacher will find further ideas in department store decorations and in current art and craft periodicals. Coloring books, gift wrappings, greeting cards, juvenile wallpapers, and illustrations in children's modern books furnish a never-ending source of material for design adaptation.

The ability to create original designs should be encouraged in children. Creative design must include consideration of the material being used. The teacher should present limitations and rules of construction to guide children in developing their own designs.

This chapter includes three or four ways to construct paper people, animals, vehicles, buildings, trees, toys, table decorations, ornaments, and gifts.

Grade Placement of Paper Craft Tool Processes

GRADES 1 and 2	GRADES 3 and 4	GRADES 5 and 6
Tracing patterns	Cutting slits	Enlarging patterns
Cutting outlines	Rolling paper	Decreasing patterns
Folding paper	Curling paper	Using quick-drying glue
Pasting paper	Stapling paper	Using papier-mâché
Using paper fasteners	Painting paper	Painting with enamels
Coloring with crayons	Measuring	Spraying with shellac
Punching holes	Boring corks	
Tying string	Wiring corks	



Grade Levels for Individual Paper Craft Projects

GRADES 1 and 2	GRADES 3 and 4	GRADES 5 and 6
Animals—Method 2	Animals—Method 1	Wagons
Animals—Method 4	Animals—Method 3	Carts
Flying birds	Poultry stand-ups	Masks from sheets of paper
Swimming ducks	House	Snow men
Tree No. 1	Barn	Cowboys
Tree No. 2	Silo	Cone-shaped basket
Paper bag masks	Store	Flared basket
Open cube basket	Tree No. 3	Paper satchel
Pinwheels	Tree No. 4	Paper beads
	Cars	Papier-mâché
	Trucks	
	Busses	
	Boats	
	Jet plane	
	Paper plate masks	
	Jack-in-the-box	
	Covered box	
	Christmas tree ornaments	

PAPER PEOPLE



WHATEVER THE MINIATURE scene, the holiday, or the table decoration, the construction of paper people will be an essential part. In the drawing are shown six different kinds of paper people. Five of these will stand without propping – all but the one with the springy legs.

Materials Needed

Stiff construction paper of various colors
Paste
Paints or crayons
Thread

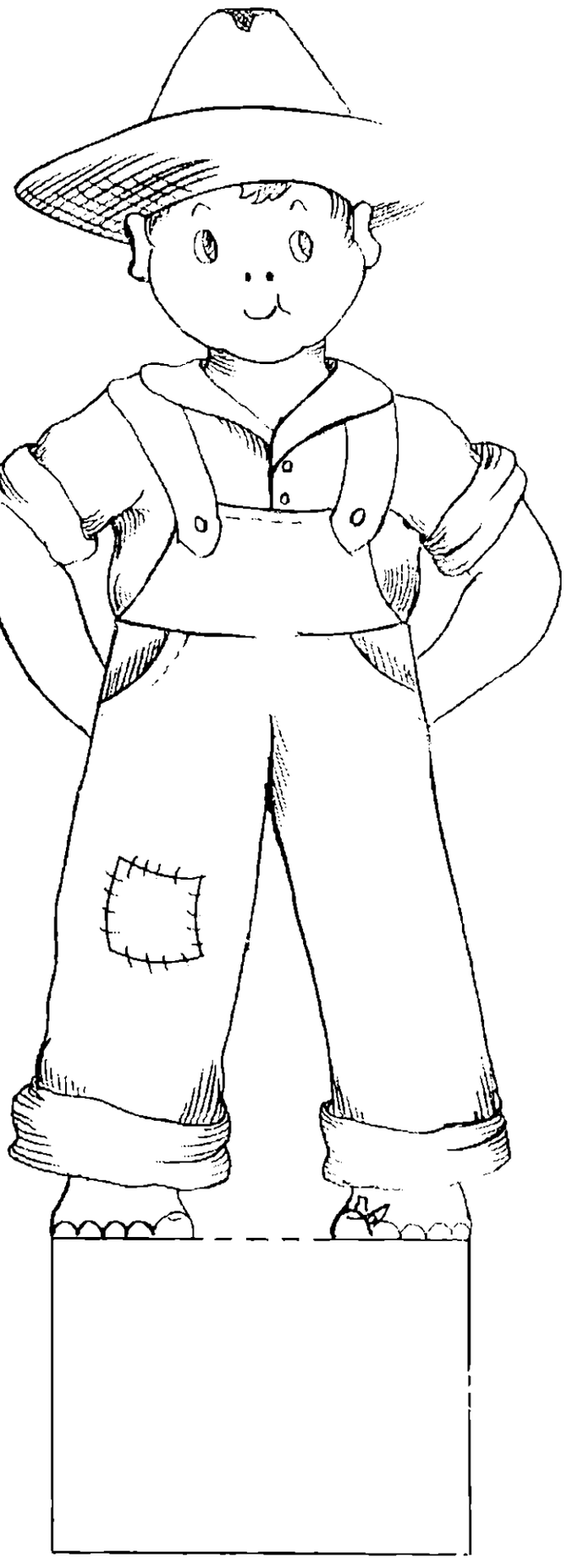
Tools Needed

Scissors
Pencil
Ruler
Needle

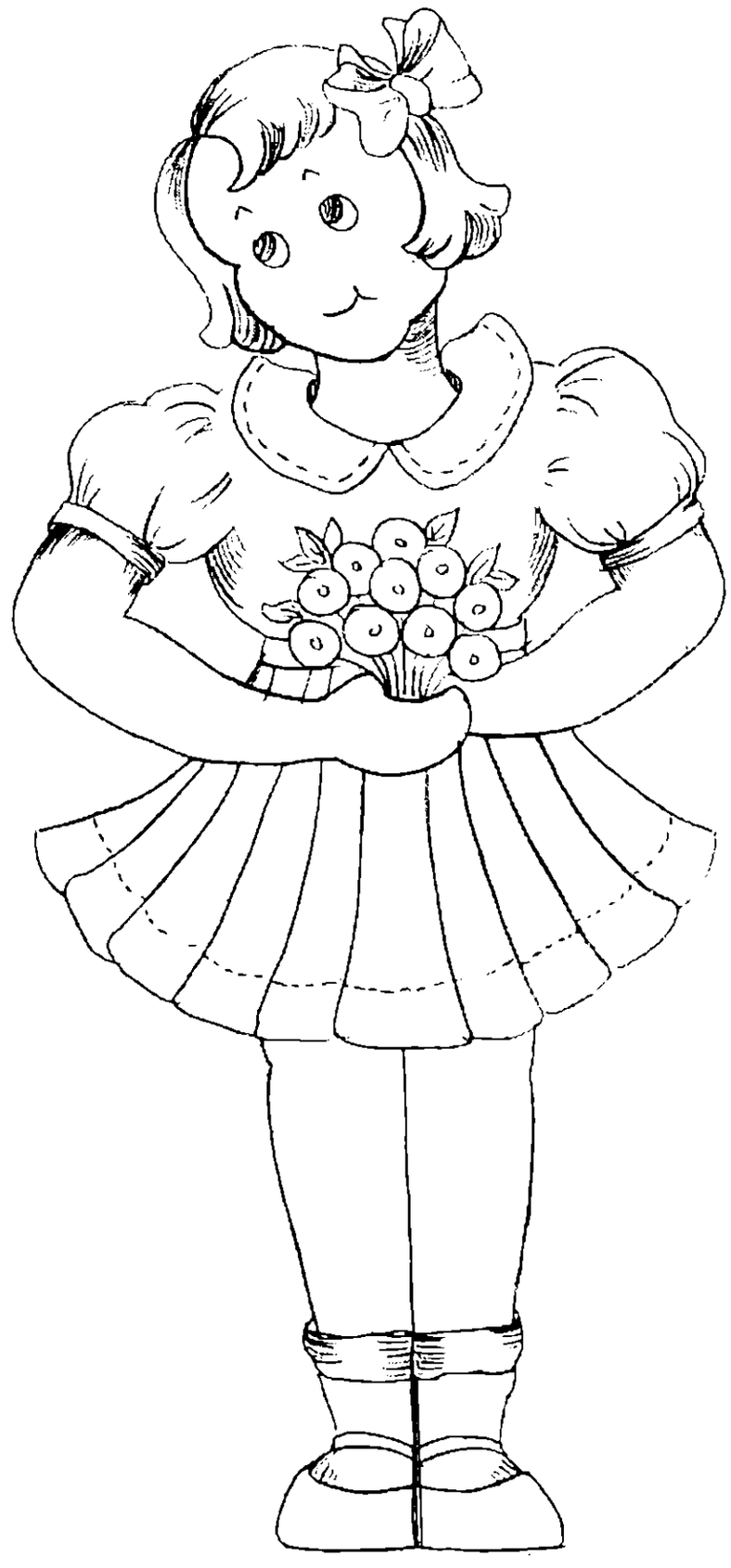
PROCEDURES

Construction No. 1

1. The front and rear views of the figure are attached at the top of the head. A 1″ tab is drawn at the feet of both views. Spread feet will stand better than a narrow base.
2. Draw the figures on folded stiff construction paper with the top of the head or hat on the fold.
3. Keep folded and cut through both figures at one time. Do not cut across the top of the hat.
4. Crayon or paint the figure.
5. Fold back the tabs. Keep the dotted line on the outside of the crease.



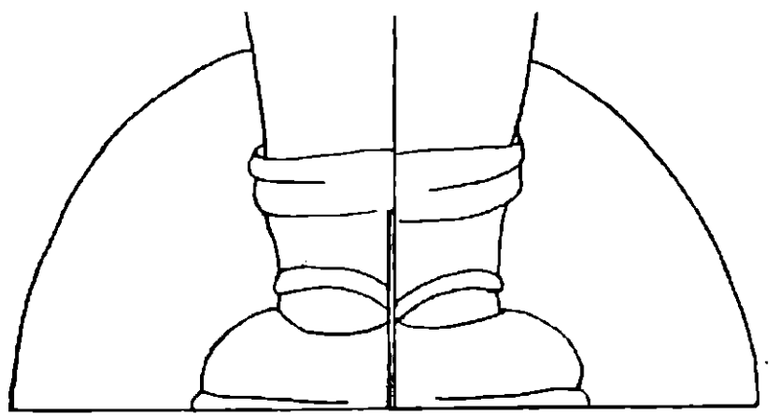
A pattern for No. 1



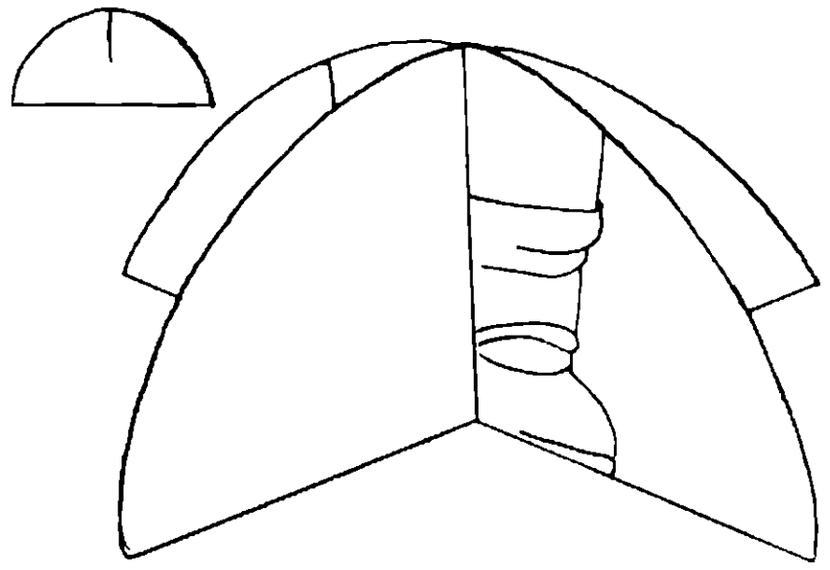
A pattern for No. 2

Construction No. 2

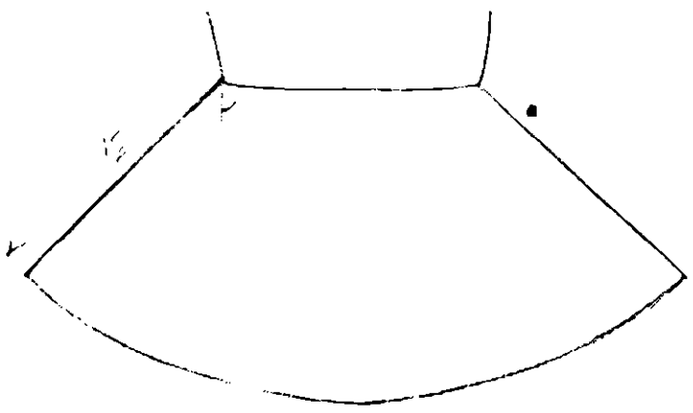
1. Draw the front view of a little girl's figure. Be sure the hands and arms do not touch the skirt.
2. Color and cut out. Do *not* cut away the space between the legs. Cut up a slit ½″ between the feet.



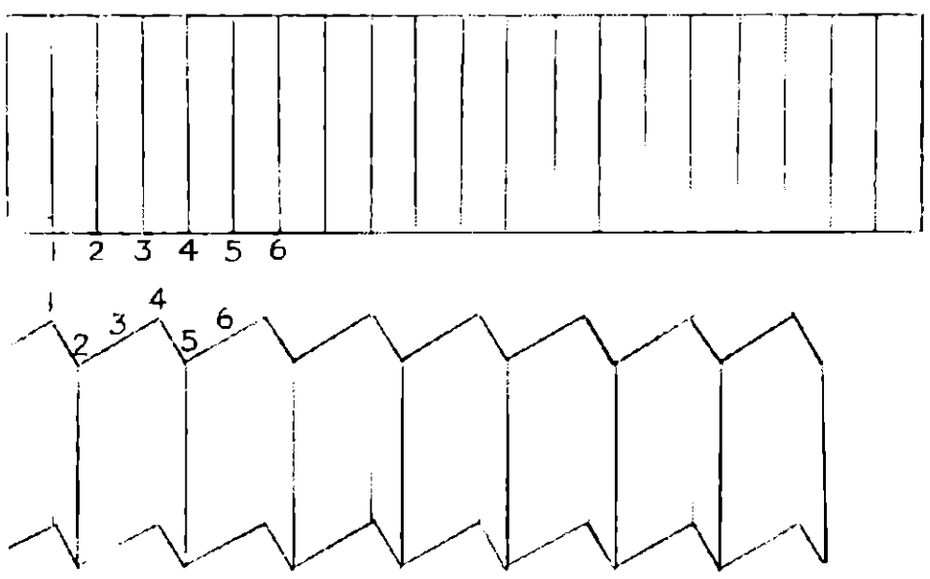
3. Cut a half circle with a 2″ diameter. Cut down a ½″ slit.
4. Force one slit into the other, making the two pieces stand at right angles to each other.



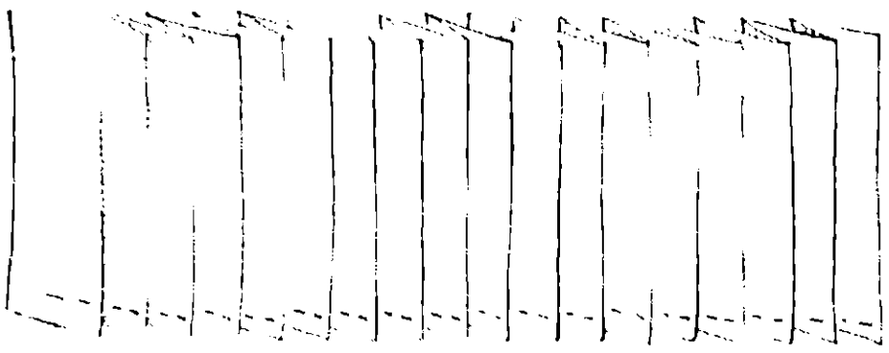
5. To make a pleated skirt, cut a piece of thin paper as long as the skirt and six times the width of the belt. For example, the piece needed for this figure would measure 1½″ x 6″.

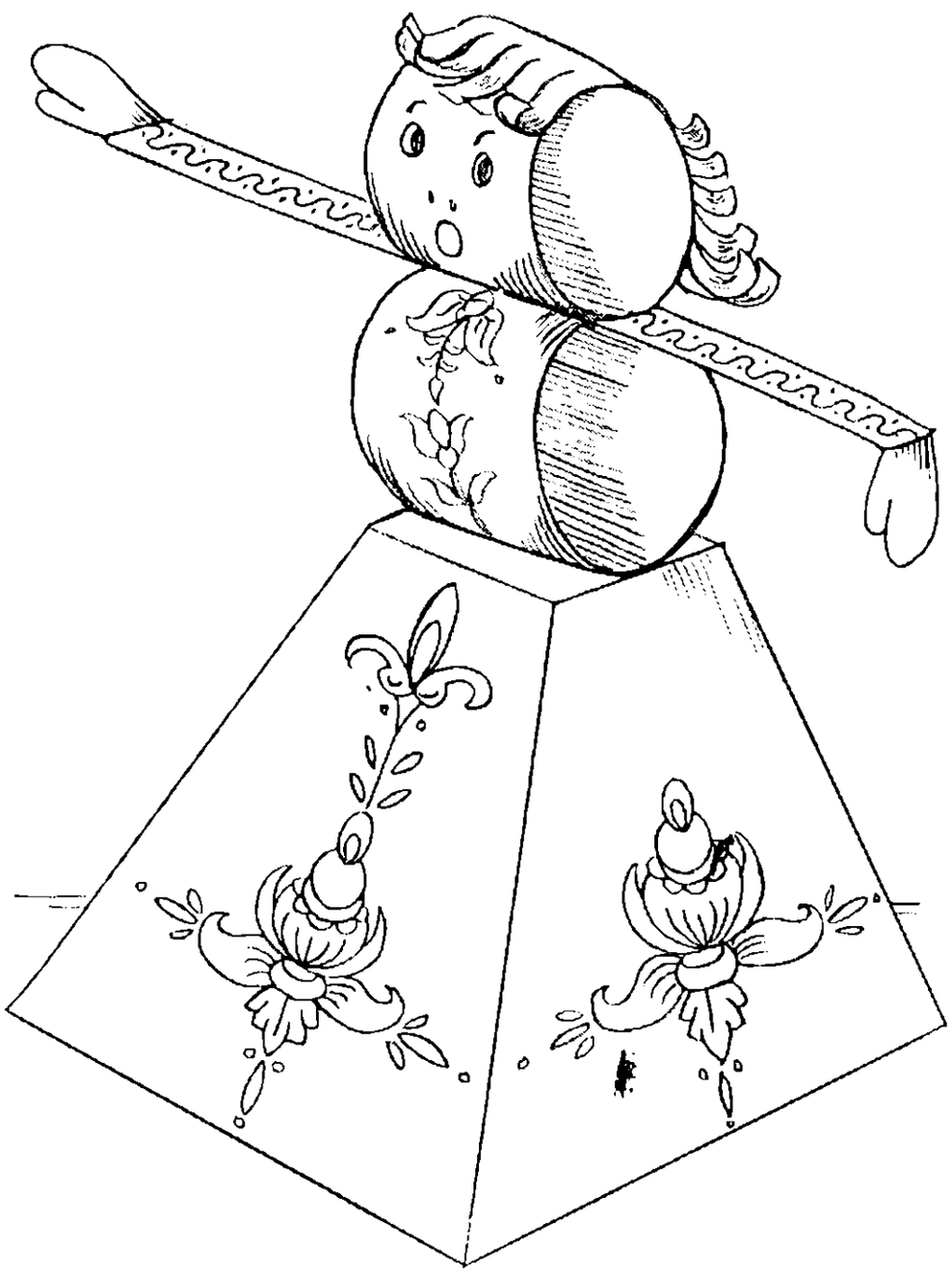


6. Rule off ¼″ spaces.
7. Crease the first line with the pencil mark on the inside of the fold.
8. Crease the next line with the pencil mark outside the fold.
9. Do *not* crease the third line.
10. Number *4* line is folded inside the crease.
11. Number *5* line is folded outside the crease.
12. Number *6* line is *not* folded.
13. Continue in this manner, folding one in, one out, and skipping one until all the paper is used.



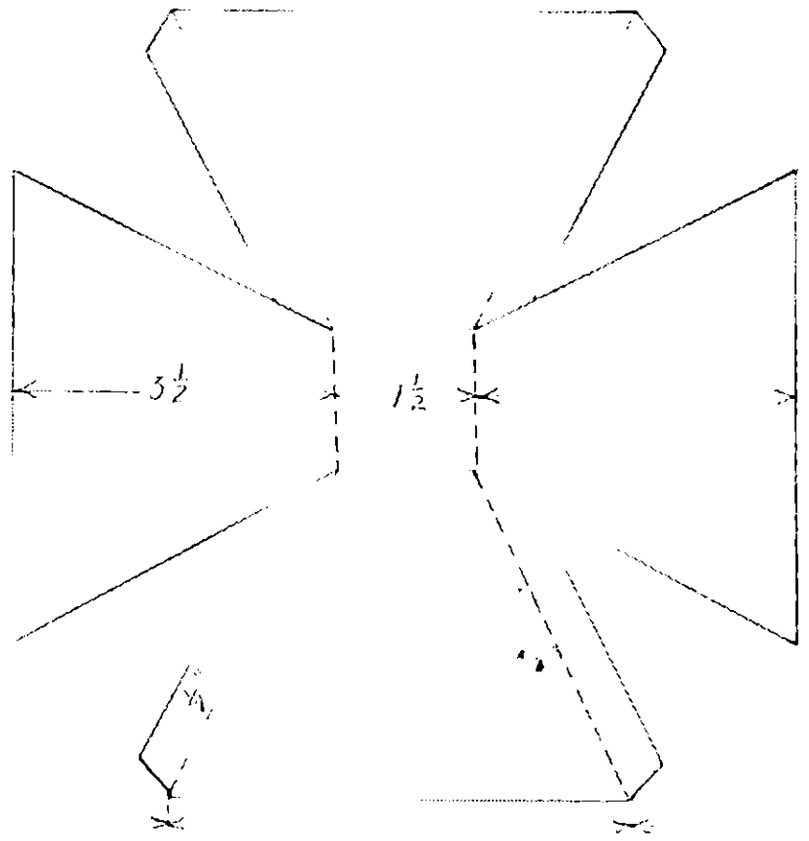
14. Sew a running stitch along the top edge of the skirt.
15. Paste the skirt on the figure.





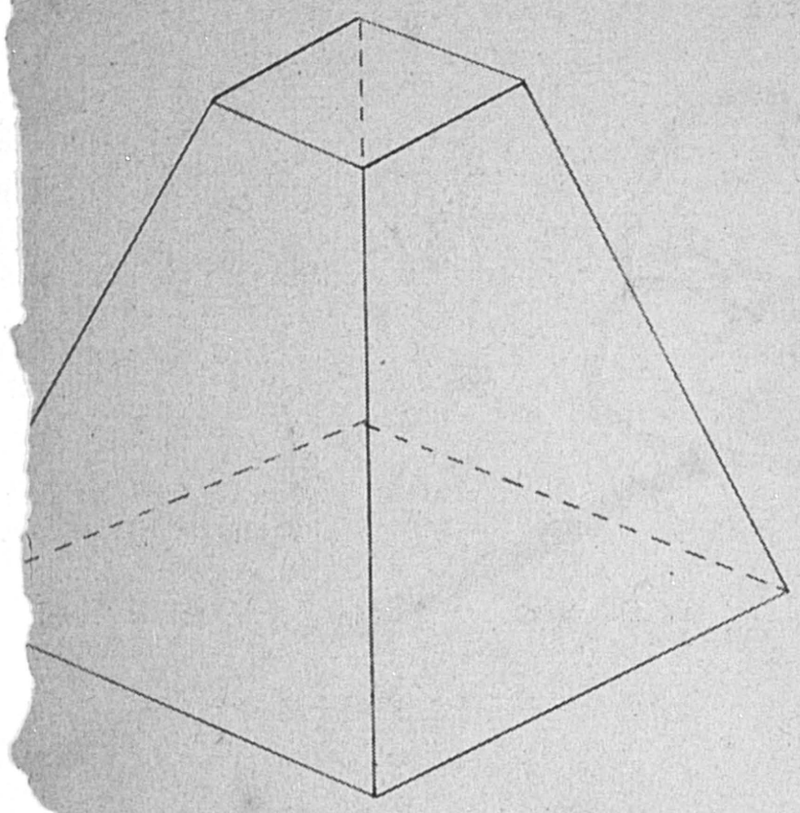
Construction No. 3

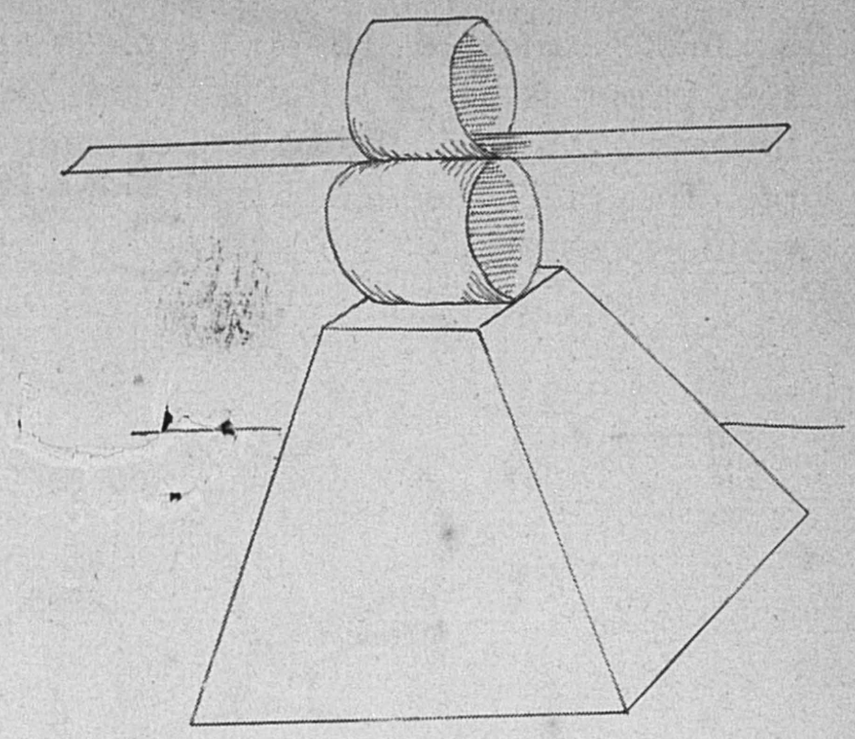
1. The skirt is cut from an 8½″ square of construction paper. Rule off as shown in the diagram below. All four sections are alike. There is a 1½″ square in the middle of the paper.



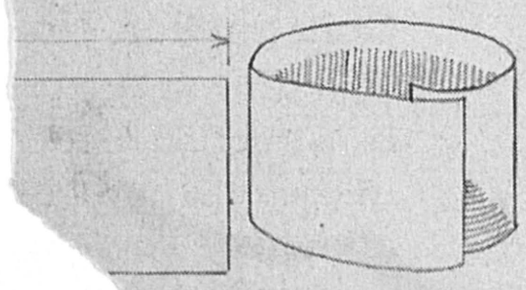
Cut out on solid lines. Crease on dotted lines with dotted lines on the outside of the fold.

Put paste on the outside of each flap and paste the flap under the skirt section.



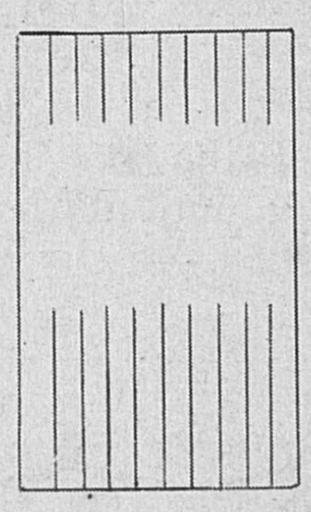


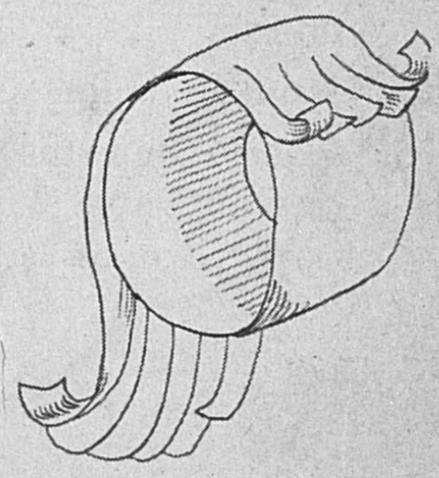
strip 1½″ x 5½″. Paste in a ring a ½″ overlap. This makes the



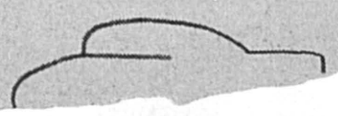
e, brown, or
e the head.
″ overlap.

10. Cut a strip of hair-colored paper 1¼″ x 3″. At one end cut slits ½″ deep about ⅛″ apart. At the other end cut slits 1″ deep about ⅛″ apart. Curl this paper fringe. See directions for curling paper on page 60.
11. Paste the hair on the head, leaving the fringe free.





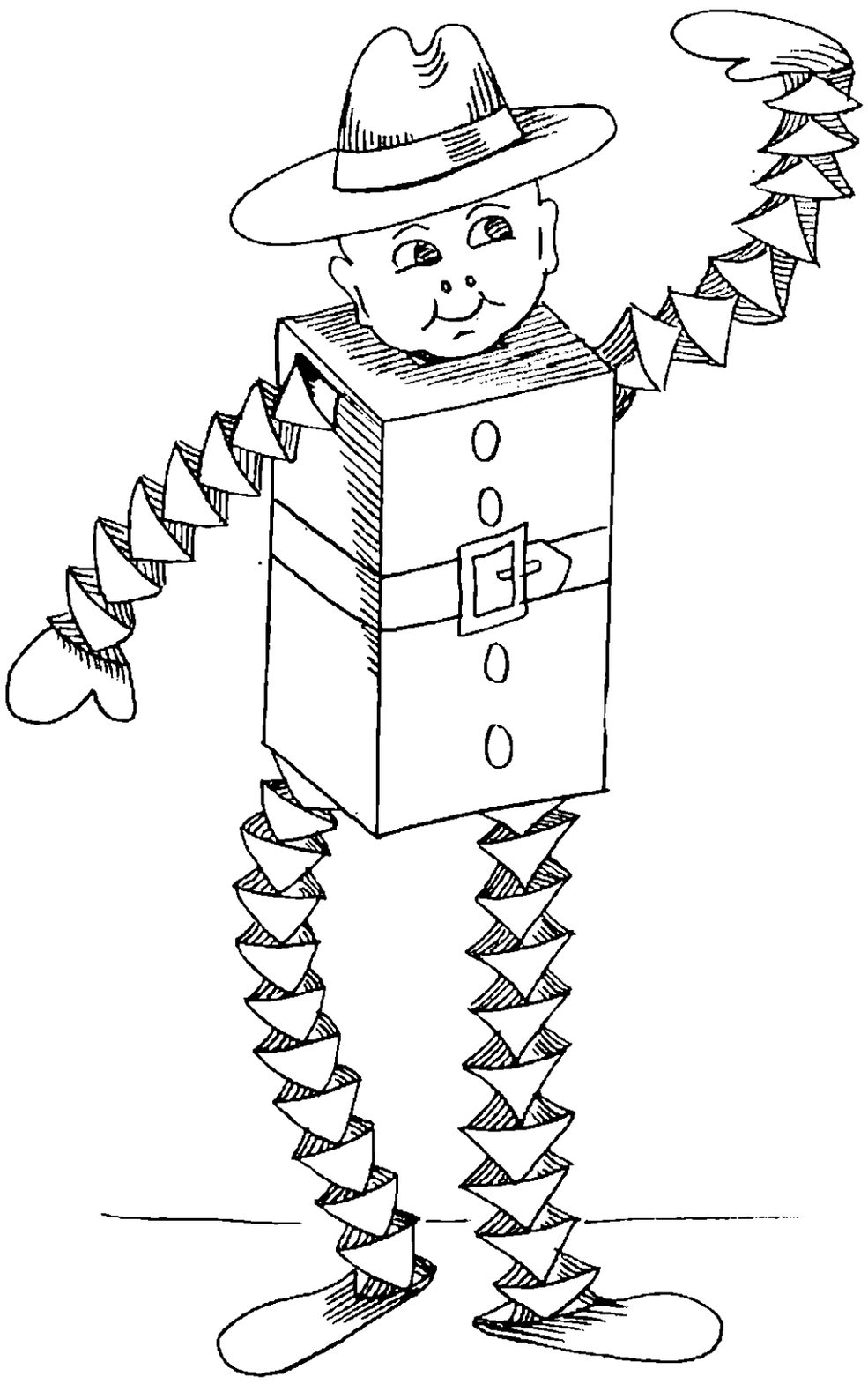
12. Cut paper hands to match the face color. Use pieces of paper ½″ x 1″.

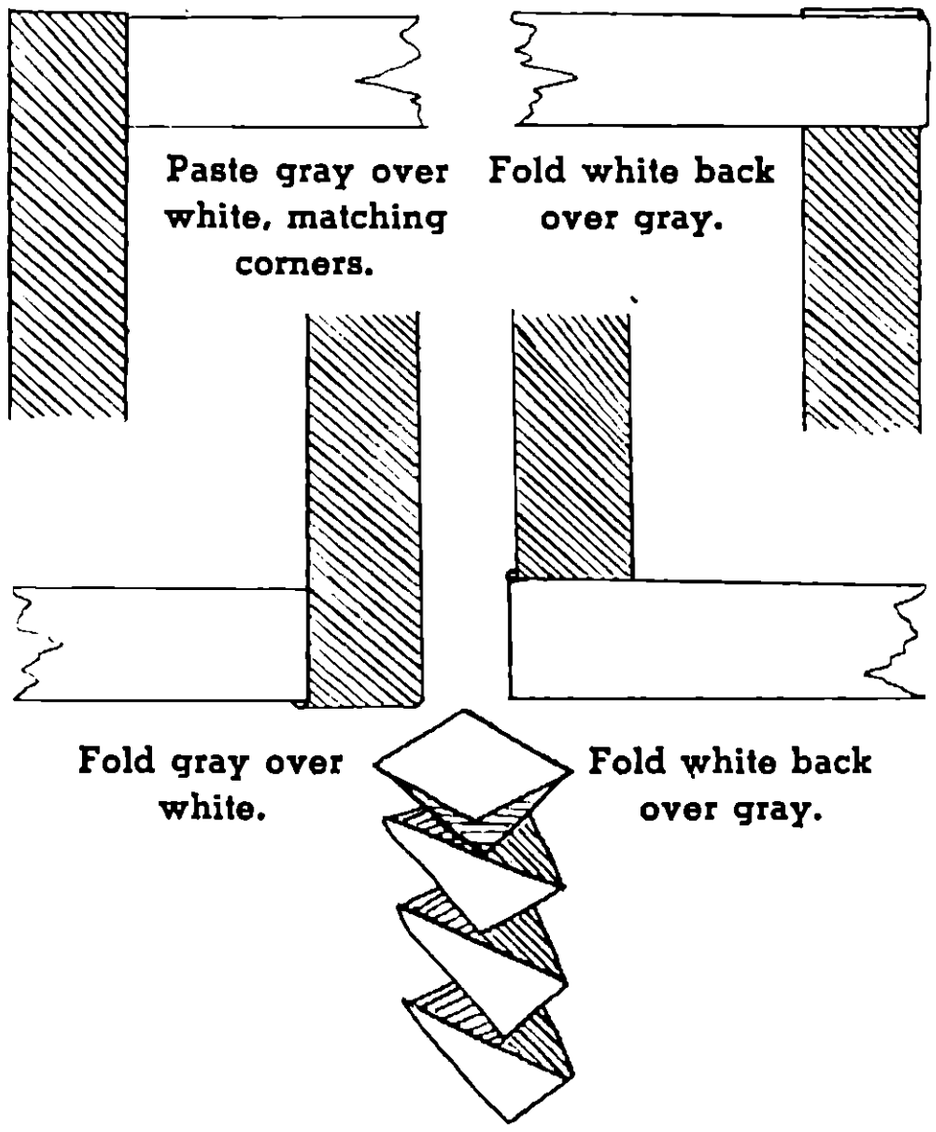




Construction No. 4

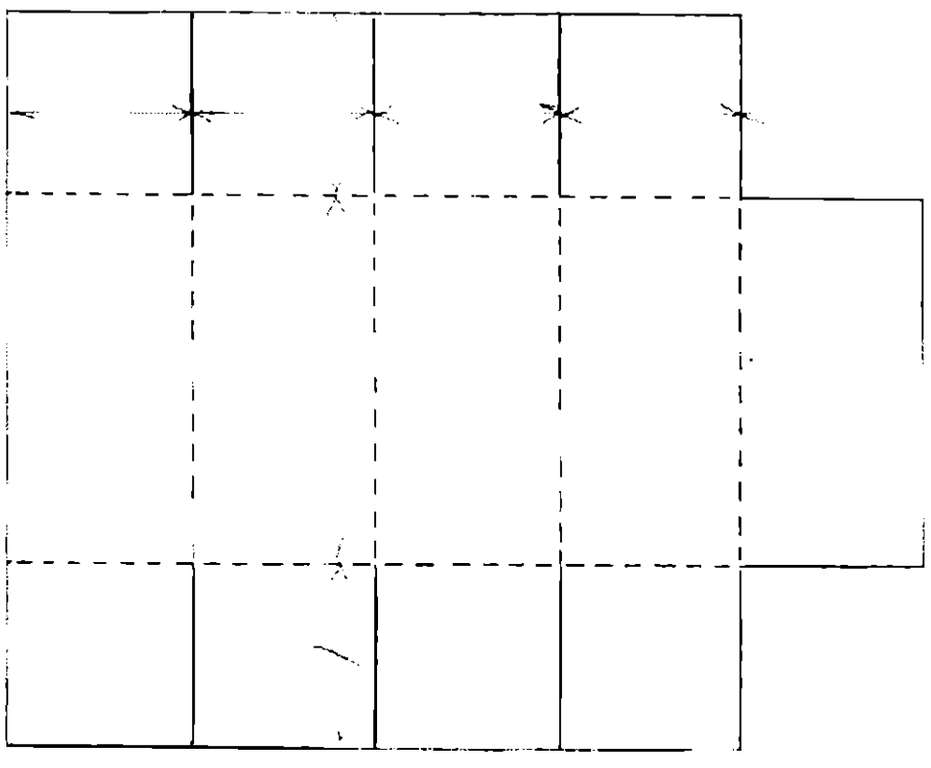
1. Trace the pattern on stiff construction paper. The skirt should be at least one third of a circle that has a 6″ diameter. Add a ½″ flap to one side of the skirt. The flap should be 1″ long.





Construction No. 5

1. Make a box from a piece of paper 4″ x 5″. See directions on page 55.



2. Cut eight strips of paper ½″ x 9″. Cut four each of two colors.
3. Make four paper springs using two strips for each spring. Paste the ends shut.

4. Cut hands and feet from pieces of paper ¾″ x 1¼″.

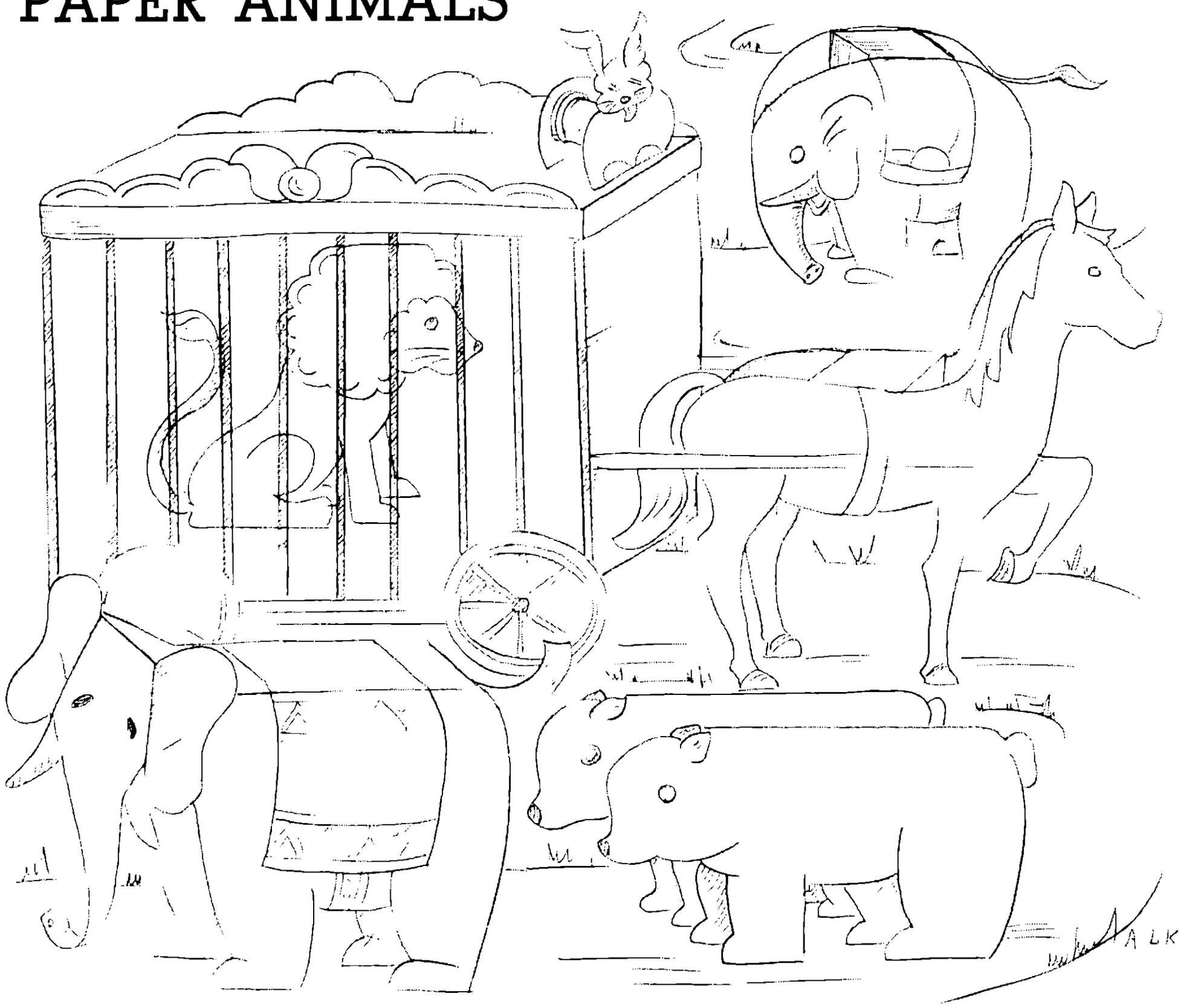


5. Cut out a paper head like the one shown. Be sure to draw the ½″ x ½″ tab just under the chin.



6. Paint or crayon the features on the head, and the buttons and belt on the box.
7. Paste the feet and hands on the ends of the four paper springs.
8. Paste the paper springs to the box to make the arms and legs.
9. Paste the head on by folding back the tab so that the pencil line is on the outside of the fold and then by pasting the tab to the center of the top of the box.

PAPER ANIMALS



WHEN MAKING MINIATURE farms, zoos, circuses, and other scenes requiring animal forms, use paper for easy, effective results. The paper should be stiff enough so that the legs will support the body without kinking.

Materials Needed

Stiff paper—brown, grey, white, yellow, or other animal skin color
Spools
Paste
Showcard colors or crayons

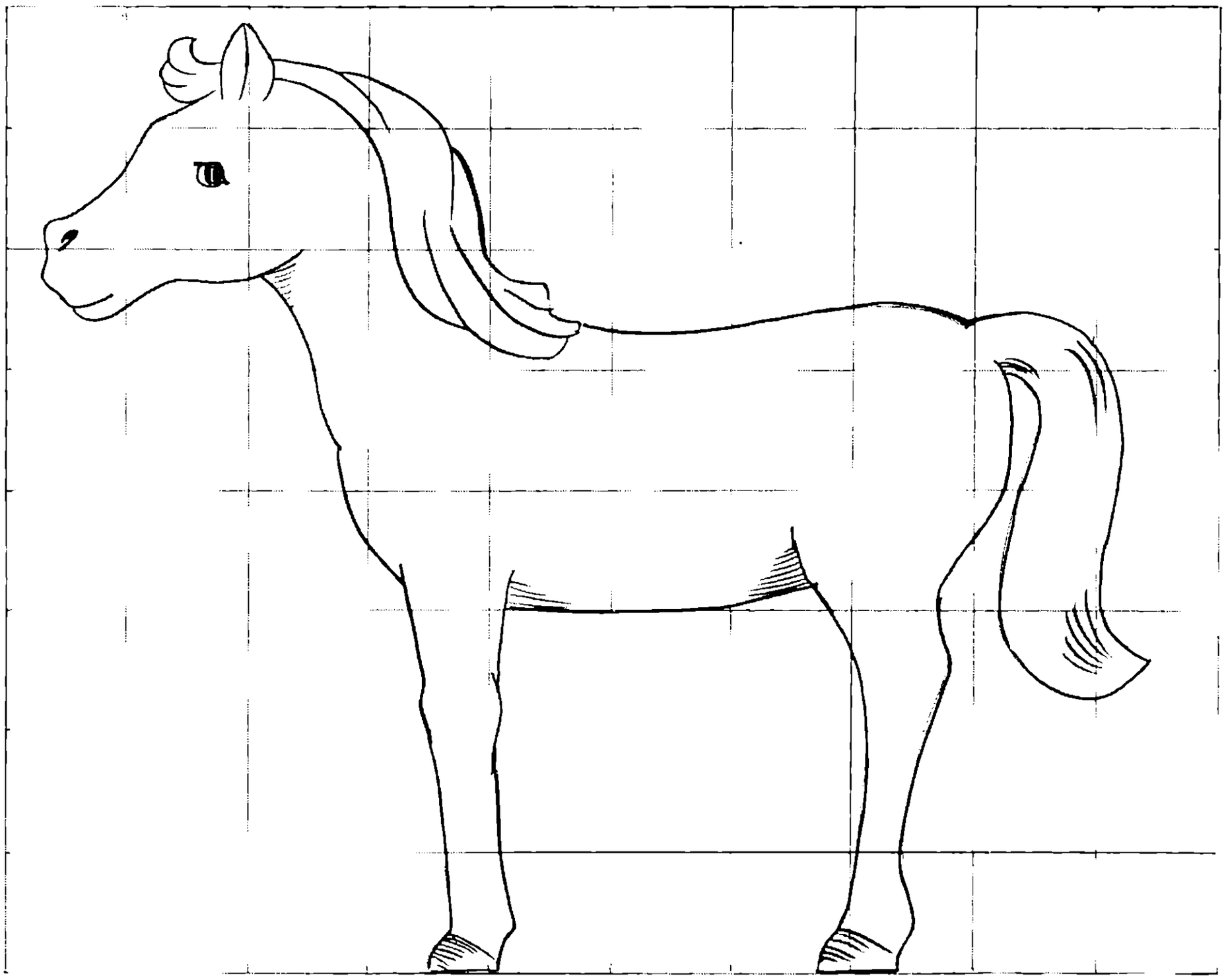
Tools Needed

Pencil
Scissors
Ruler

PROCEDURES

Constructing Animals — Method 1

1. Draw, trace, or enlarge a side view of an animal. Be sure the legs are on a level. Show only two legs and one ear.
2. Cut two identical side views out of very stiff paper or cardboard. Use a color of paper typical of the animal or paint the cardboard or paper the right shade.
3. Paint or crayon details such as eyes, hoofs, manes, noses, collars, etc.
4. Make a 1″ cube, using a piece of matching paper 3″ x 4″. Rule off in 1″ squares. Draw tabs in two upper corners. Cut on solid lines. Crease on dotted lines. Paste together. All sides should be closed.

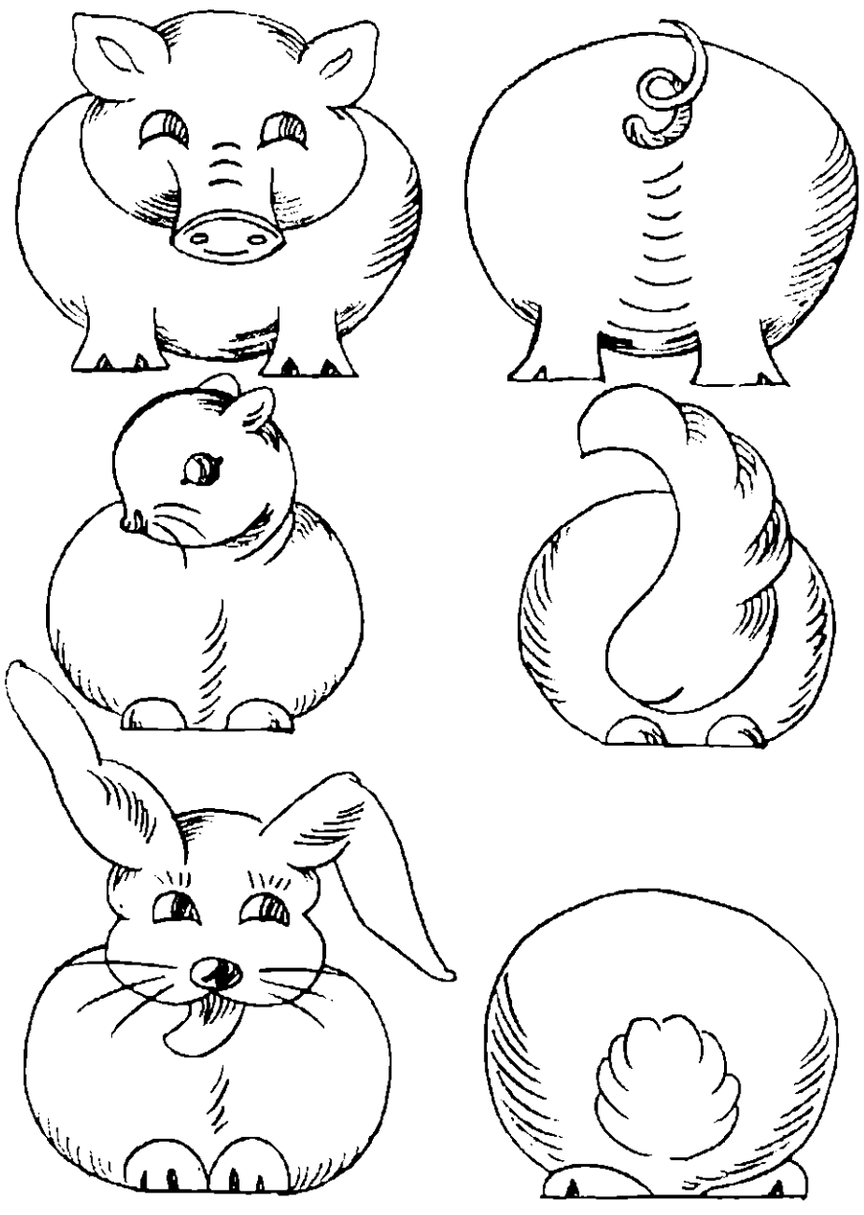


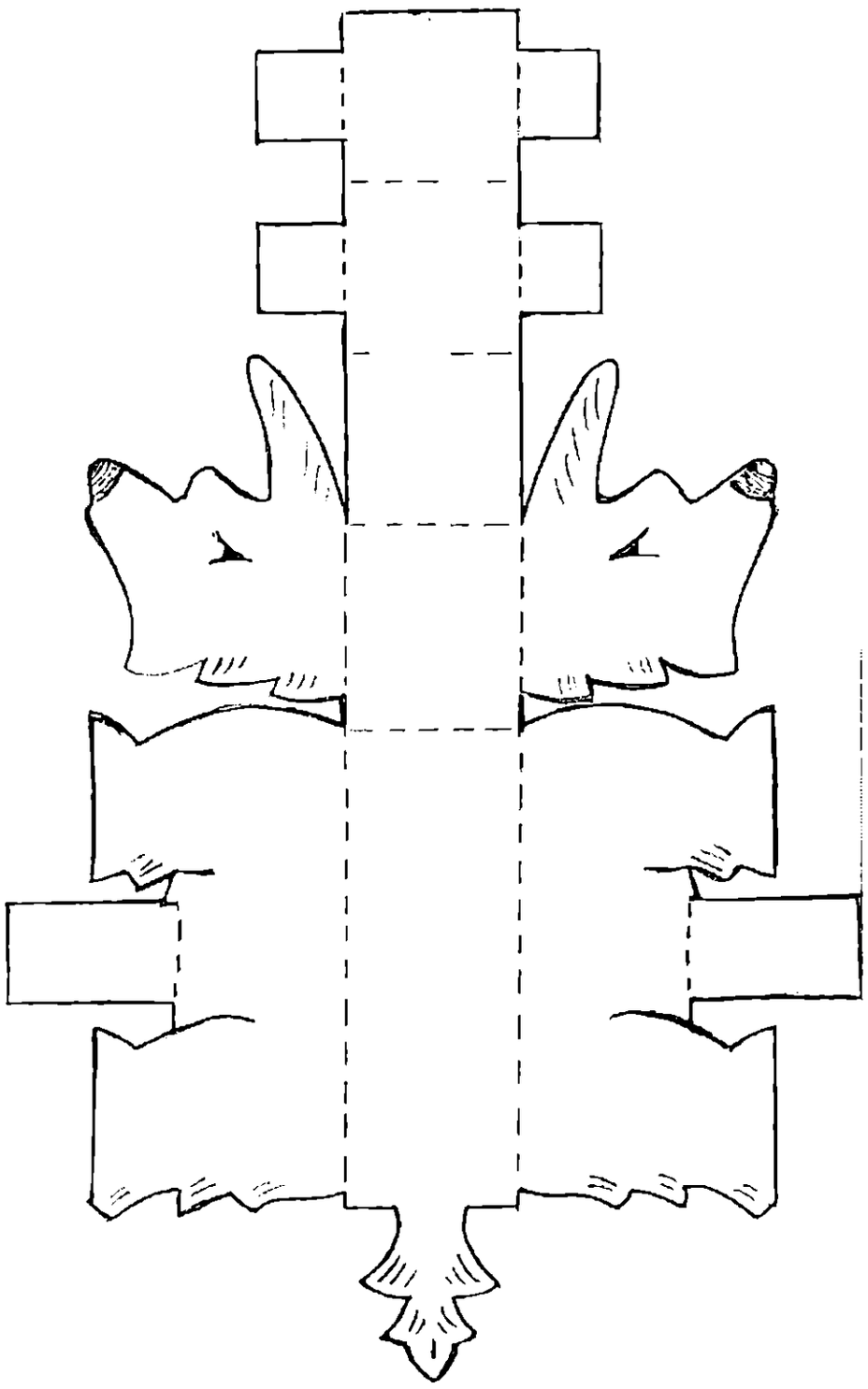
Pattern for horse constructed by Method 1

5. Paste the cube between the two side views. Place it even with the top of the body and about where a rider would sit on a horse. Hold until paste sticks.
6. Paste the heads and tails together. Again, be sure to hold them together until the paste dries.
7. These animals will stand if the paper is stiff enough.

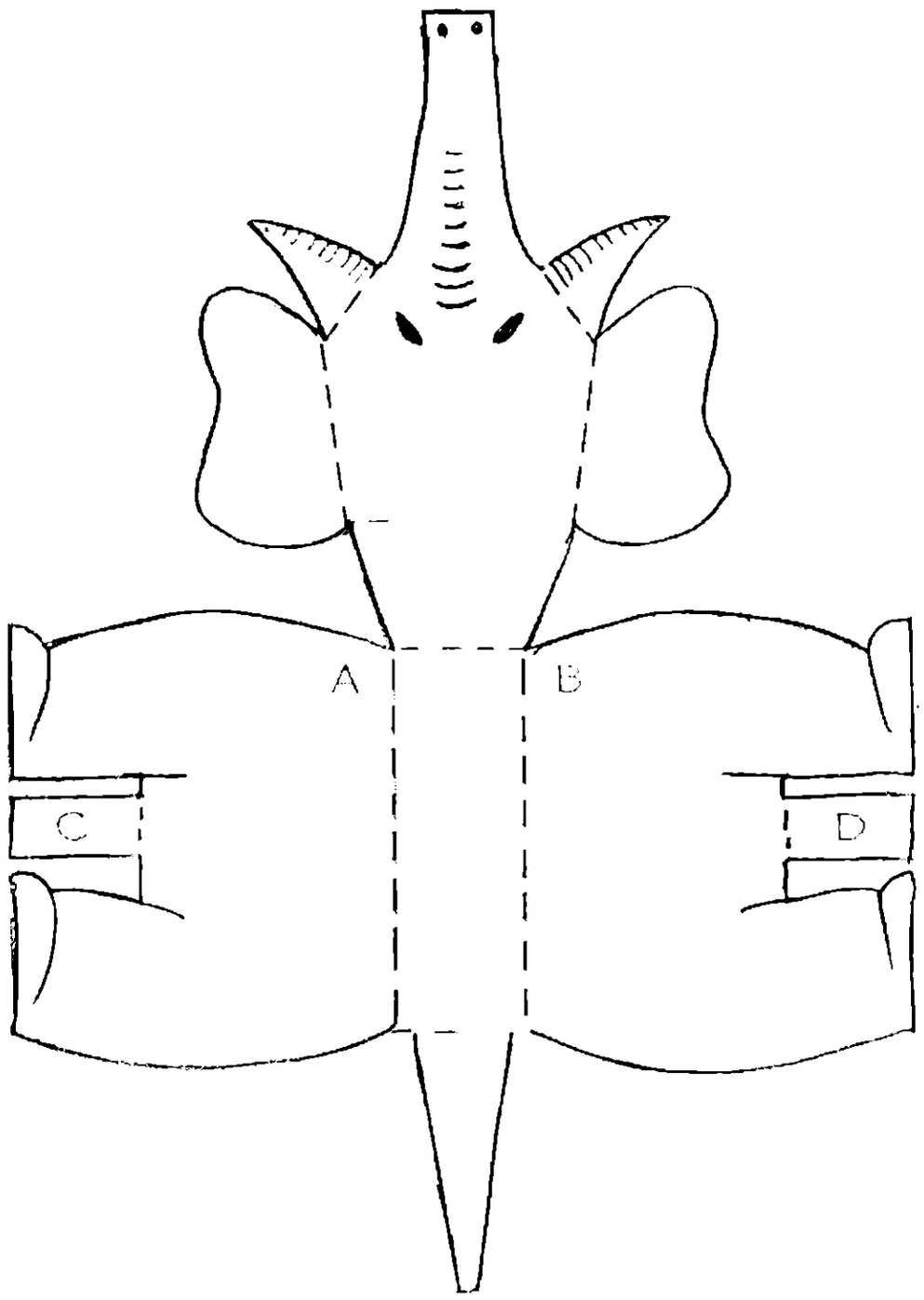
Constructing Animals — Method 2

1. Draw the front and rear views of the animal. These animals should be rather small. Limit the height to four or five inches.
2. Trace the patterns on stiff paper. Cut and color.
3. Paste the front view of the animal to one end of a spool. Paste the rear view to the other end of the spool. Be sure the bottom of each view will rest level on the desk when paste is dry. Let the animal set on the rear view to dry.





Pattern for Scotty

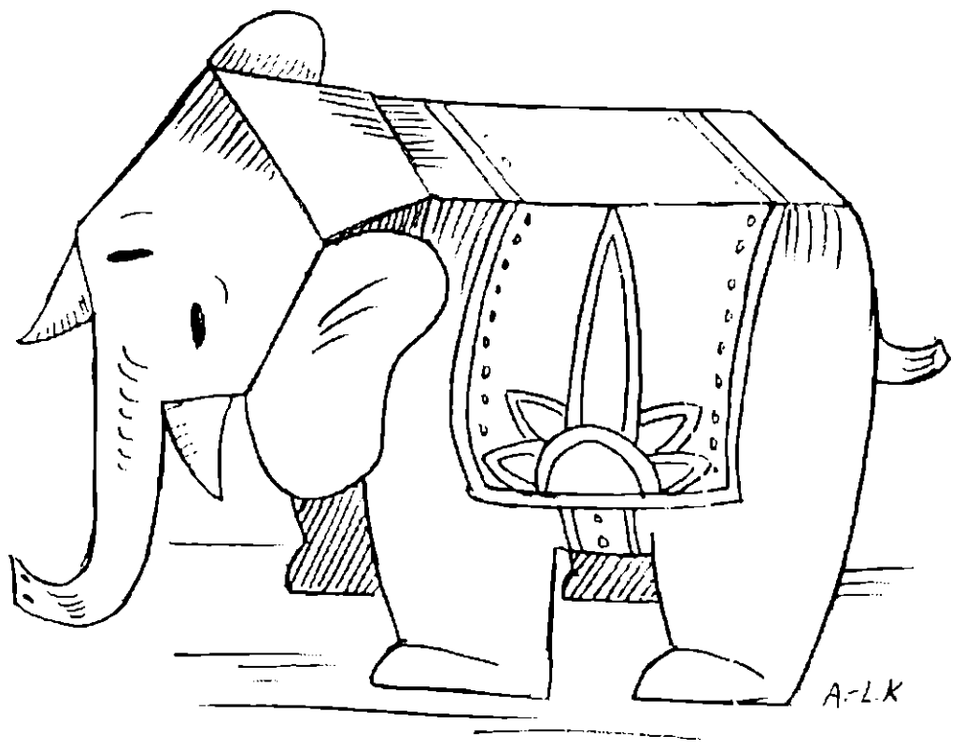


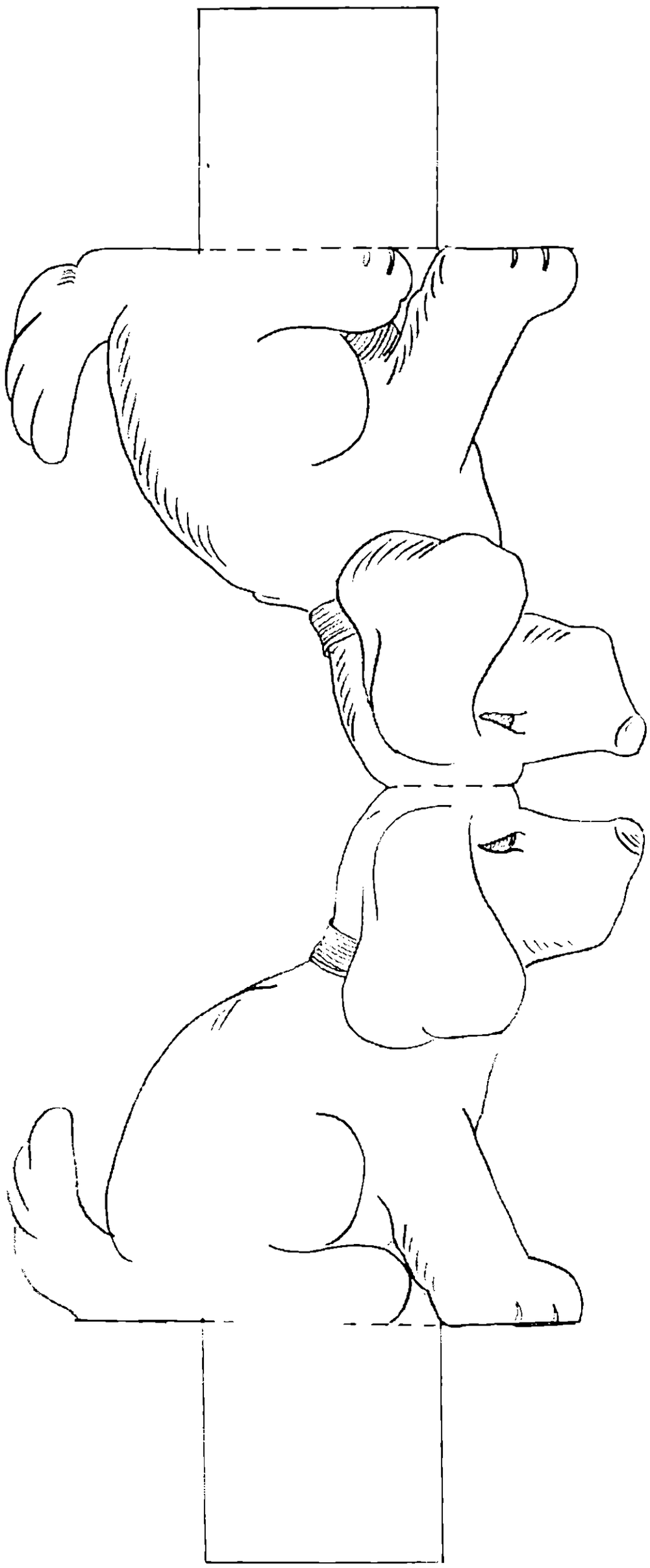
Pattern for elephant

Constructing Animals — Method 3

Designing of this animal type is more difficult but the results are very satisfactory. The animal has a three-dimensional appearance. These directions will deal specifically with the elephant:

1. Trace or draw the pattern on stiff construction paper, using an appropriate color.
2. Cut out carefully.
3. Fold the dotted lines across the ends of the tusks and line *AB* so that the lines will be on the inside of the crease.
4. Fold all other dotted lines so that the dotted lines will be on the outside of the creases. Make sharp folds.
5. Curl the trunk and tail so that both will curl up.
6. Paste tab *C* over tab *D* to keep the legs from spreading. Hold the tabs together until the paste sticks.

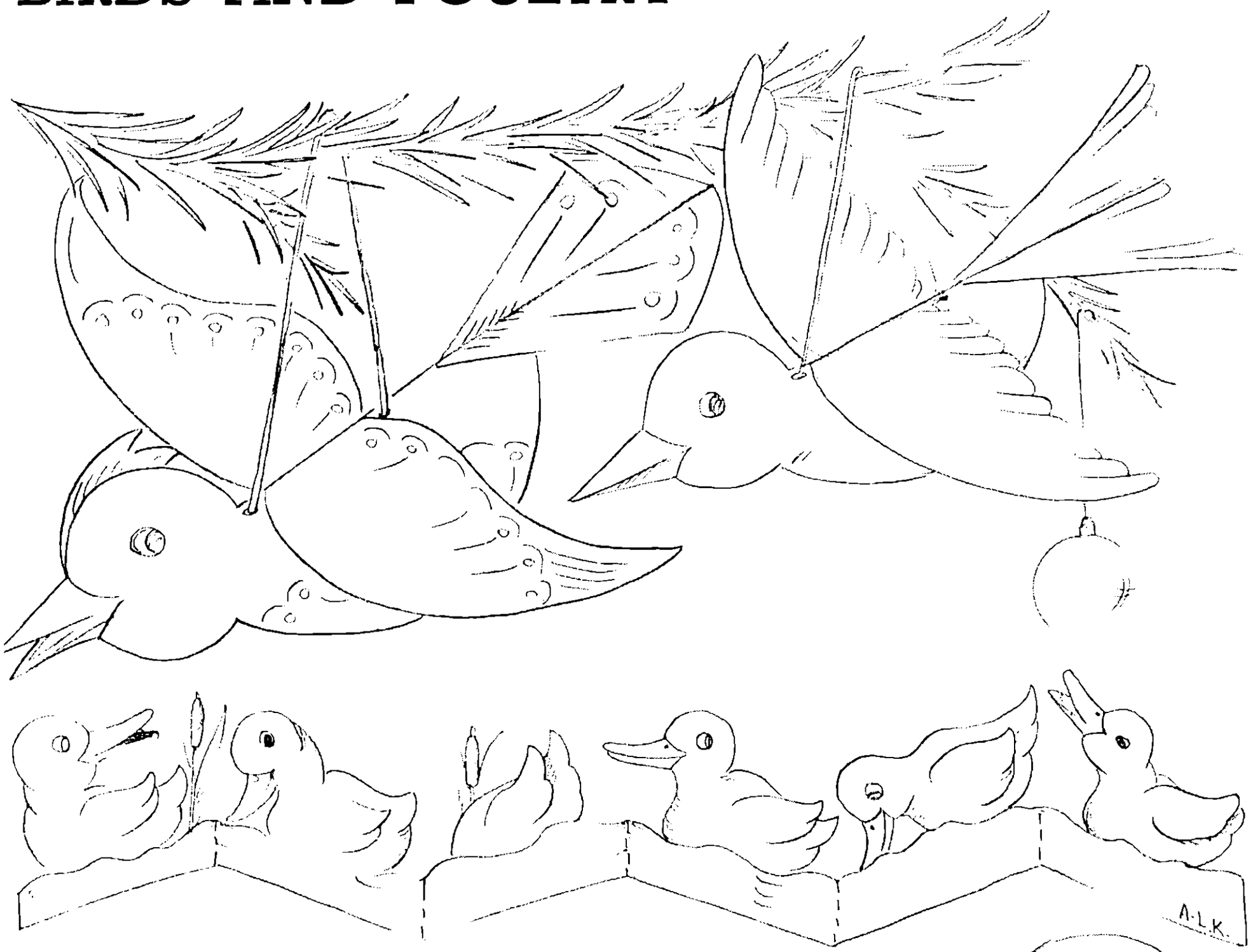


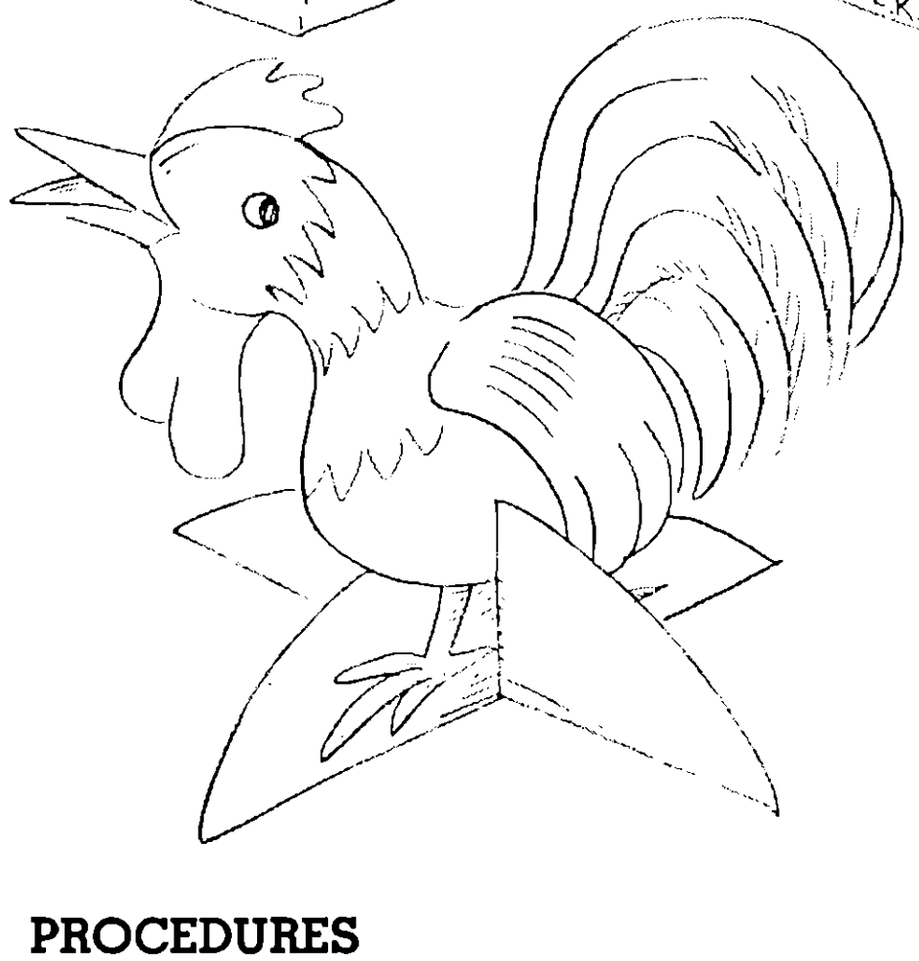


Constructing Animals — Method 4

1. Patterns used in this type of construction must be such that they can be folded at the top. Notice the illustration.
2. Fold paper in half. Draw the pattern so that some part is definitely on the fold. Draw a 1″ square base.
3. Keep the paper folded. Cut through both pieces of paper at one time.
4. Fold tabs so that the line is on the outside of the crease. Color details.
5. Paste one tab over the other. Hold the tabs together until dry.

BIRDS AND POULTRY





HUNG FROM THE branches of Christmas trees or suspended on the ends of a stick, birds with spread wings and tails are colorful and realistic. Whether they are constructed for the purpose of design work or realistically for nature study, the birds will flutter gently when tied with thread to a branch or wand.

Materials Needed

Construction paper—red, blue, yellow, brown
Paste or staples
Thread
Thin sticks—¼″ dowel rod, or ¼″ x ¼″ sticks about 18″ long
Show card colors

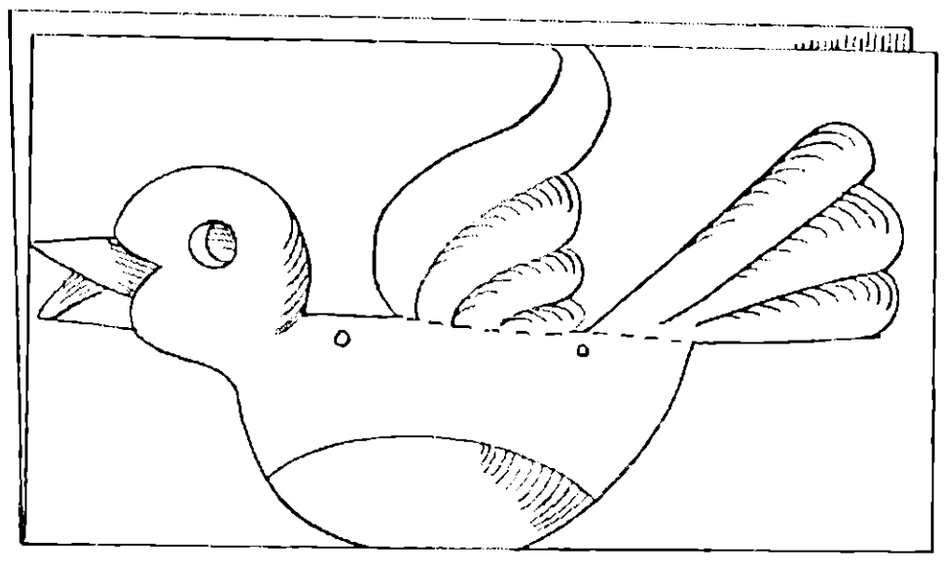
Tools Needed

Scissors
Pencil
Paint brush
Needle with large eye

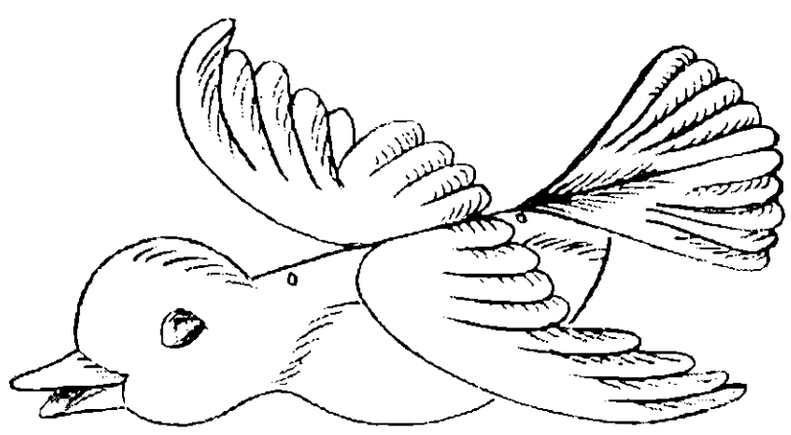
PROCEDURES

A Flying Bird

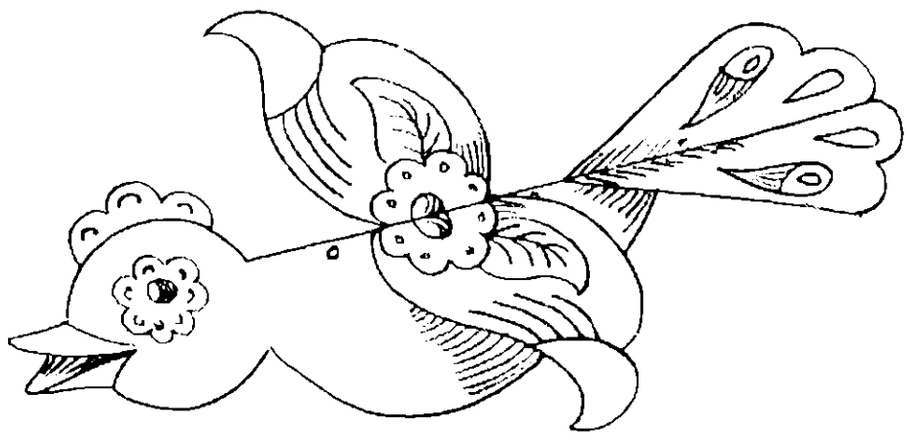
1. Fold a piece of paper 8″ x 6″ in half so that when folded it will measure 4″ x 6″.
2. Place fold at bottom. Draw the bird on the paper so that the breast is on the fold.



3. Keep the paper folded and cut out the bird, cutting through both thicknesses of paper. Do not cut the fold apart under the breast of the bird.
4. Paint the bird realistically or with fantastic designs. Paint both sides of the wings and tail pieces.



Realistic design

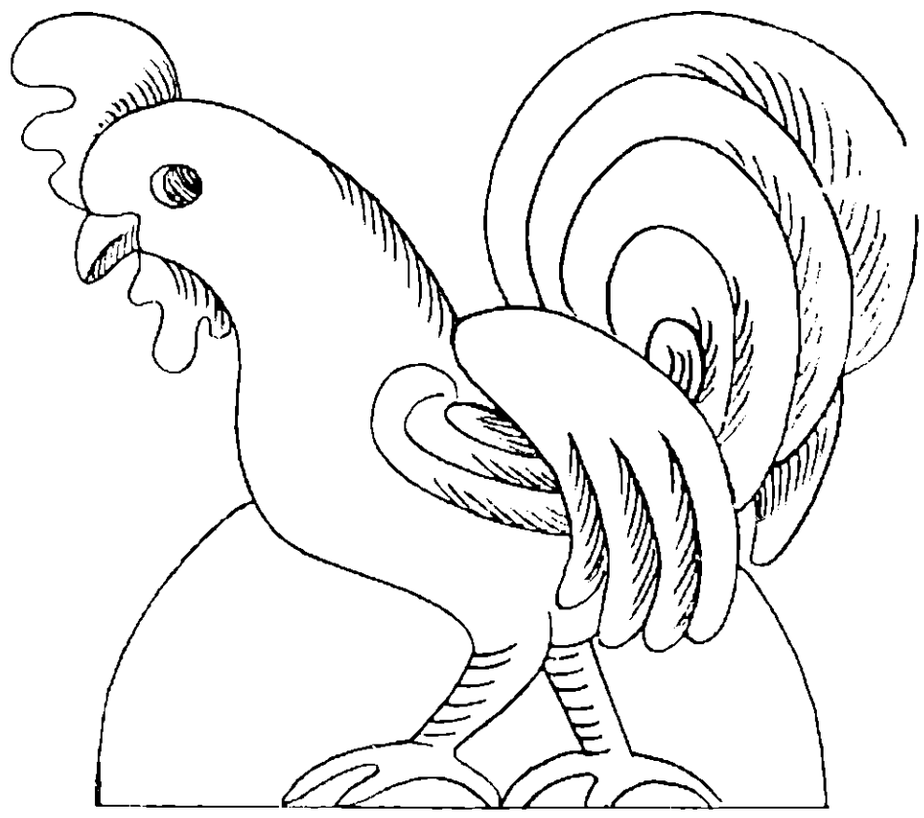


Fantastic design

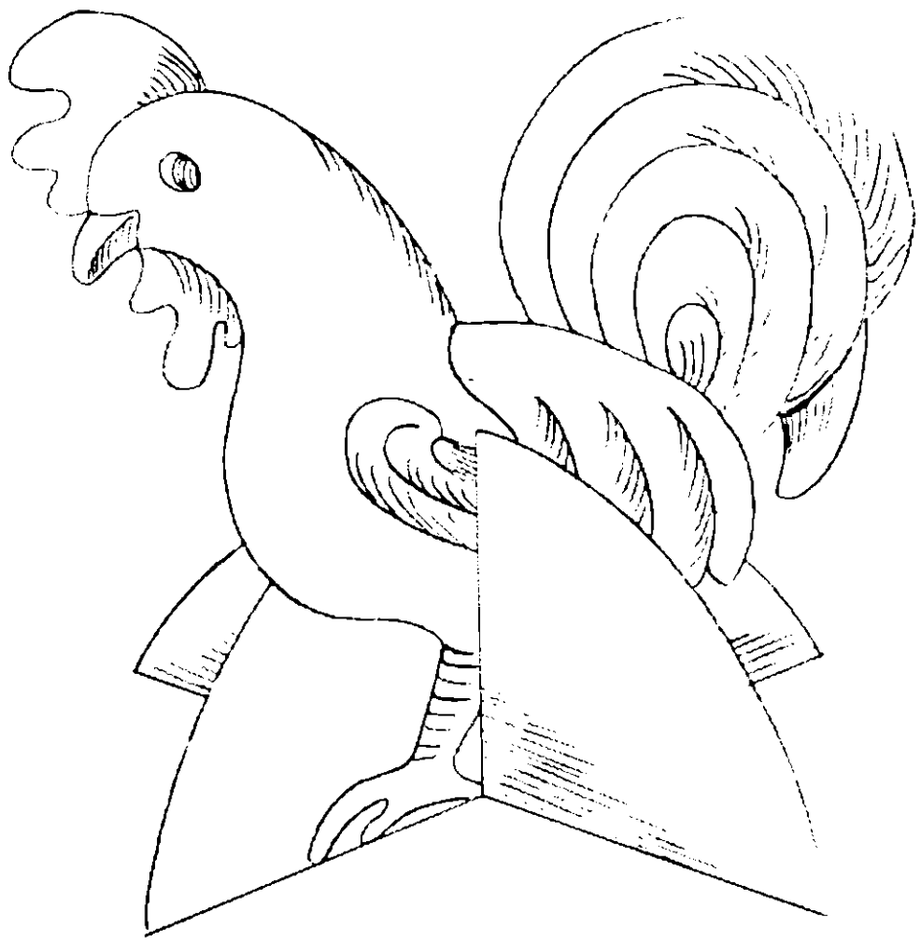
5. Paste the heads and bodies together.
6. Punch or poke holes at the indicated places on each side of the wing.
7. Fold back the wings and tailpieces on both sides so that the dotted lines are on the inside of the fold.
8. Thread a needle. Run a thread through one hole and tie a knot. Run the thread through the other hole and tie another knot leaving about a 12″ loop of thread to tie the bird to the Christmas tree or on the end of a wand.

A Chicken, Duck, Goose, or Turkey

1. Trace this pattern or draw another. The pattern should be so drawn that the chicken or duck is standing against a semicircular base measuring 2″ across the diameter.

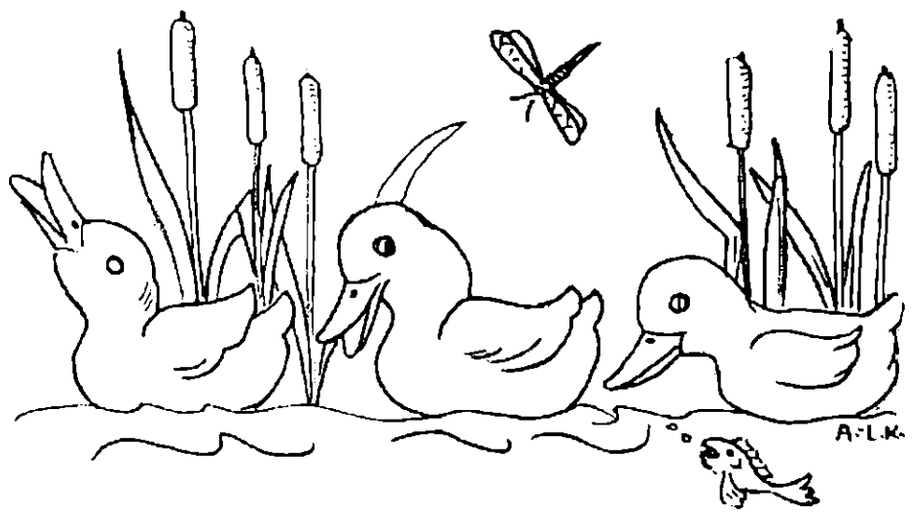


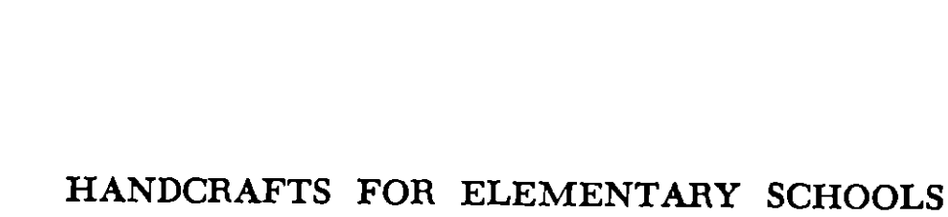
2. Cut out the chicken. Cut a ½″ slit up from the center of the base.
3. Paint or color with crayons.
4. Cut another semicircle with a 2″ diameter. Cut a ½″ slit down from the center of the top.
5. Make the chicken stand by sliding the ½″ slits into each other. Keep the semicircles at right angles to each other.

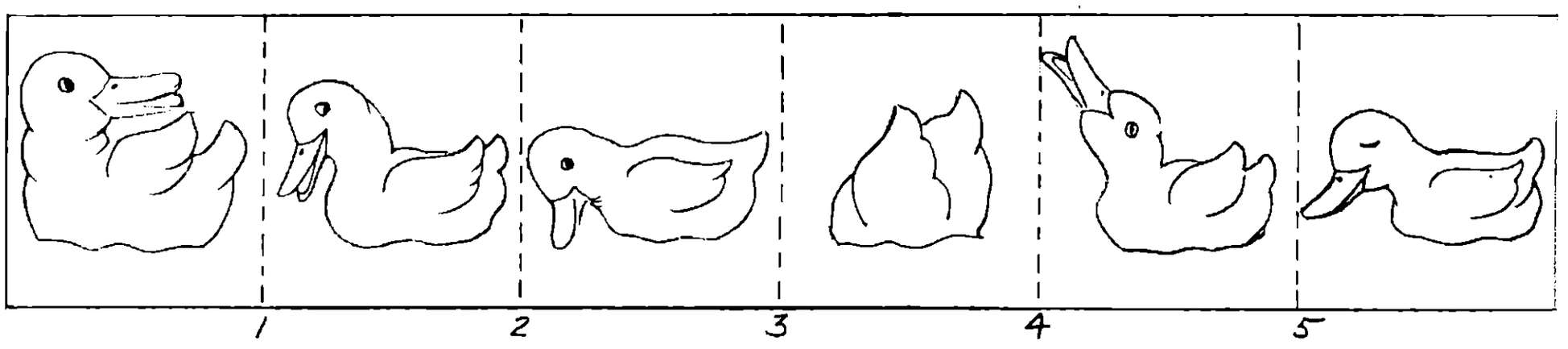


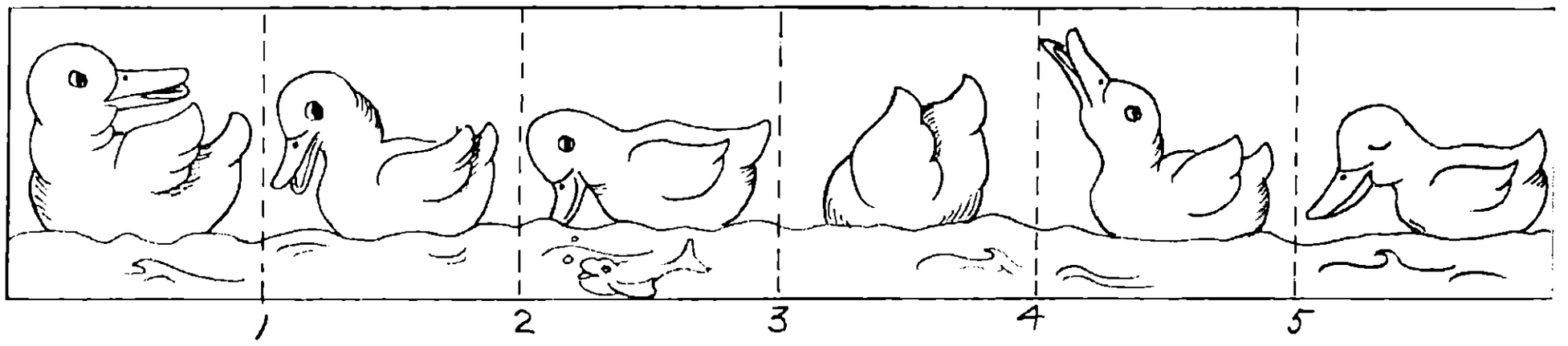
Swimming Ducks

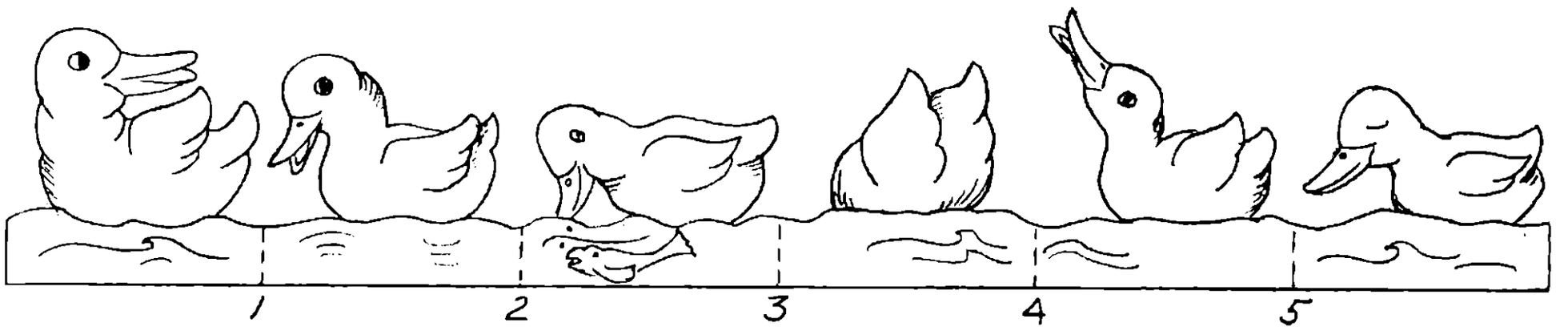
1. Cut a piece of paper 2″ x 12″. Rule off in 2″ squares.
2. Draw a swimming duck on each square.
3. Draw a line between the ducks to represent the water.
4. Cut away the background above the water line.
5. Paint or crayon.
6. Fold. First lines *1*, *3*, and *5* should be folded so line is inside the crease.
7. Lines *2* and *4* should be folded so line is outside the crease.
8. Ducks will stand up.

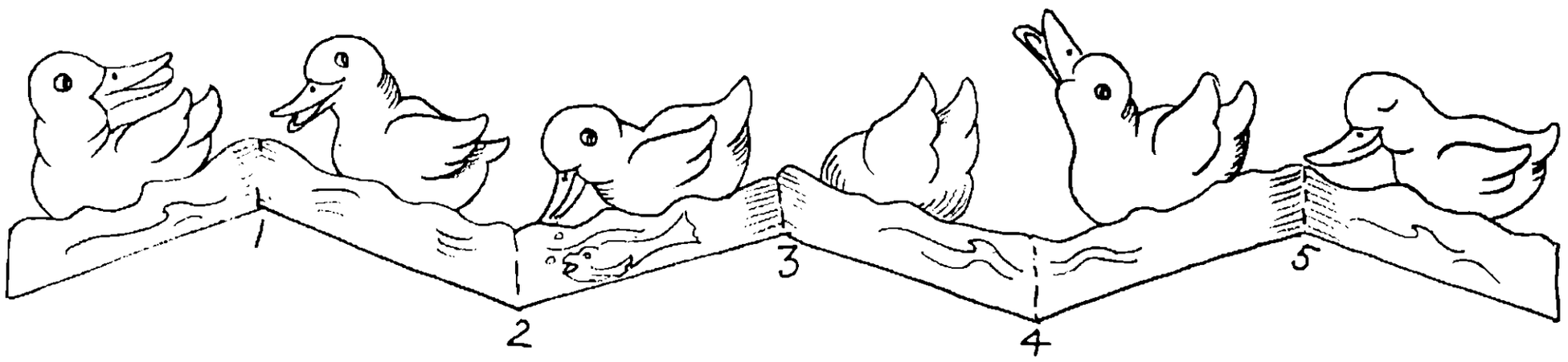




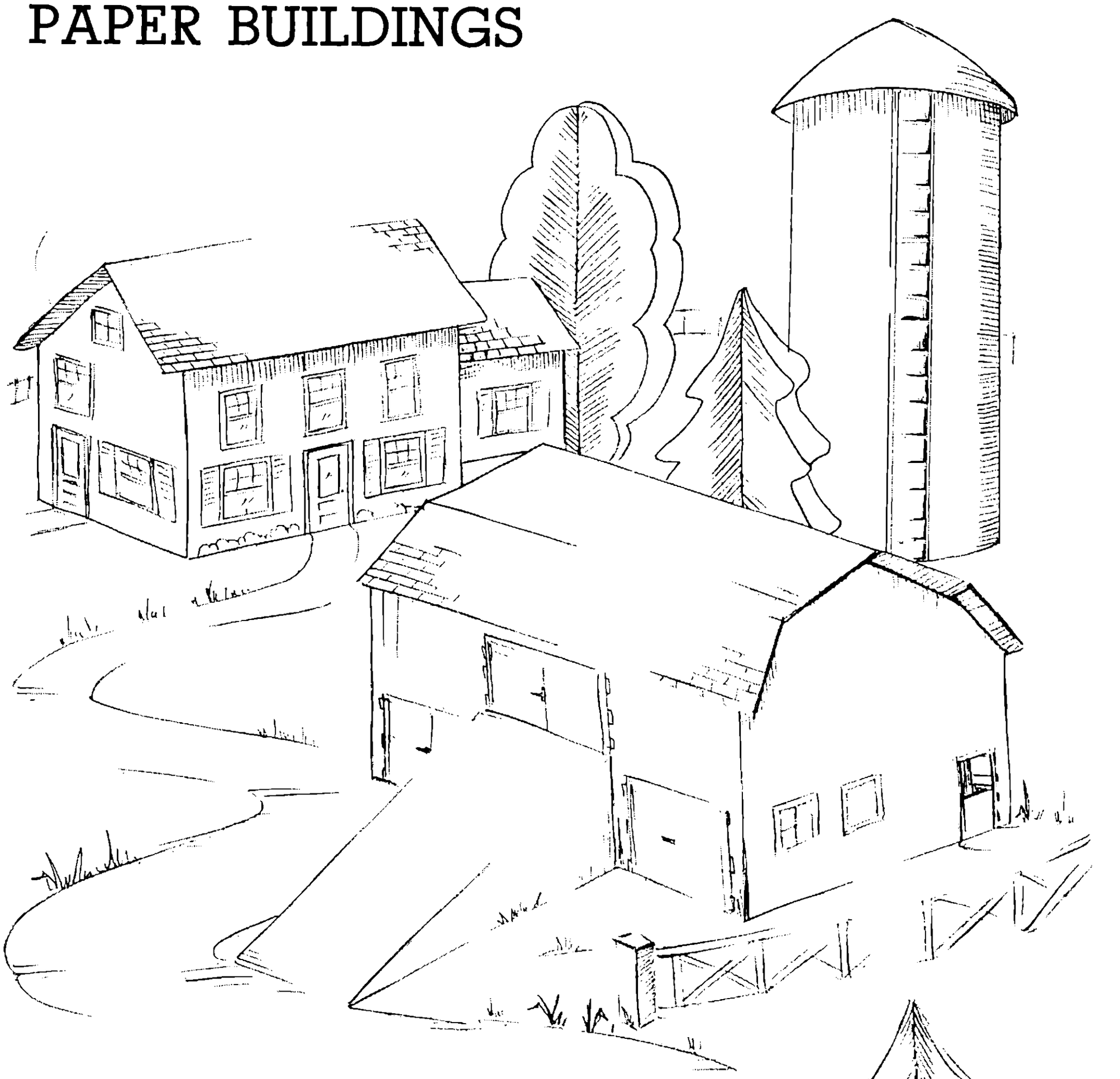


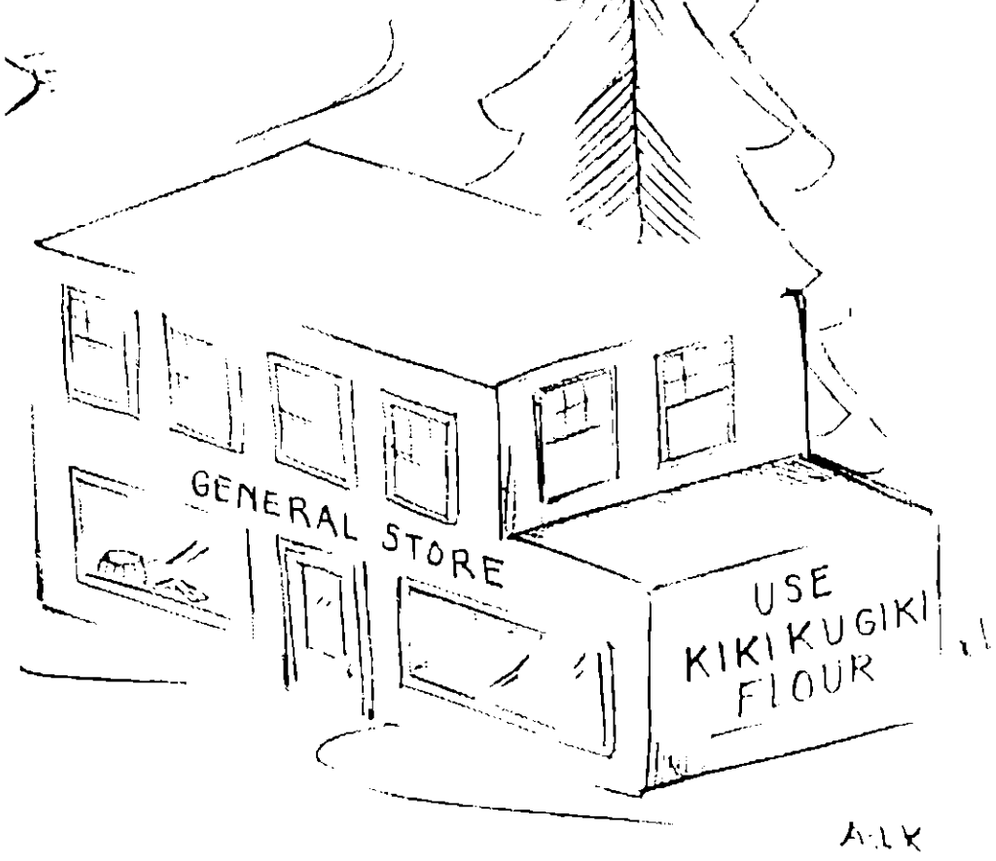






PAPER BUILDINGS





FOR QUICK, EASY, attractive, and inexpensive construction, paper is best. Entire villages, farms, castles, and other building groups can be constructed in this medium. Basic forms are the box, cylinder, and related shapes.

Materials Needed

Construction paper
Paste
Crayons or show card paints
18″ of string or two rubber bands

Tools Needed

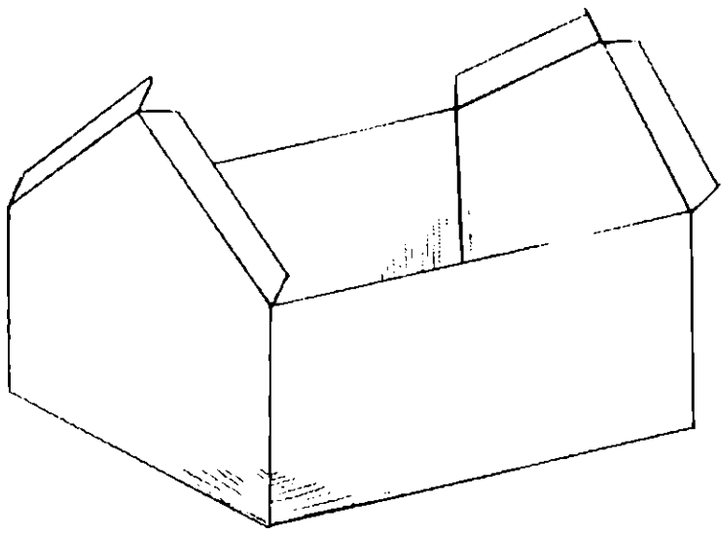
Scissors
Ruler
Pencil



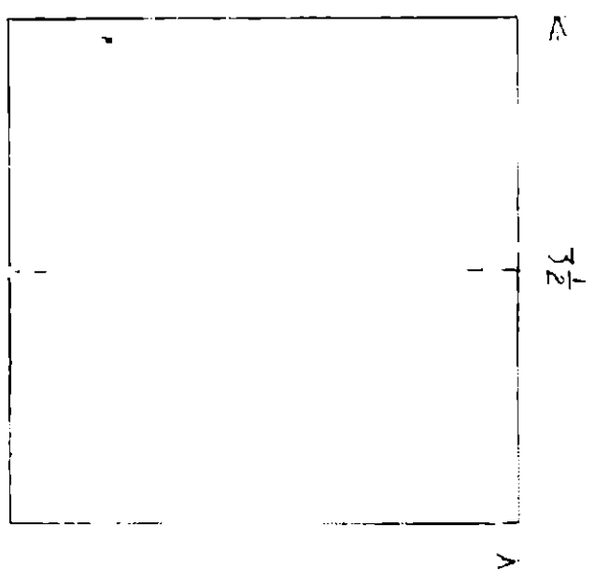
PROCEDURES

A House

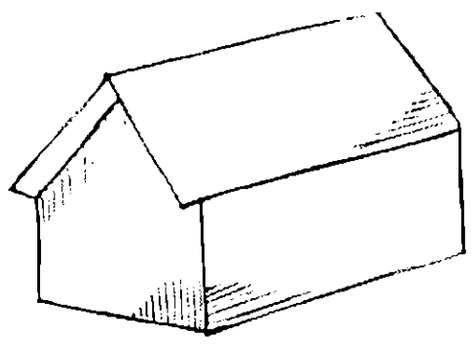
1. On a strip of paper measuring 3″ x 10½″, rule off the pattern shown. The five flaps are ½″ wide. Cut out, discarding the shaded parts.
2. Draw on windows and doors as indicated.
3. Color the house. Add shrubbery and flowers.
4. Fold on dotted lines with lines on outside of fold.
5. Paste flap at end of house under opposite end to make rectangular shape.



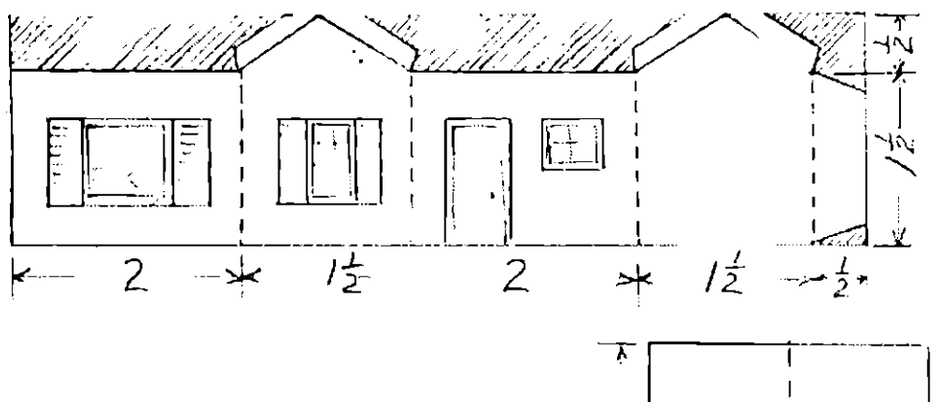
6. Cut a square piece for the roof 3½″ x 3½″.
7. Mark off into shingles with pencil or sharp crayon. Little children should omit this step.

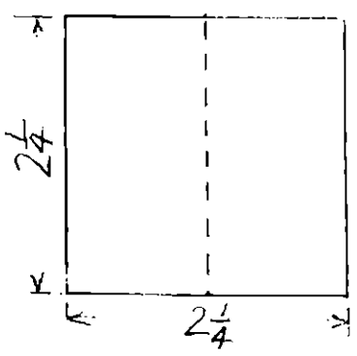


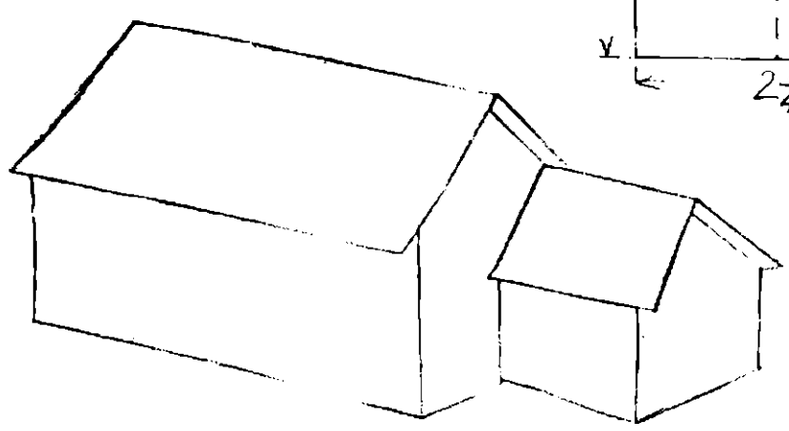
8. Fold the roof in half. Make a sharp crease.
9. Put paste on the tabs on the peaks of the house. Paste the roof in place. Allow the roof to extend over each end of the house. Reach up through the inside of the house to force the tabs tight against the roof.

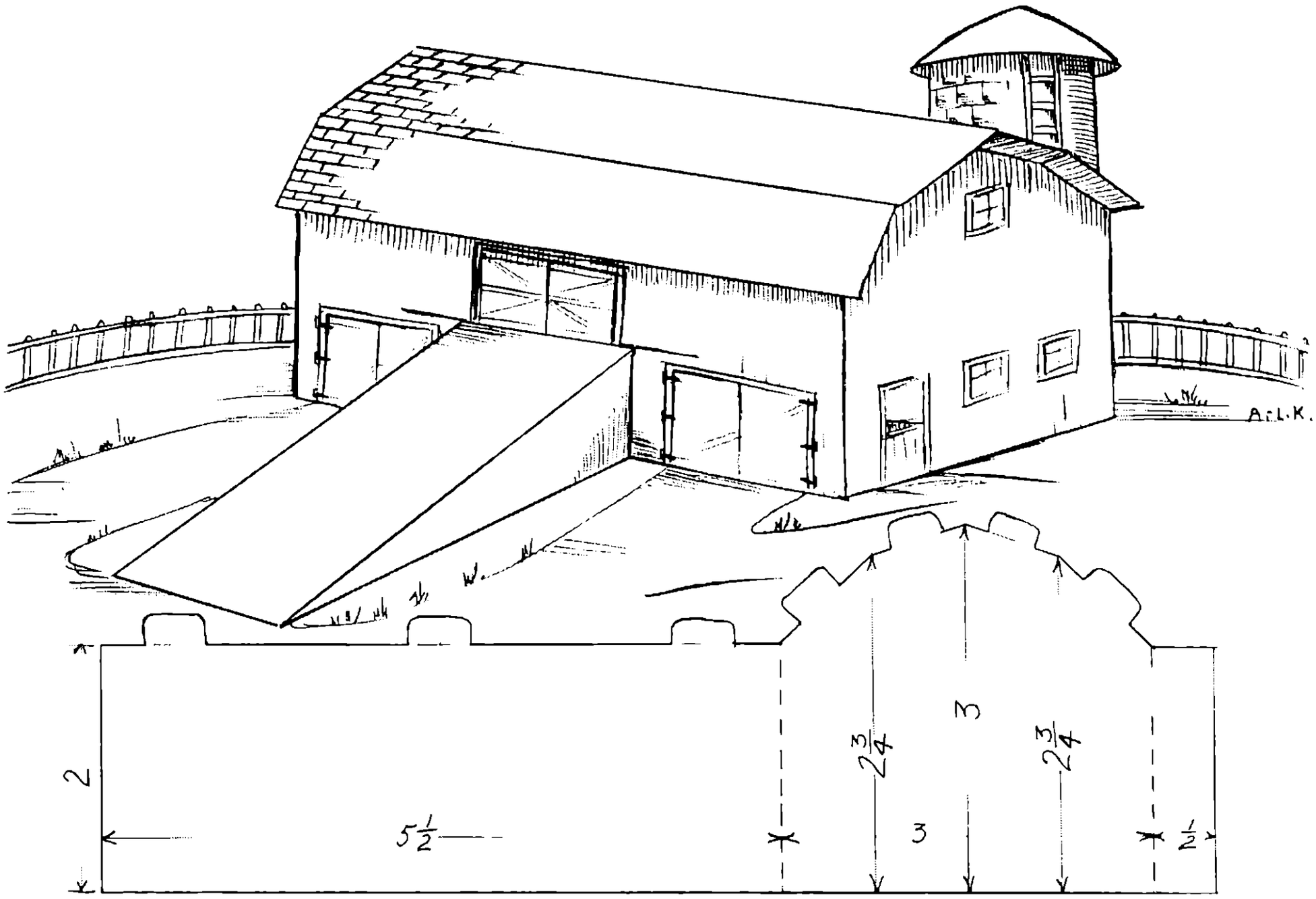


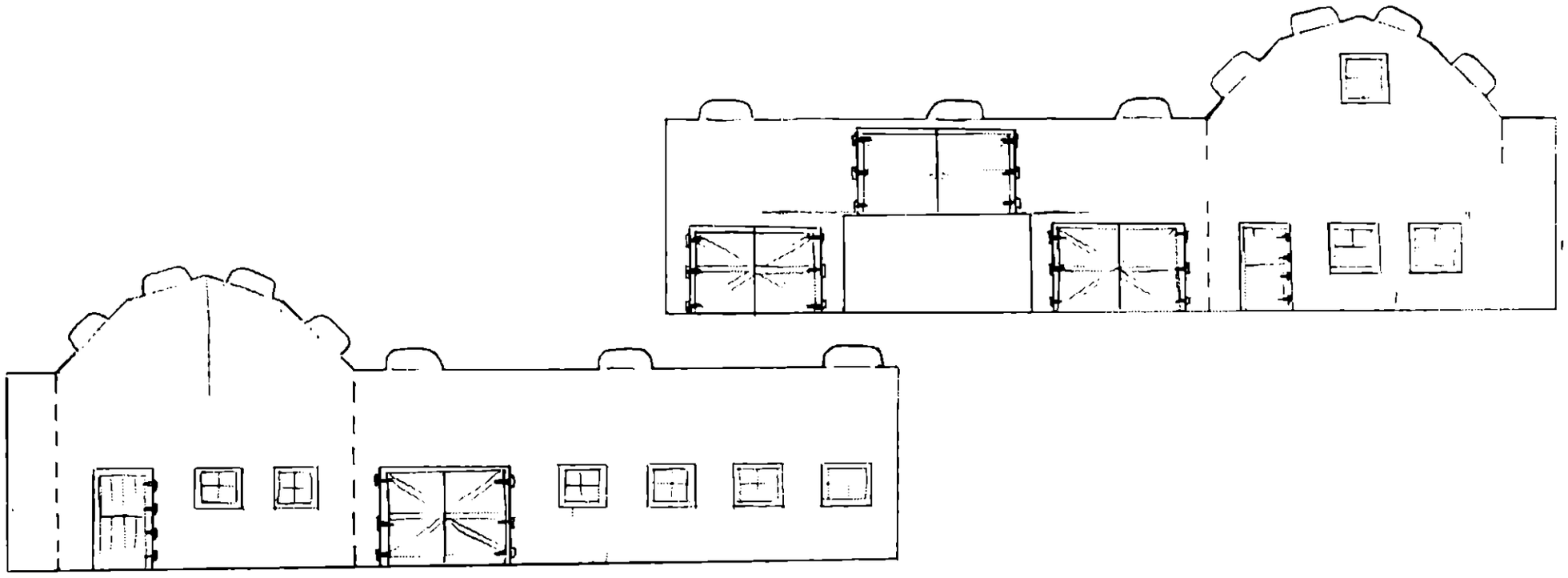
10. The small addition to the house is made in the same way with one exception. Do not paste the roof on the small part until you have pasted the two parts of the house together.

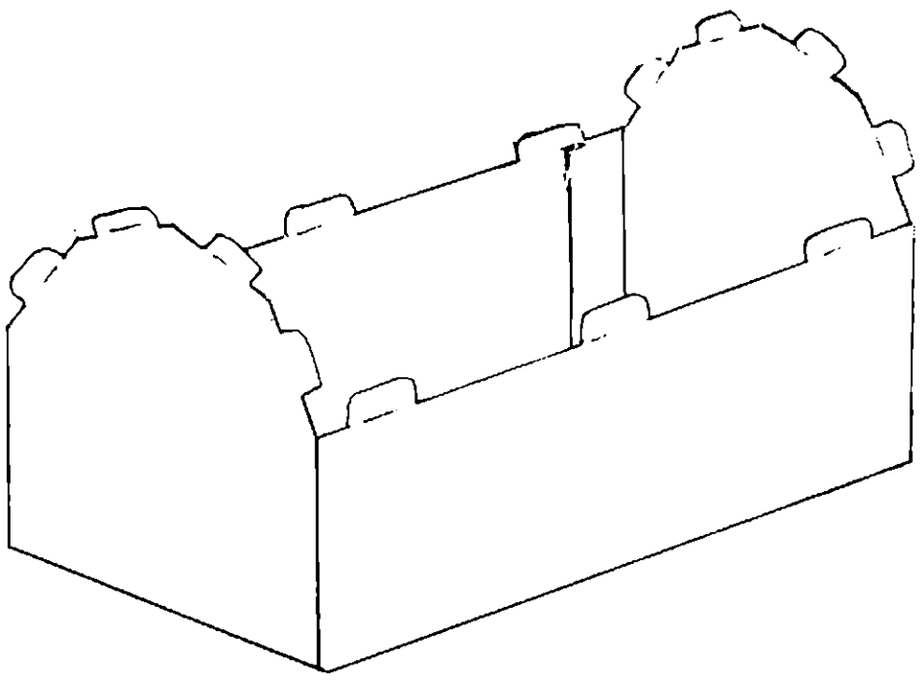








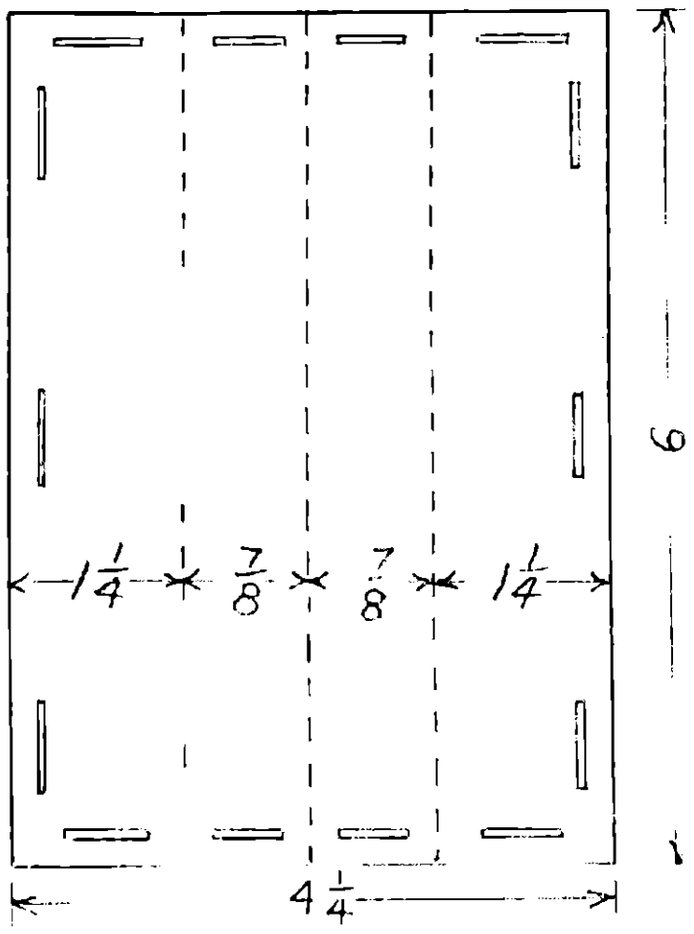




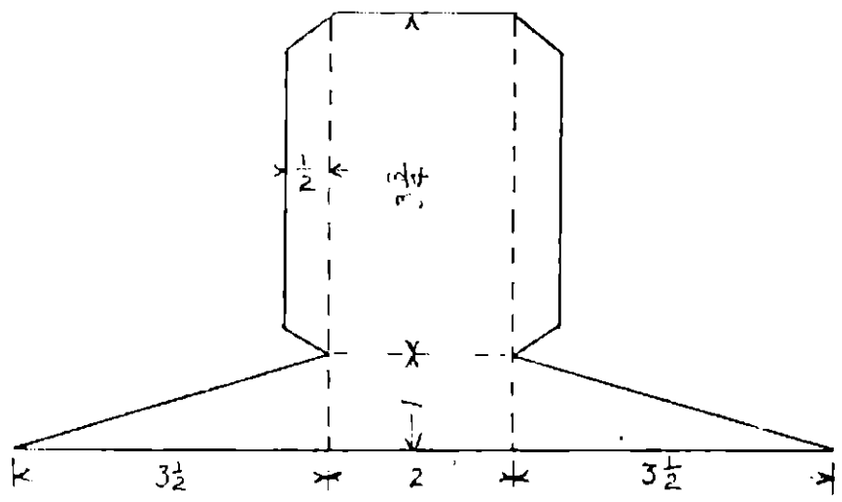
A Barn

1. Cut two pieces of paper measuring 3″ x 9″ for the sides of the barn.
2. Rule off both pieces as shown in the pattern. Draw rounded tabs as indicated along the top edges.
3. Cut out, discarding the shaded section.
4. Draw doors and windows as indicated in the illustrations. Notice one piece is now turned over (reversed). Color with paint or crayon.
5. Fold on dotted lines but do *not* fold down the small rounded tabs.

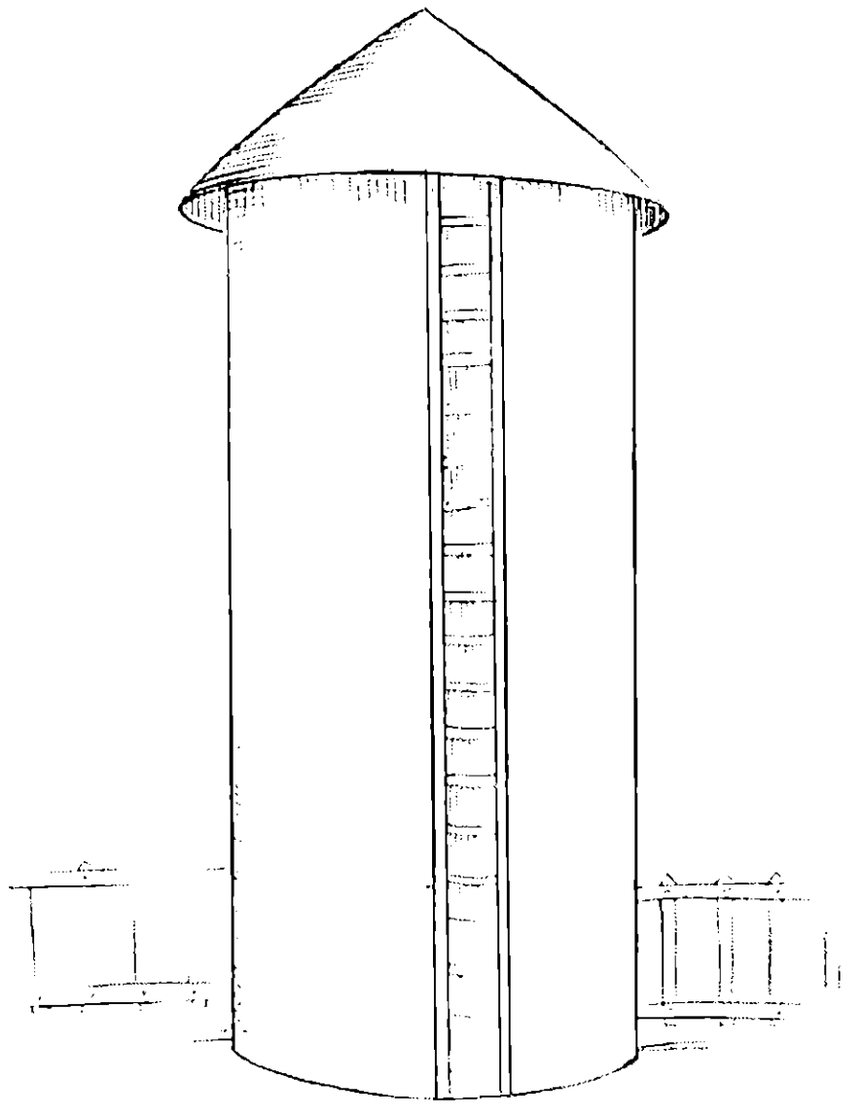
6. Put paste on the two long tabs and paste into rectangular form.
7. The roof is cut from a piece 4¼″ x 6″. Folding lines are ruled off as shown in the illustration. Slits are cut on the double lines so that the rounded tabs can be pulled up through the slits and then bent down and pasted flat to hold the roof in place. Slits are ¼″ from the edge. They should match the tabs on the barn. Crease on the dotted lines.



8. Put the roof on the barn, pulling a tab up through each slit. Fold tabs down and paste.
9. To make the ramp, use a piece of green construction paper 4¾″ x 9″. Rule off as shown in diagram.

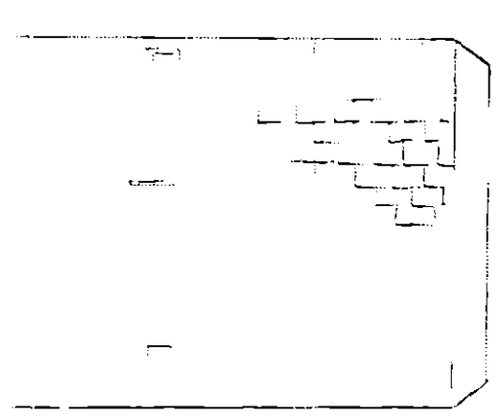


10. Cut out pattern.
11. Fold on dotted lines with line outside of fold.
12. Paste tabs under slanted sides.
13. Paste the ramp to the front of the barn.

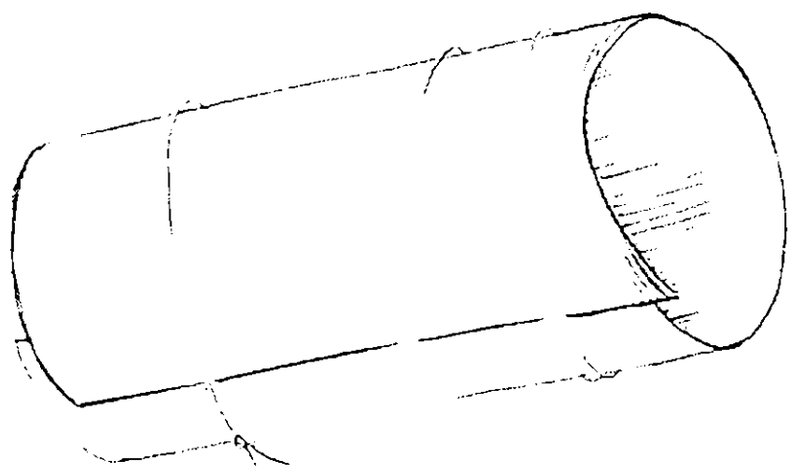


A Silo

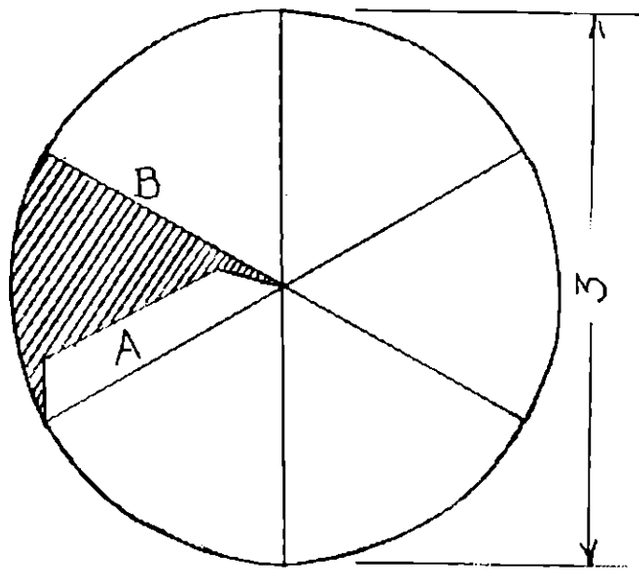
1. Cut a rectangular piece of paper 5″ x 6½″.
2. Draw and color the series of doors and the bricks or stones.



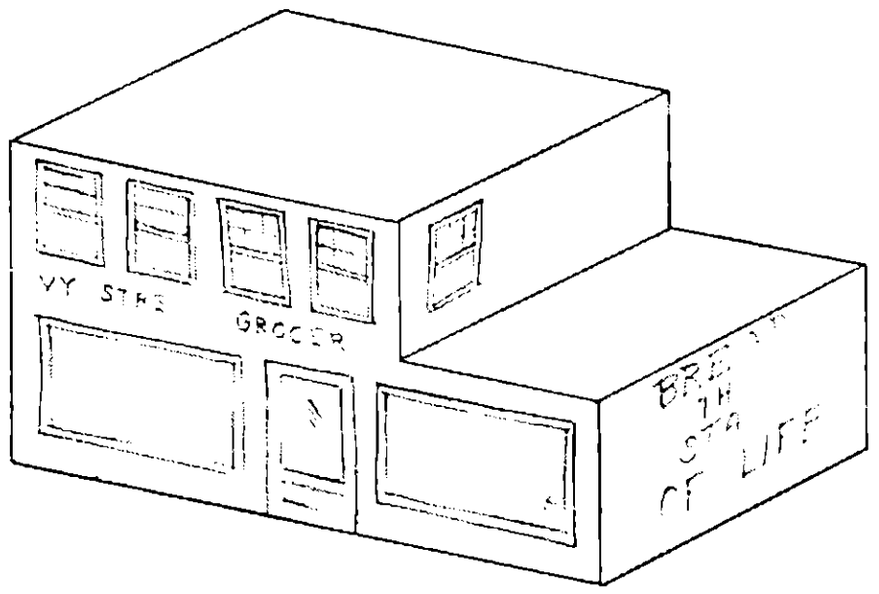
3. Roll the paper into a tube two or three times before pasting. Paste the tab under the opposite end. Do *not* fold back the tab. Rubber bands or string may be used to hold the cylinder in shape until the paste dries.



4. Draw a 3″ circle. Divide the circle into six equal parts. Use five of these parts to make the top of the silo. Draw a ½″ tab in the sixth section.

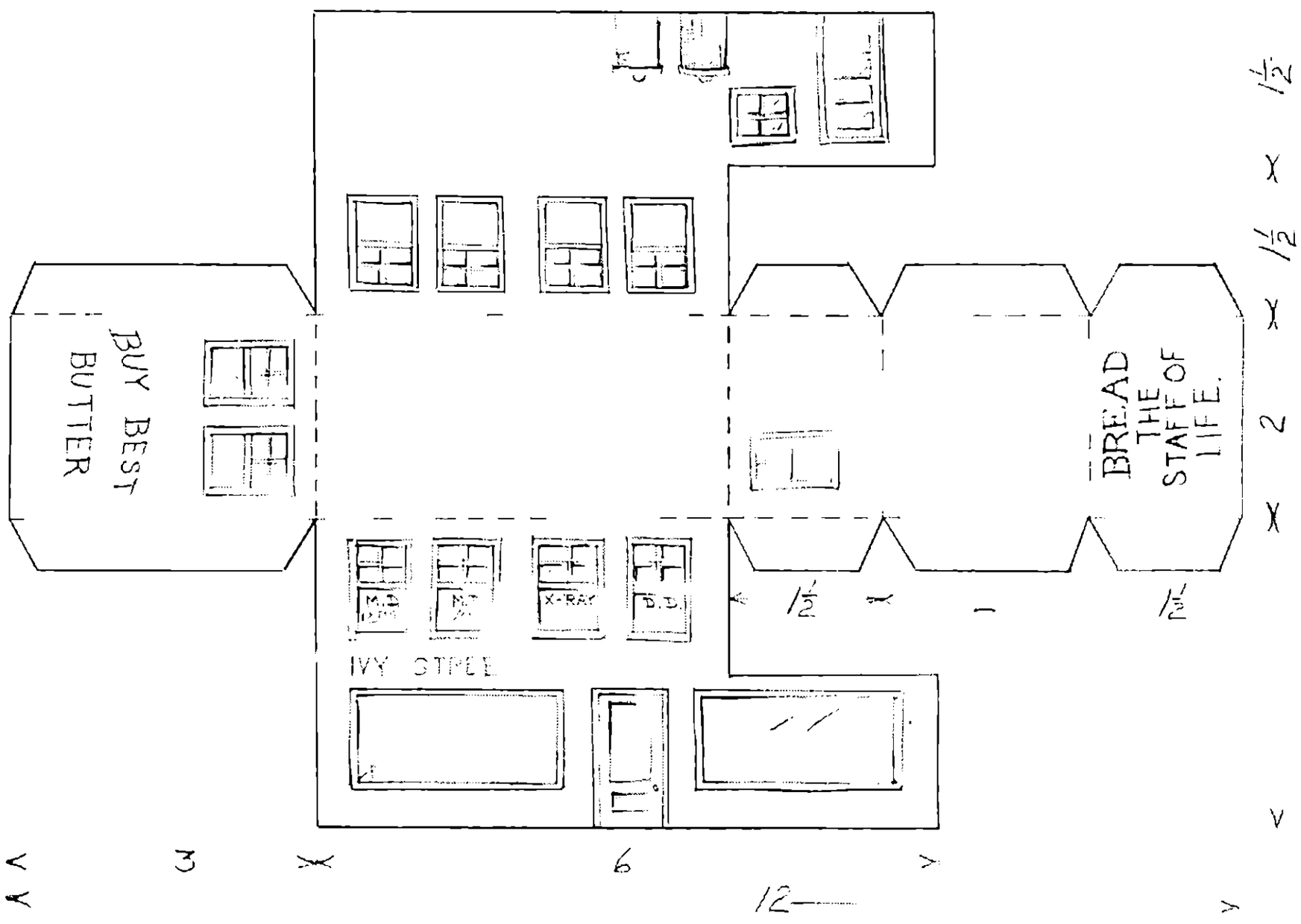


5. Cut out, discarding the shaded section.
6. Paste tab *A* under edge *B*. Hold until dry.
7. Set the roof on the silo.
8. If a permanent fastening is desired, paste four Scotch tape strips ½″ x 1″ inside the top of the cylinder. Set top on. Reach up with pencil to poke tape against silo top.

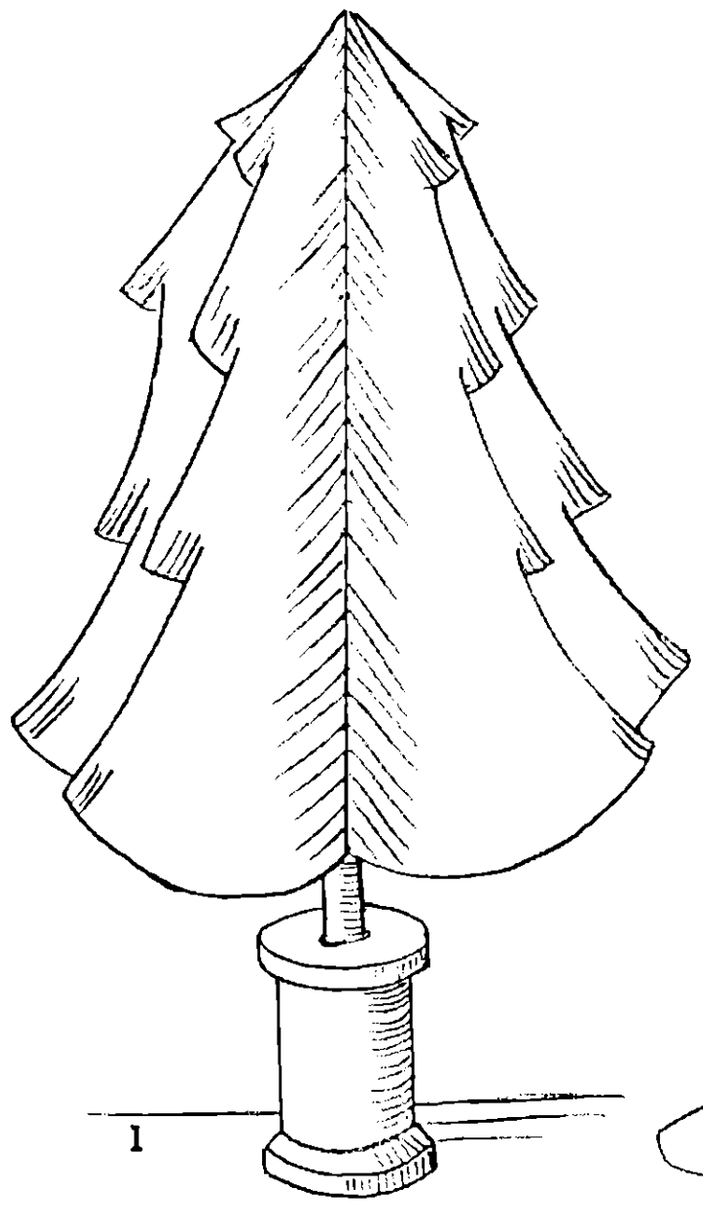


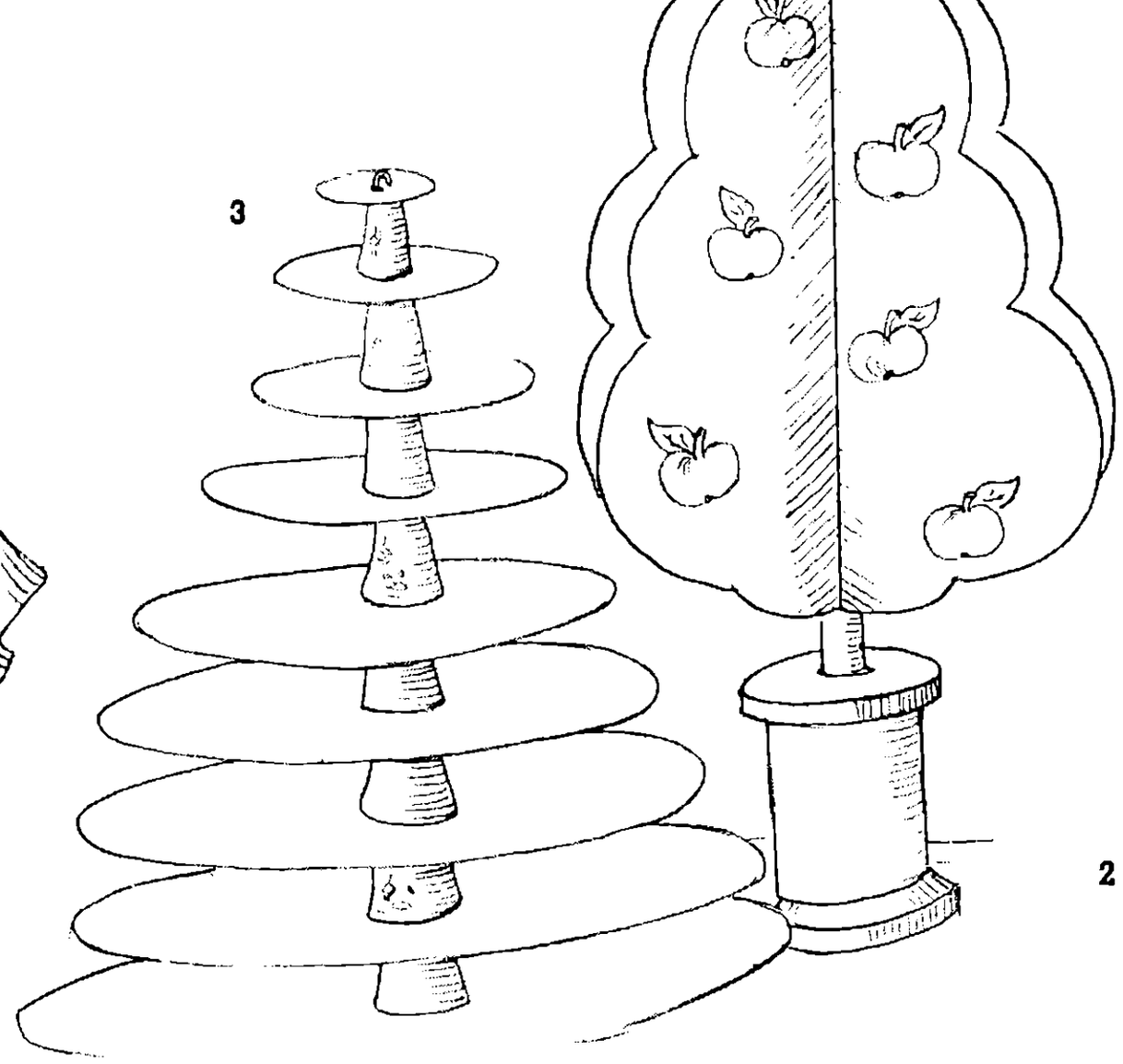
A Store

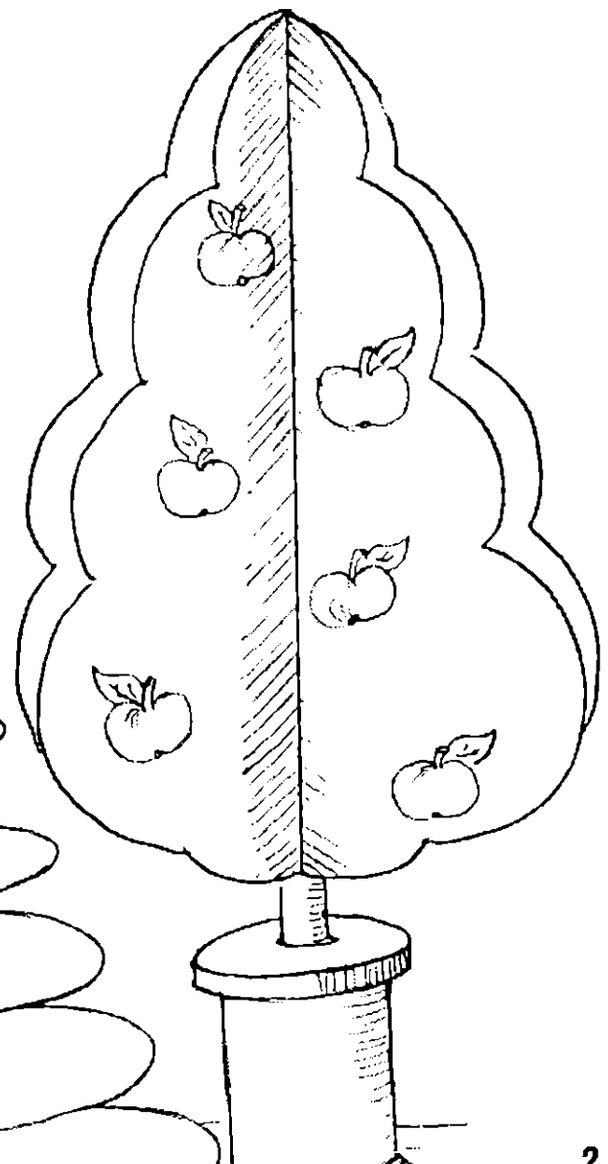
1. Use a piece of paper measuring 8″ x 12″.
2. Rule off as shown in the pattern. Draw ½″ tabs.
3. Cut out pattern.
4. Draw and color the doors and windows.
5. Crease on all dotted lines with the line on the outside of the fold with the exception of one line. The line drawn with long dashes is to be folded so that it is inside the crease.
6. Paste together so that all flaps are on the inside of the building.



PAPER TREES


1


3


2

When making miniature villages, farms, or models of homes, it is often necessary to construct trees. These are simply made yet very effective.

Tools Needed

Compass
Scissors
Pencil
Very large darning needle
Wire cutters or wire-cutting pliers (substitute step included in directions)

Materials Needed

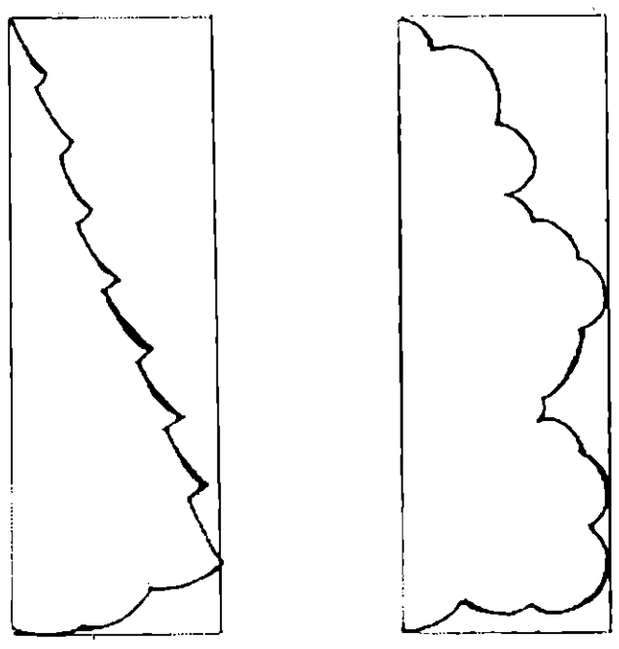
Spools (The larger ones are best.)
Corks (approximately ½″ in diameter and 1″ long)
Wire (Stovepipe wire is very inexpensive—50 feet for a few cents—and very easy to bend. Buy at the local hardware store.)
Construction paper (Various shades of green may be used for No. 1, No. 2, and No. 3.)
Thin green paper (Tissue, crepe, or other thin paper may be used for No. 4.)


4

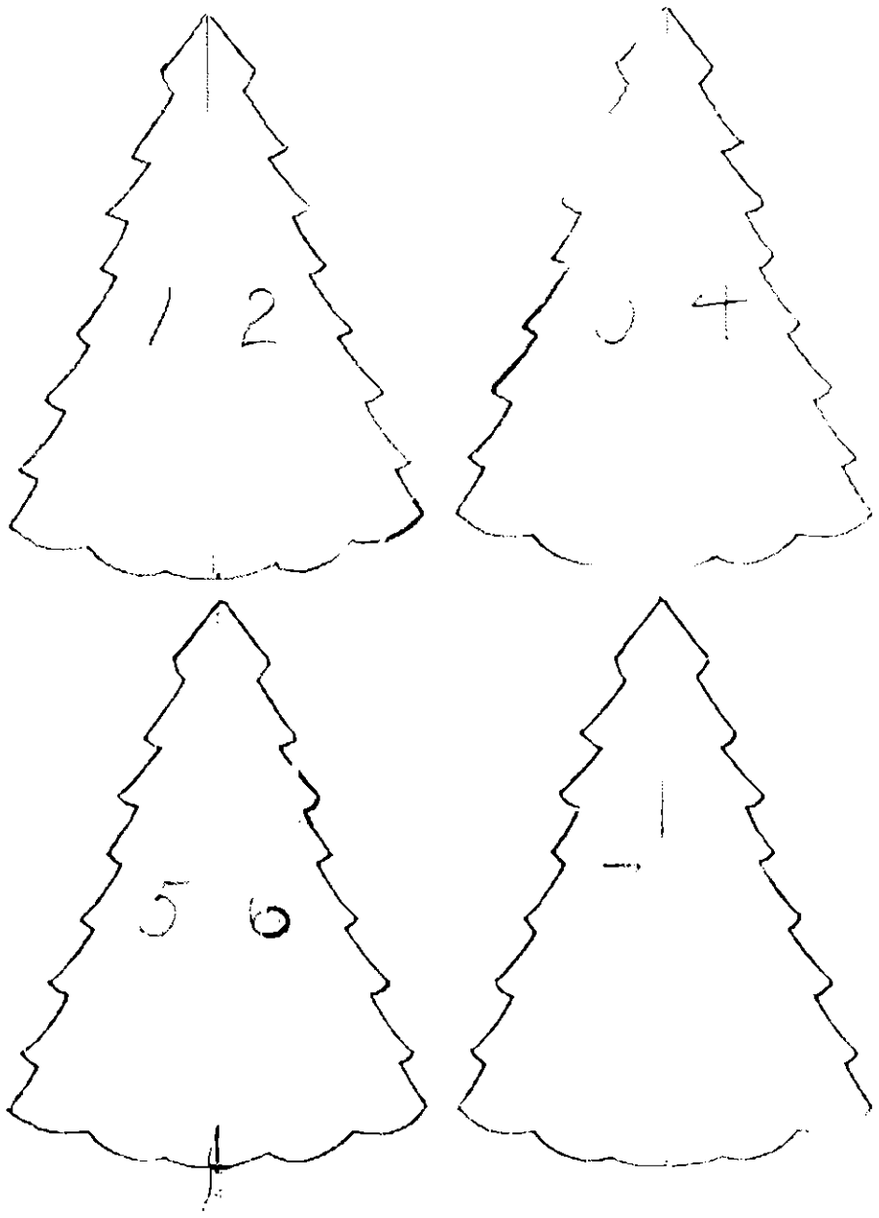
PROCEDURES

Tree No. 1 and Tree No. 2

1. Cut four pieces of green construction paper 6″ x 9″.
2. Fold in half lengthwise.
3. Draw half the pattern of a tree on the paper, keeping the center of the tree on the folded edge.



4. Keep folded and cut on the pattern line.
5. Trace pattern on other three folded pieces and cut.
6. Open all four trees. Place on desk so the outside of the fold is up. Number the sections as below.



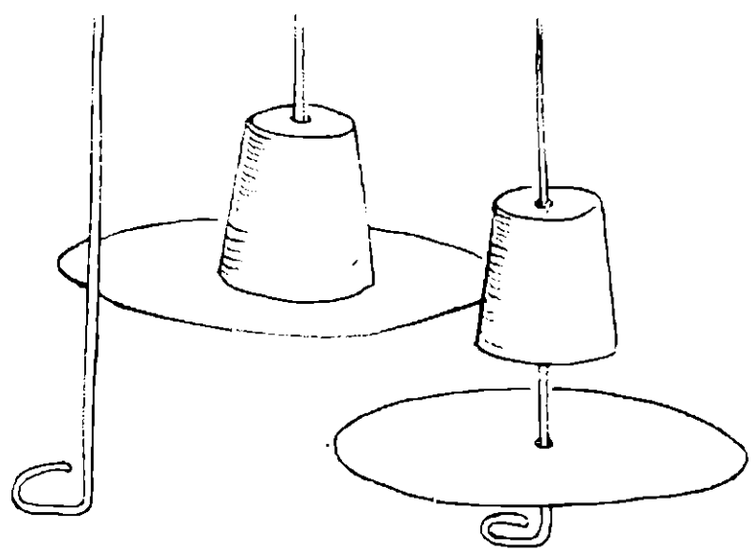
7. Put paste on surface *1*. Stick surface *4* to it matching the edges carefully. Put paste on *2*. Stick *5* to it. Put paste on *3*. Stick *8* to it. Put paste on *7* Stick *6* to it. No paste goes on inside surfaces without numbers.
8. Stand a pencil or a piece of ¼″ dowel rod (see page 82) in a spool. Slide the tree over the pencil and it will stand. Paint the spool grey, brown, or black to represent a trunk. Tree No. 2 is made in the same way.

Tree No. 3

1. Cut nine circles of green paper with the following diameters: 1″, 1½″, 2″, 2½″, 3″, 3½″, 4″, 4½″, 5″ Set the compass with a radius equal to half the diameter to draw each circle.
2. Use a large needle or an awl to poke a hole vertically through the center of each cork. Go all the way through with the hole. Poke a hole through the center of each paper circle.

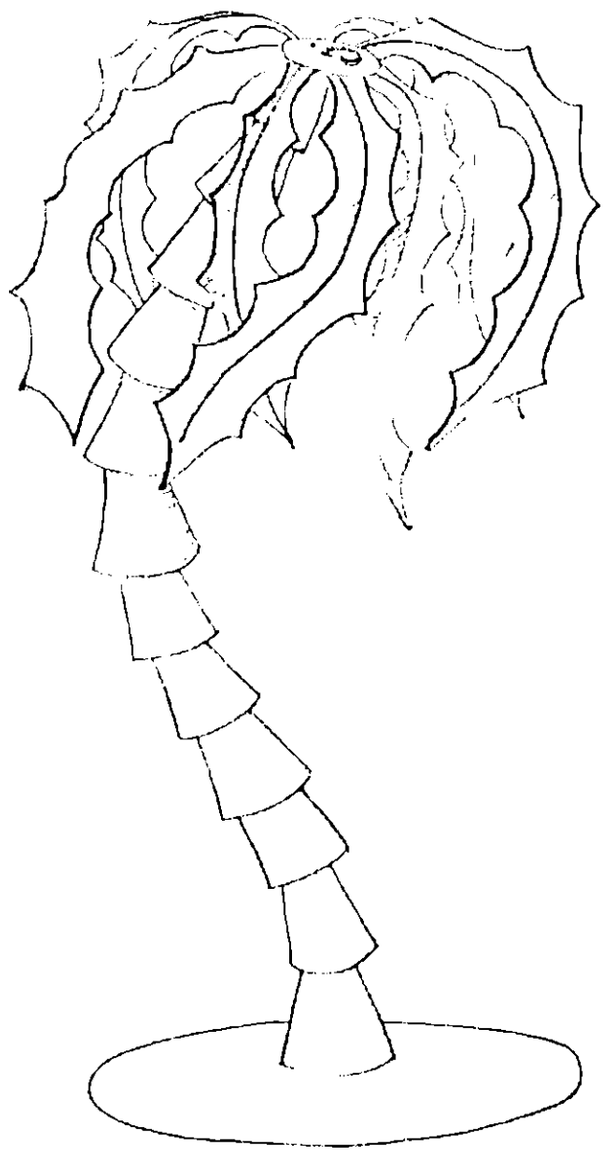


3. Cut a piece of stovepipe wire 10″ long with a pair of wire cutters.
4. Bend back ½″ on one end of the wire to make a loop.
5. String the largest paper circle on the wire. Add a cork.



6. Add the next largest circle of paper. Add another cork.
7. Continue adding paper circles in order of size from largest to smallest, inserting a cork between the discs.
8. Bend the end of the wire over the last paper circle to hold it in place. Cut off extra wire.

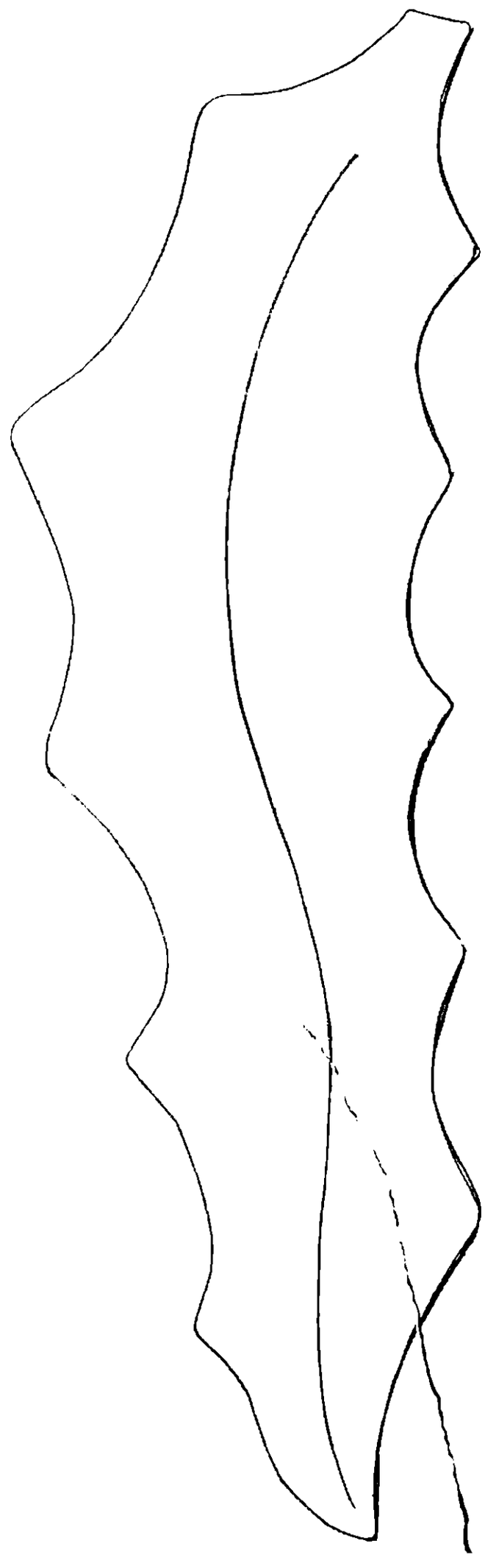
NOTE.—*Discs and corks may be stuck together with quick-drying airplane cement if each piece is held in place until glue is set before adding the next piece. This eliminates the use of wire.*



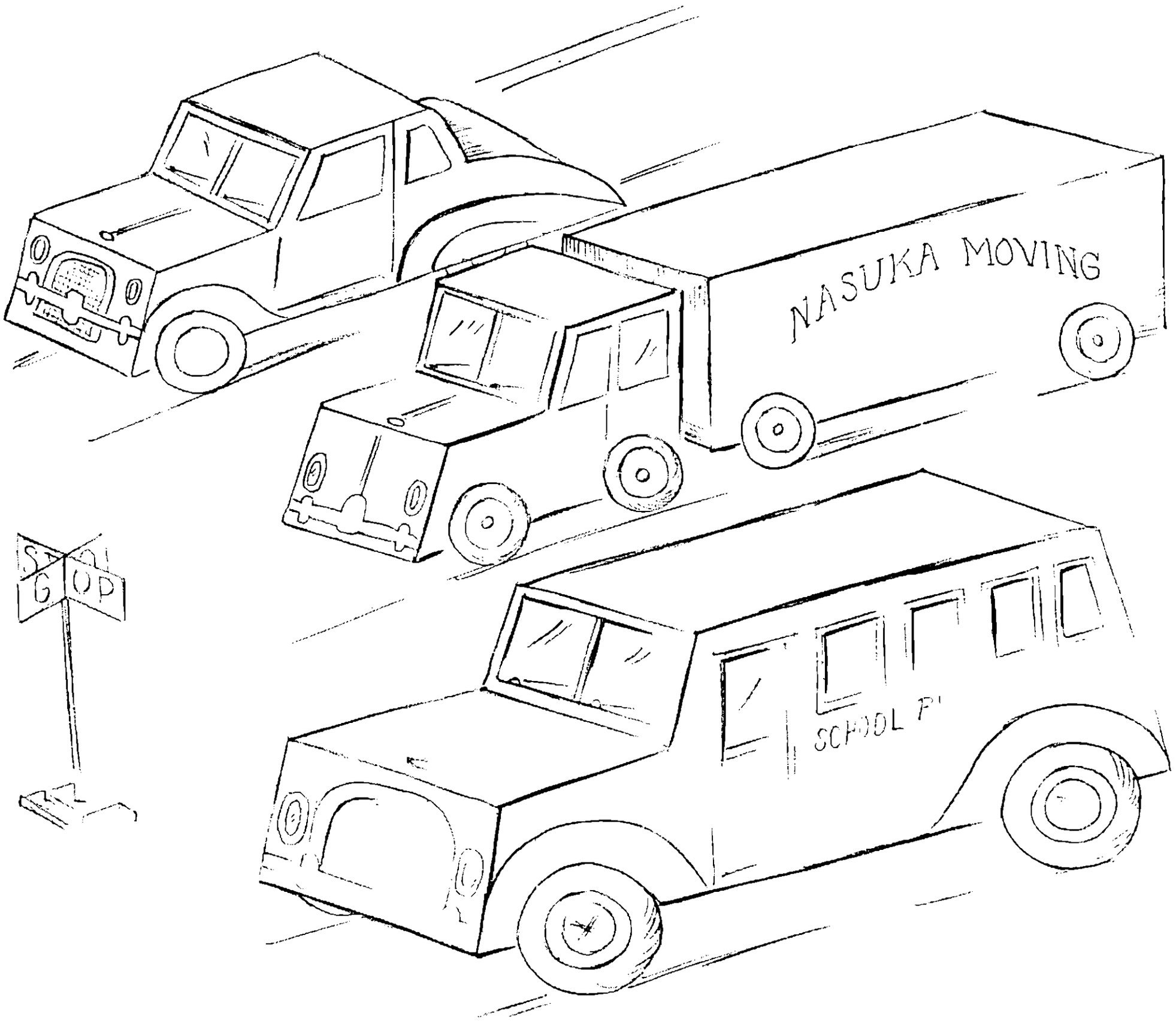
Tree No. 4

1. Poke holes through 12 corks.
2. Cut a dozen or more leaves of thin green paper. Poke tiny holes in one end of each leaf as shown in the pattern.
3. Cut a 5″ circle of stiff green construction paper for a base. Cut another circle the size of a dime. Poke tiny holes through the center of each circle.
4. Cut a 12″ piece of stovepipe wire.
5. Bend one end of the wire to make a loop. String the circular base on the wire, then add all of the corks. Notice that the large end of cork is down.
6. String on all of the leaves next, arranging them around the top so that they will fall in all directions.
7. Add the small circle. Pull the wire up fairly tight. Bend the end of the wire in a loop to fasten it. Cut off the extra wire.
8. The trunk of the tree may be bent into any graceful position desired.

NOTE.—*This tree could also be fastened together with airplane glue.*



CARS, TRUCKS, AND BUSSES



THESE PAPER MODELS are realistic on a street of paper houses. They have thickness, width, and length. In a unit on transportation or safety they can be made to illustrate the material studied by the child.

Materials Needed

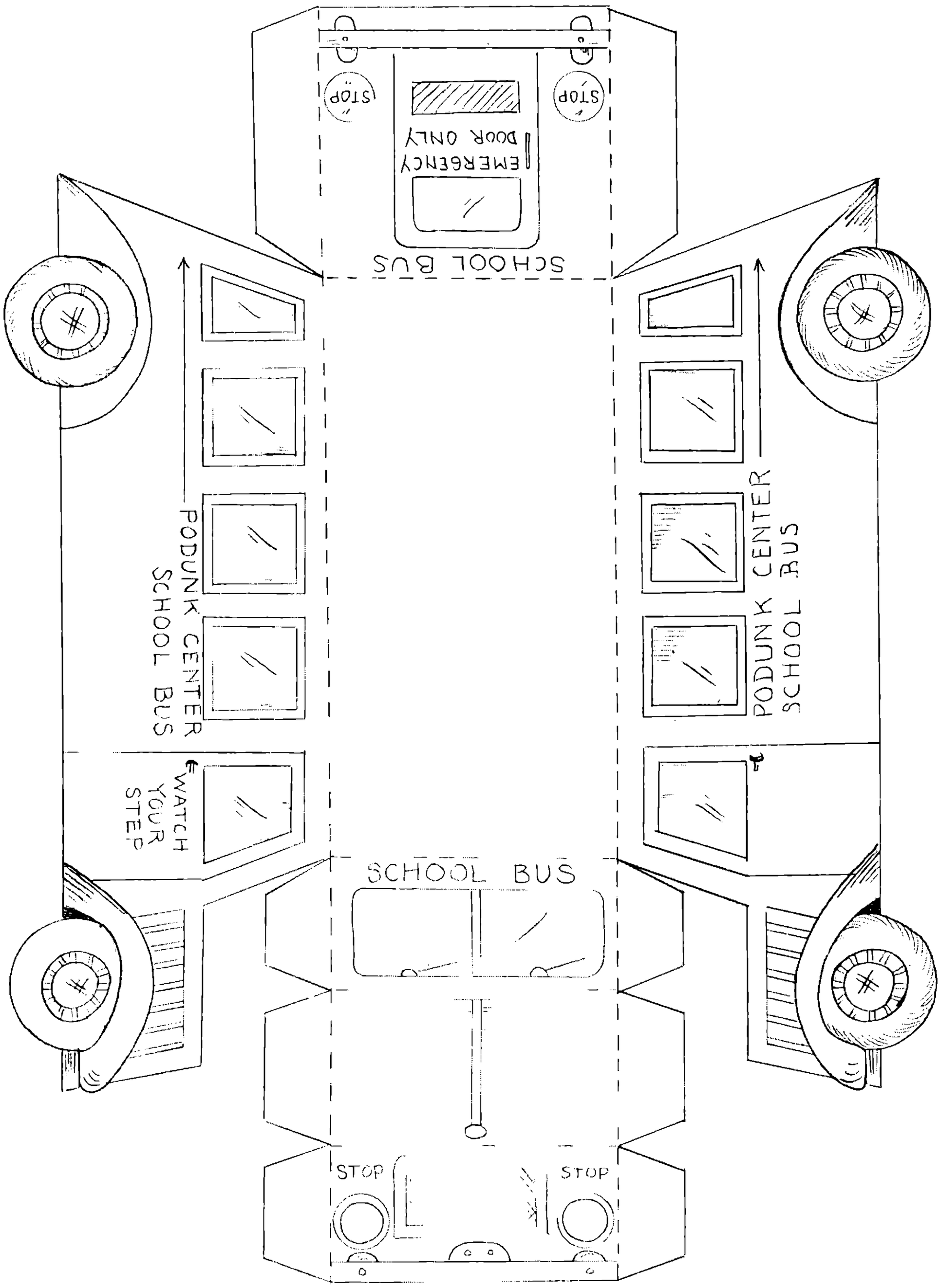
Construction paper—colors suitable to the project
Paste
Pen and ink

Tools Needed

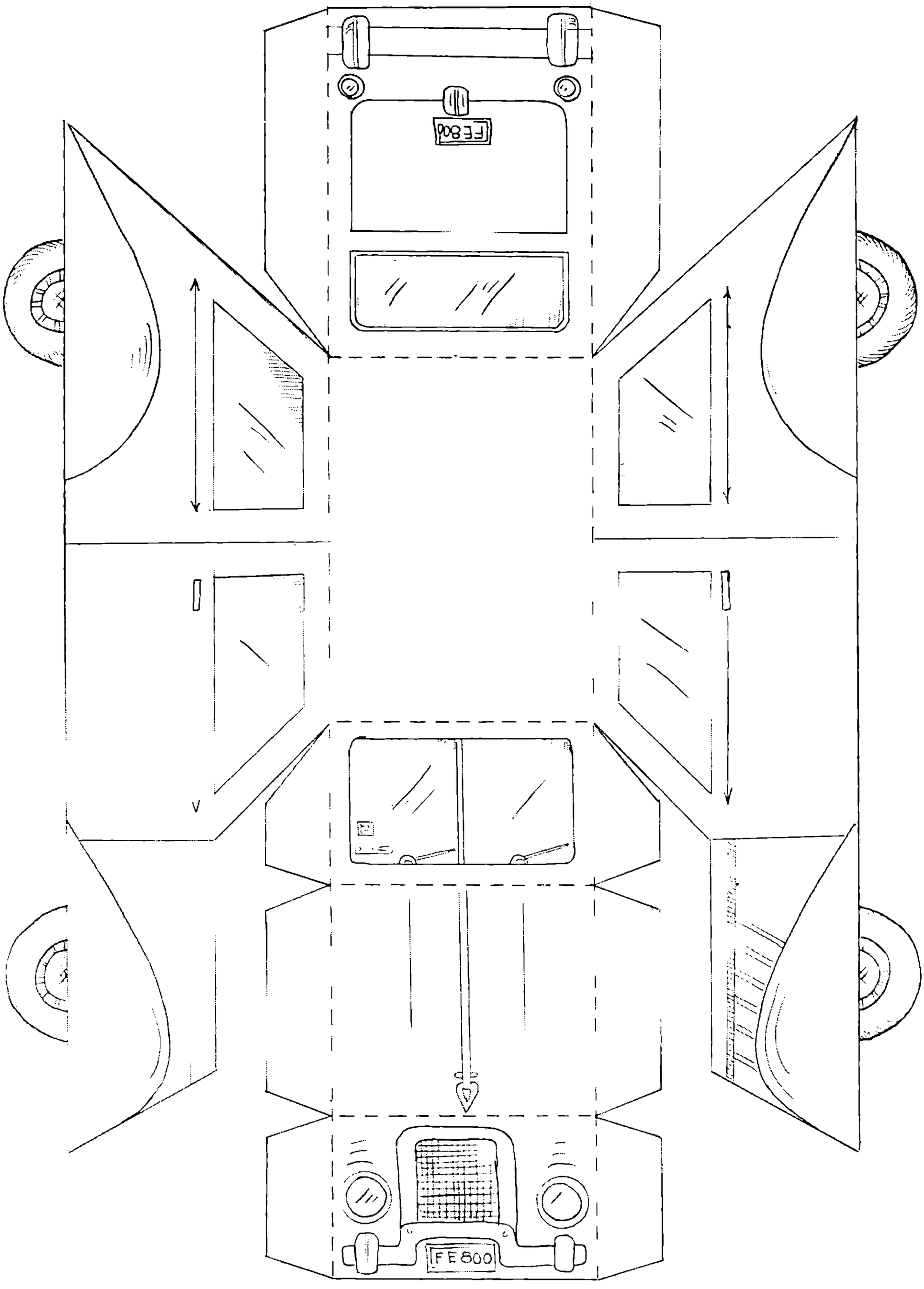
Scissors
Pencil

PROCEDURE

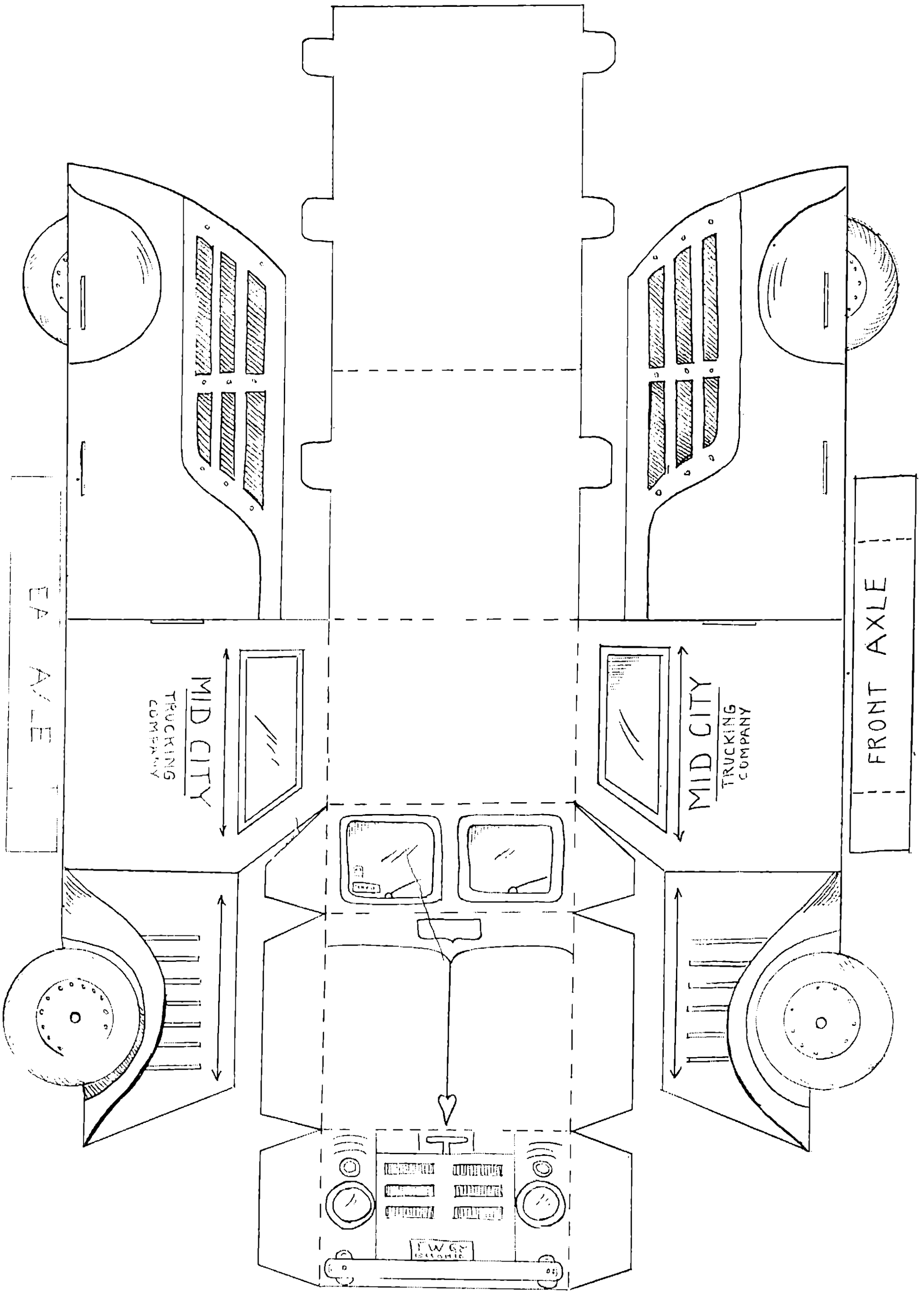
1. Trace the pattern needed or design another.
2. Trace this pattern on construction paper.
3. Draw all lines needed for a realistic appearance. Use pen and black ink.
4. Cut out on the outside lines.
5. Crease all dotted lines, except the one under the windshield, so that the line is on the outside of the fold. The dotted line under the windshield should be creased with the line inside the fold.
6. Paste should be put on the outside of all tabs. Tabs should be pasted underneath so that they will not show. Hold tabs in place until the paste is dry enough to stick.



Pattern for bus

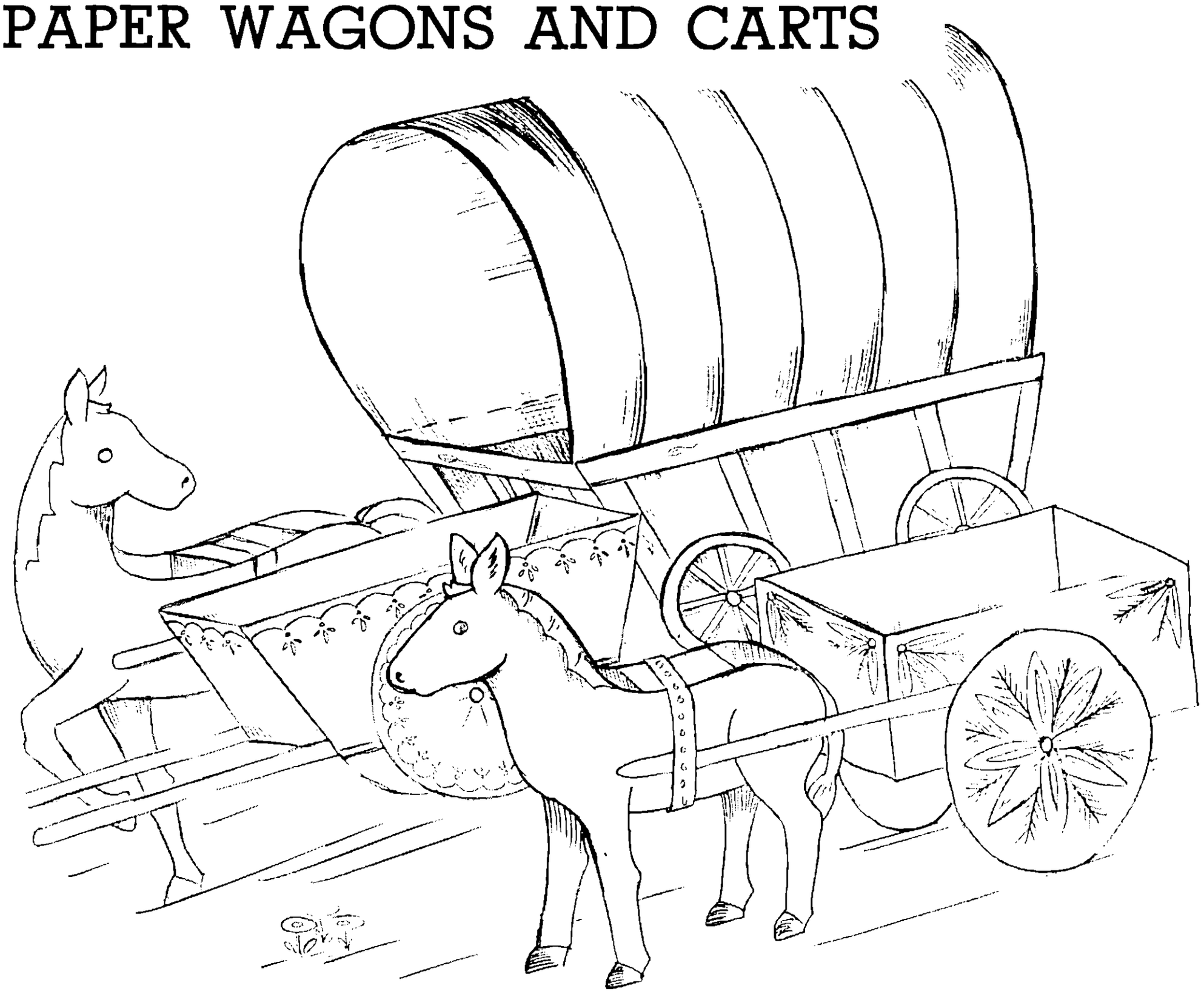


Pattern for car



Pattern for truck

PAPER WAGONS AND CARTS



WHEN DEPICTING THE pioneer days, a farm scene, or a Dutch scene, use a paper prairie schooner, a paper farm wagon, or a paper cart. These are constructed from open boxes with vertical or slanted sides. The farm wagon may be made in the same manner as the prairie schooner, omitting the canvas top.

Materials Needed

Construction paper
Balsa wood or cardboard strip
Paper fasteners
Paste
Paints

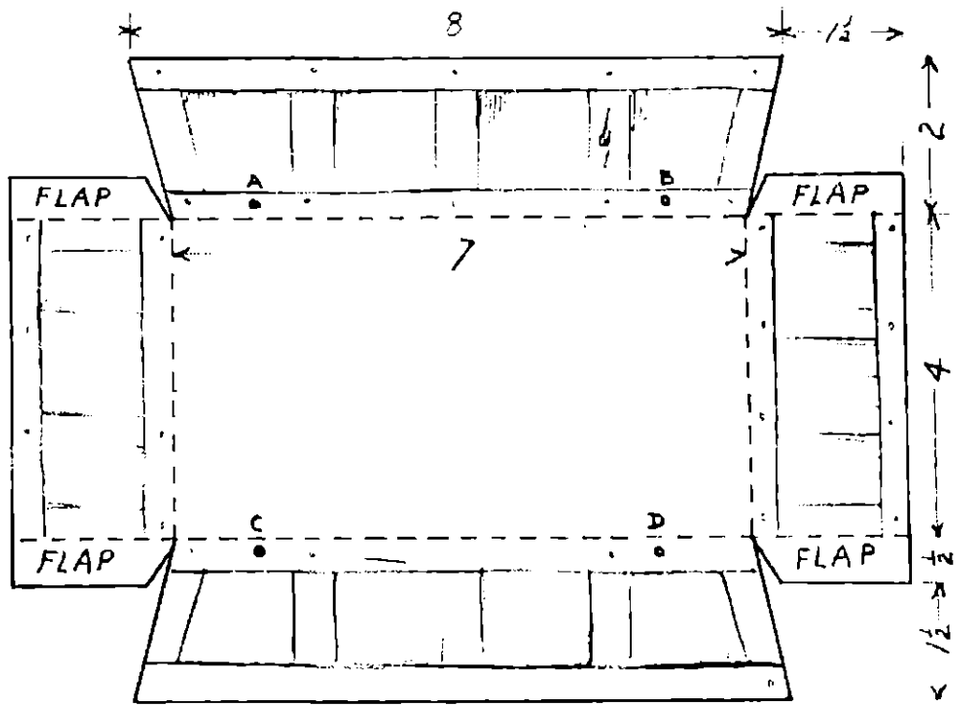
Tools Needed

Ruler
Pencil
Scissors
Paper punch

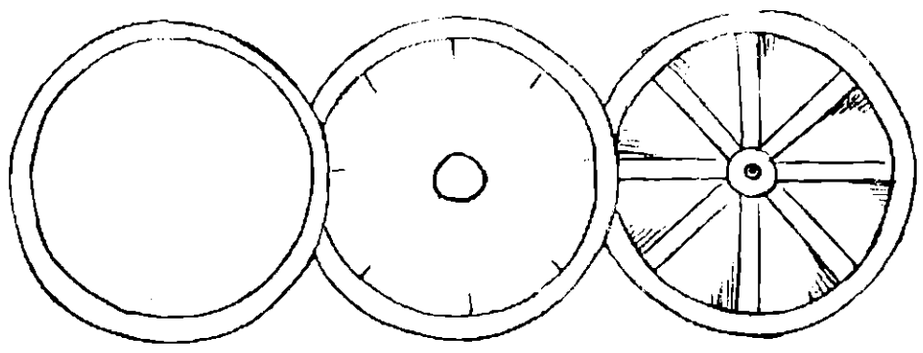
PROCEDURES

A Covered Wagon

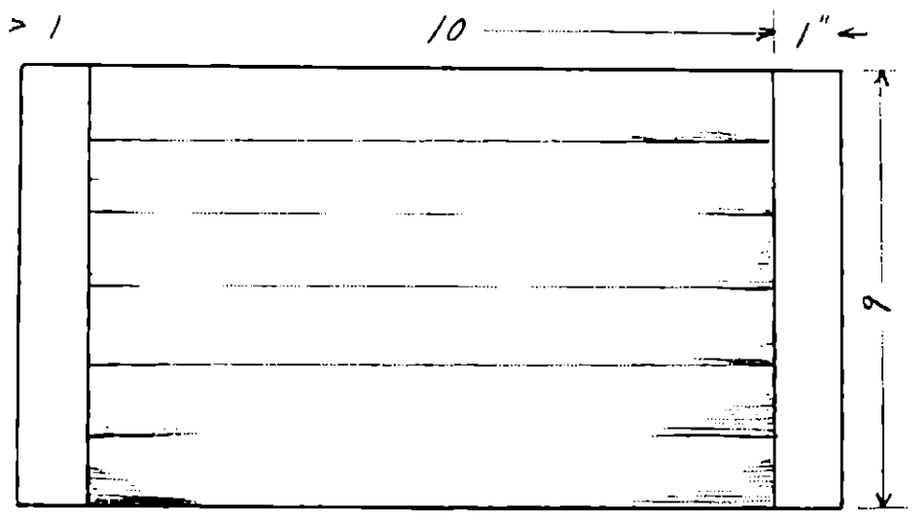
1. On a piece of gray or brown construction paper mark off an 8″ x 11″ rectangle. Rule off the pattern shown below.



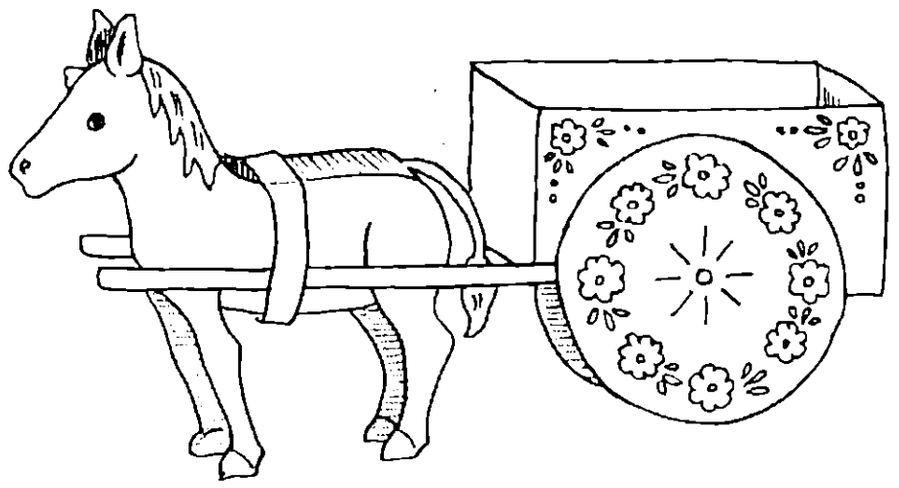
2. Cut on the solid lines.
3. Punch holes at points *A*, *B*, *C*, and *D*. Be sure these holes are smaller than the head of the paper fastener.
4. Crease all dotted lines so that the lines will be inside the folds.
5. Paint or crayon lines to represent boards.
6. Paste the flaps under the sides to make the wagon box.
7. Cut out four wheels with a 3½″ diameter. Use stiff cardboard.
8. Draw a ¼″ rim, a ½″ hub, and at least eight spokes. Color or paint these. Punch a hole in the center of each wheel.
9. Fasten wheels to the wagon with paper fasteners.



10. To make the canvas top, use a piece of white paper 12″ x 9″. Rule off 1″ along each short edge. This 1″ strip will be pasted inside the wagon.

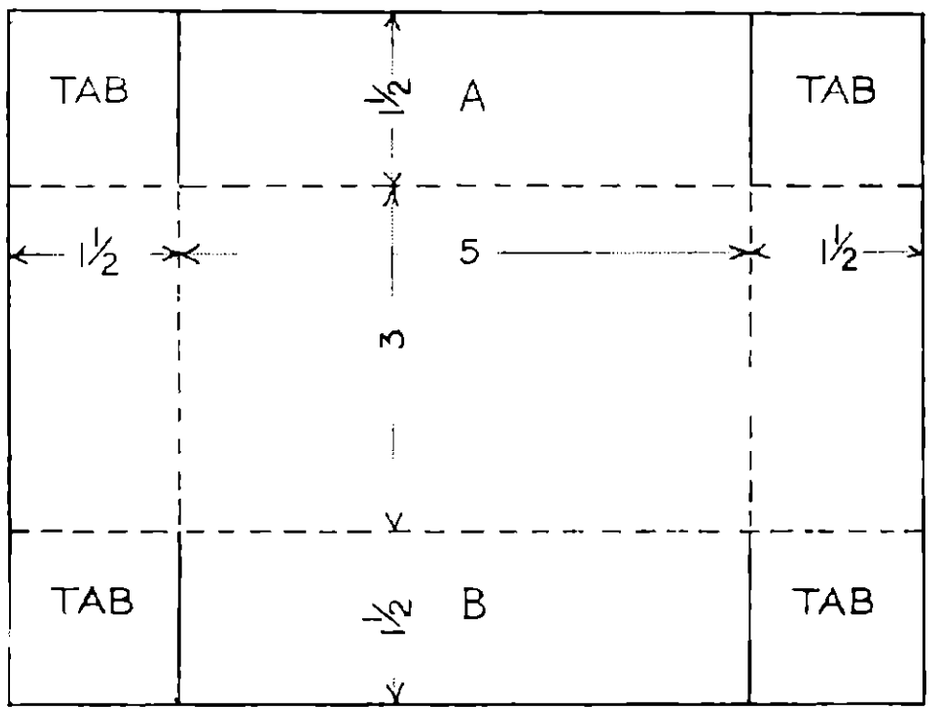


11. With a light blue or gray crayon or brush, mark off 2″ strips.
12. Put paste on both 1″ strips. Paste the strips inside the wagon box.
13. Paste a 1/16″ x ¼″ x 9″ strip of balsa wood or cardboard under the front of the wagon so that it extends out about 8″ to make the wagon pole.
14. Horses or oxen may be made to pull the covered wagon. See directions on page 71.



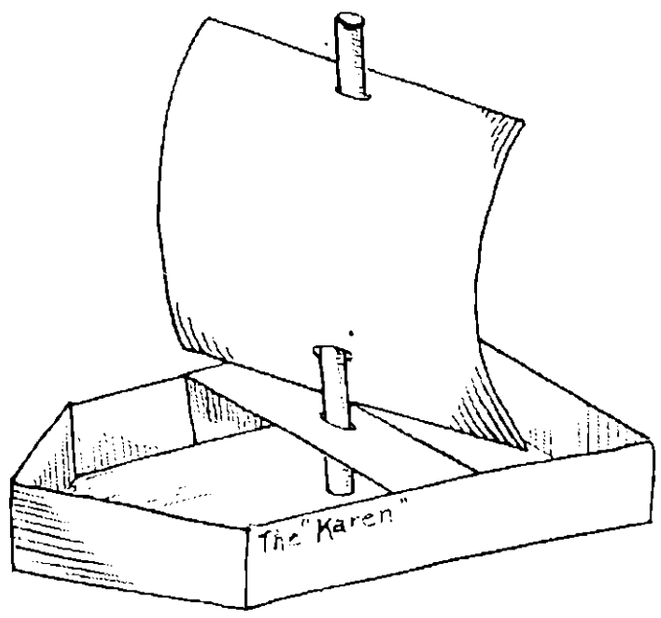
A Two-wheeled Cart

1. Use a piece of construction paper measuring 6″ x 8″. Rule off the pattern shown below.



2. Cut on solid lines.
3. Fold on dotted lines with lines inside the fold.
4. Punch holes at *A* and *B*. These holes are centered in each side and are ¼″ from the dotted line.
5. Color or paint before pasting together. Paste square corner tabs inside the side pieces.
6. Cut a pair of 2½″ wheels for a low dog cart or a pair of 4″ wheels for a higher donkey cart.
7. Paint or crayon wheels with spokes or floral designs if desired.
8. Punch a hole in the center of each wheel. Fasten the wheels to the cart with paper fasteners.
9. See page 73 for method in constructing a dog or donkey to pull the cart.
10. Paste 1/16″ x ¼″ x 5″ strips of balsa wood or cardboard to underside of cart to make the wagon shafts.

A PAPER SAILBOAT



Materials Needed

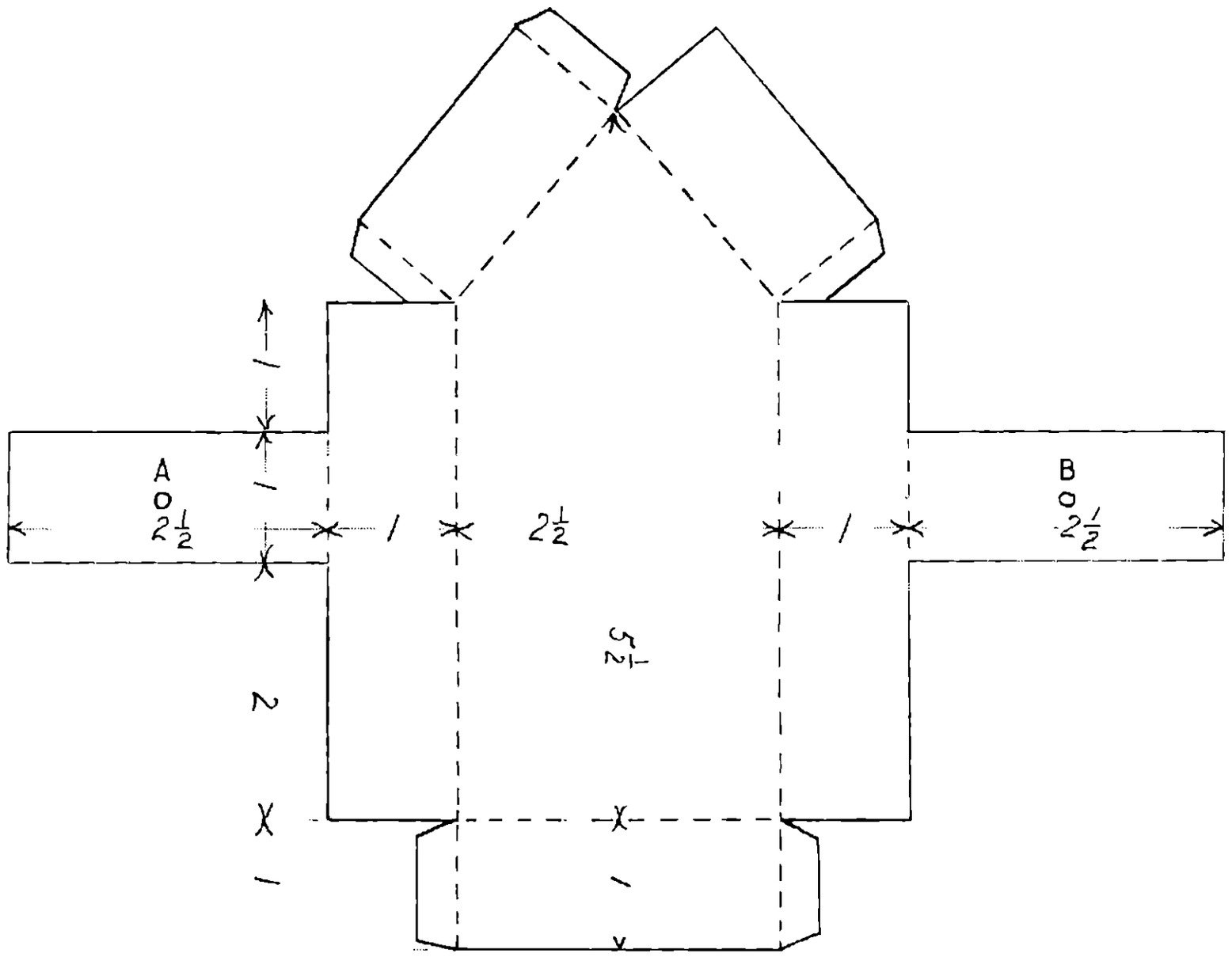
Construction paper
Lollipop stick
Paste
Quick-drying cement

Tools Needed

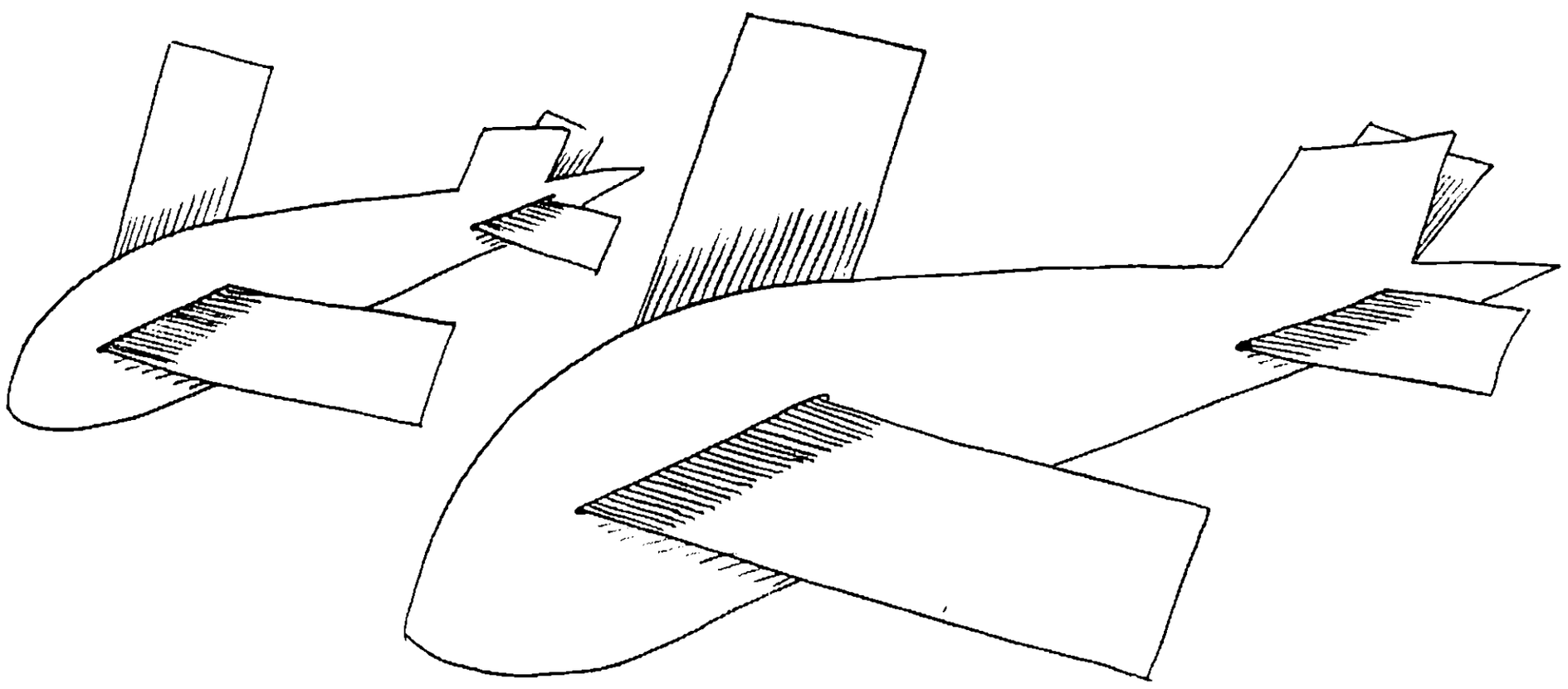
Ruler
Pencil
Scissors
Paper punch

PROCEDURE

1. Use a piece of construction paper measuring 9″ x 9½″.
2. Rule off pattern as shown.
3. Cut out.
4. Crease on all dotted lines so that line is inside the fold.
5. Punch a hole in the center of sections *A* and *B*. Find center of sections *A* and *B* by drawing diagonal lines from corner to corner.
6. Paste tabs inside sides of boat. Paste section *A* over section *B*.
7. Cut out a sail 2½″ x 4″.
8. Punch holes ½″ from the top and bottom edge. Center the holes.
9. Push the lollipop stick through one hole and out the other.
10. Push the end of the lollipop stick through the holes in sections *A* and *B* in the boat.
11. Glue the lollipop stick to the bottom of the boat with a drop of quick-drying cement. Children will enjoy fastening the stick to the bottom of the boat with a wad of freshly chewed gum. And it works!



A PAPER JET PLANE



THIS IS A paper toy with action and speed. In the study of aircraft transportation this project would serve as a visual aid or an incentive to further study. Children enjoy making a toy that will actually perform.

Materials Needed

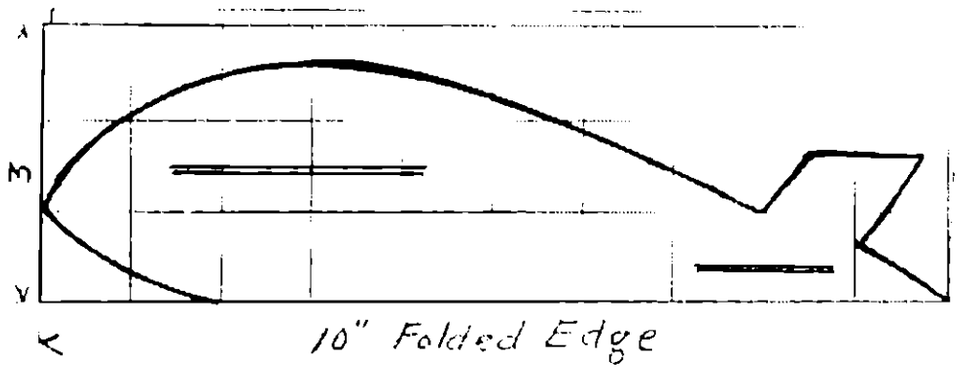
Construction paper
Cardboard
Paste

Tools Needed

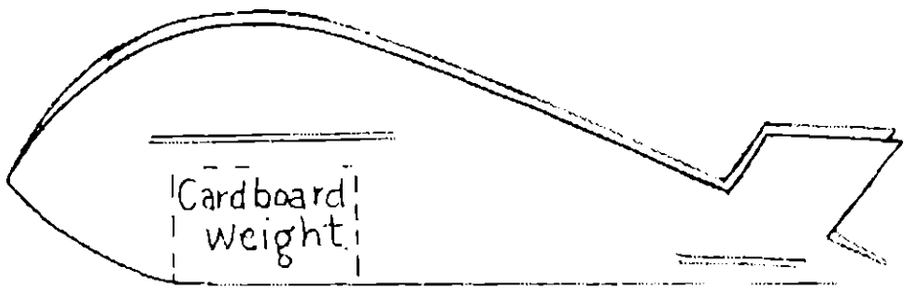
Ruler
Pencil
Scissors

PROCEDURE

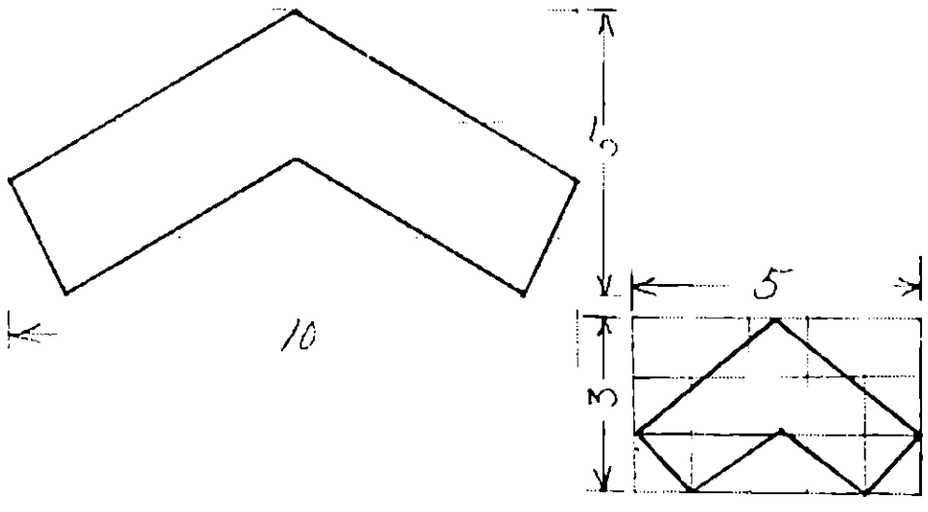
1. Fold a piece of 6″ x 10″ construction paper.
2. Draw the pattern, paying close attention to the edge along the fold. Rule off in 1″ squares to simplify the drawing.



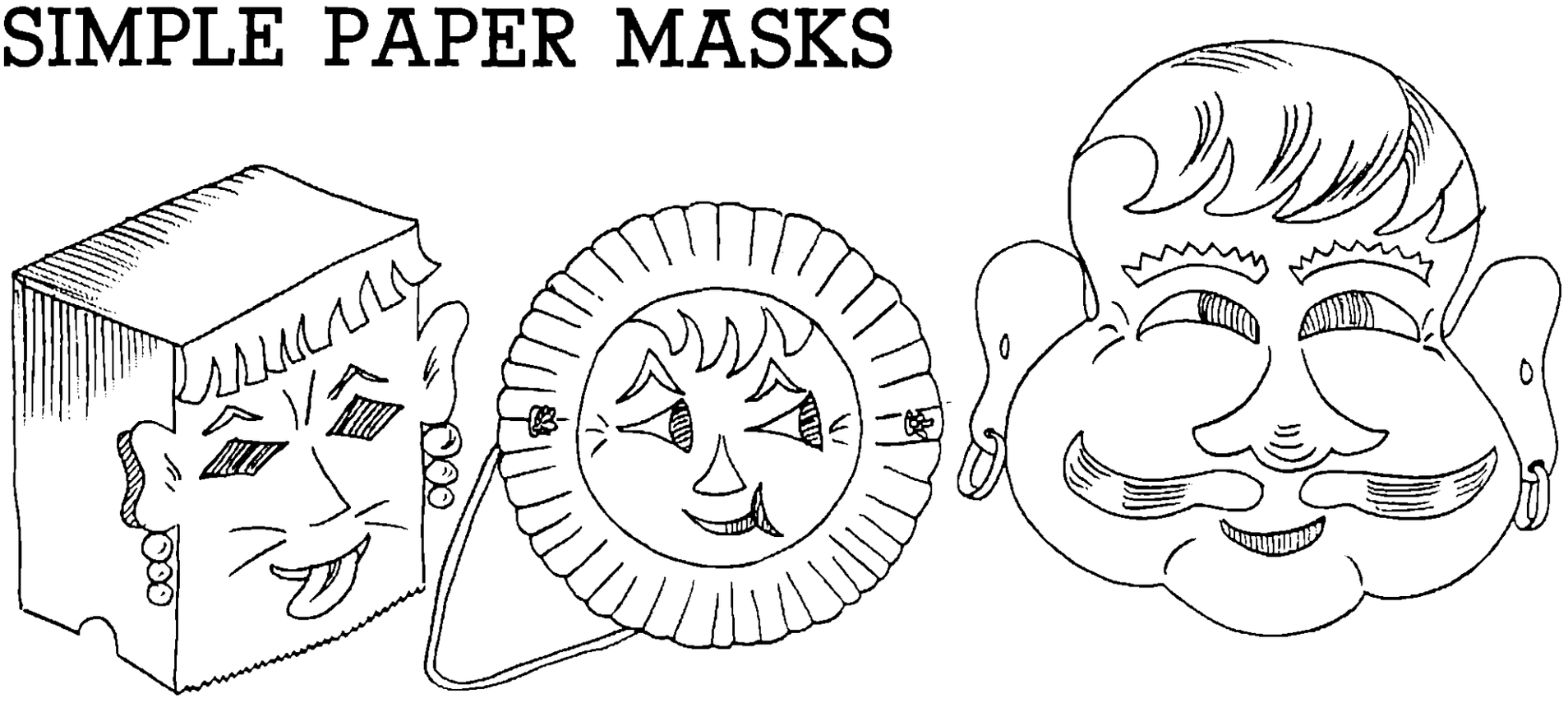
3. Cut out on solid outline, discarding shaded part. Cut slits on double line to insert wings and tail.
4. Cut a piece of cardboard measuring 1½″ x 2″.
5. Paste the cardboard between the two halves of the airplane. This should be pasted near the nose of the plane to give it added weight at that point. Paste the two sides together.



6. Cut the wings from a piece of paper 5″ x 10″. Cut the tail from a piece 3″ x 5″.
7. Insert wings and tail in the cut slits.



SIMPLE PAPER MASKS



CARNIVALS, PARADES, PLAYS, and Halloween are never complete without masks. Design, color, and construction all enter into the making of false faces. This project is often tied up with the art appreciation study of masks as found in Mexico, China, South America, or Africa.

Materials Needed

Paper bags—large enough to go over the child's head
Paper plates
Construction paper
Yarn, feathers, buttons, cotton, steel wool, red felt, rope
Paste
Crayons
Paints—show card, tempera, poster, or water color
Shellac

Tools Needed

Scissors

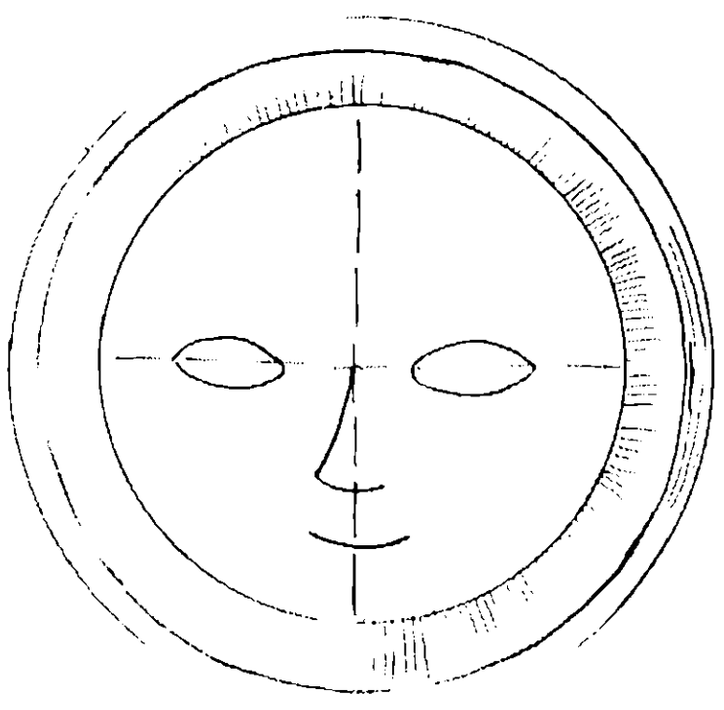
PROCEDURE

Paper-Bag Masks

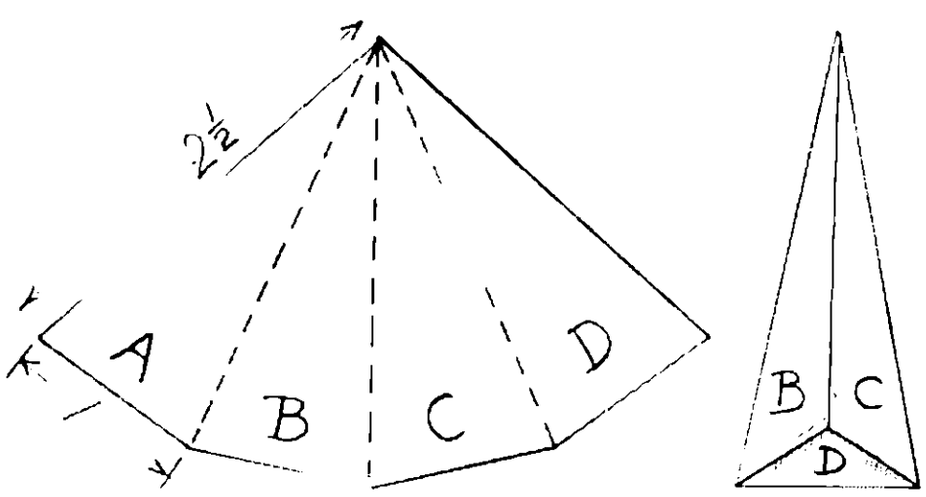
1. Place the bag over the head and with a piece of chalk lightly mark the position of the eyes.
2. Remove the bag from the head. Fold the bag flat and draw the features on the paper. The location of the eyes is already marked. Draw a nose about 2″ or 2½″ long just below the space between the eyes. Draw a mouth. Lines for frowns, creases, and wrinkles may be added.
3. Features may be crayoned or painted. To add novelty and interest, experiment with other materials. Paste on a red felt tongue; sew on buttons for earrings; use bits of yarn, cotton, or rope for eyebrows and hair.
4. Ears may be cut free from the sides of the bag so that they will stick out. Ears extend from eyes to the bottom of the nose and are shaped like an irregular capital *E*.

Paper-Plate Masks

1. Use the bottom or underside of the plate. Divide the plate into four equal parts with light center lines.
2. Draw the eyes on the center. Make them 1″ apart. Draw the nose on the center line, starting between the eyes and making it 2½″ long. Draw the mouth 1″ below the nose.



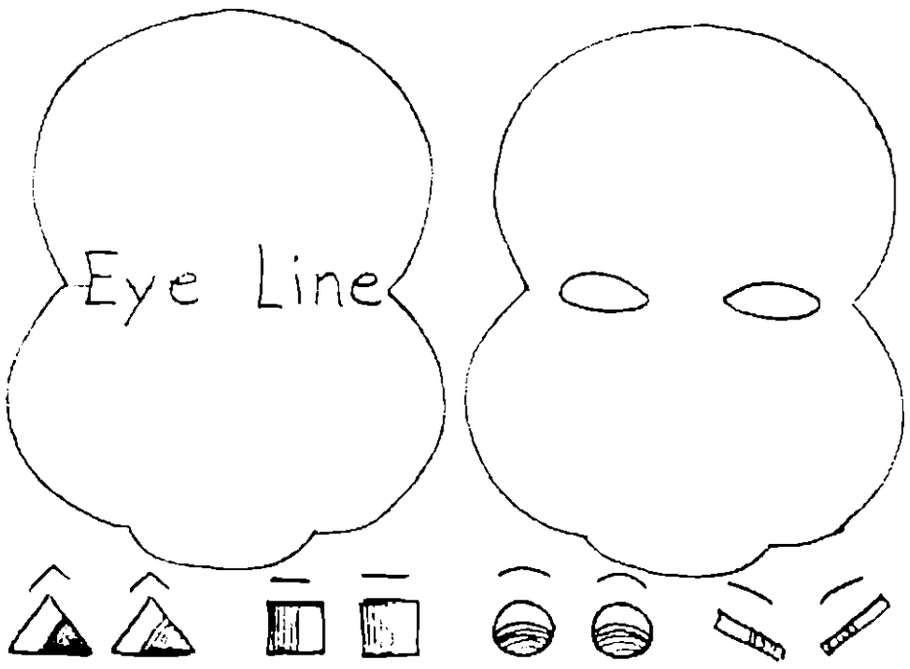
3. A projecting nose may be made from construction paper. Cut a piece of paper as shown in the diagram. Crease on the lines. Paste *A* over *D* to form a triangular pyramid. Paste one surface to the mask.



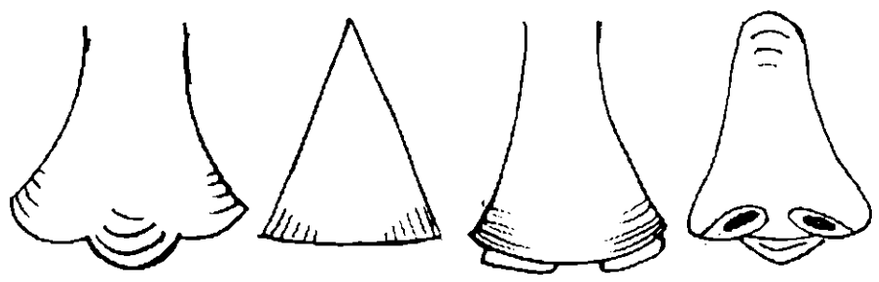
4. Make features of odd bits of material—twist copper wire for eyebrows, add yarn hair, make a headdress of feathers, put a curtain ring through the nose, etc.
5. Paint the features with brilliant colors.
6. Shellac the entire mask when paint is thoroughly dry.
7. Punch holes in the rim opposite each eye. Fasten cord or elastic through the holes to hold the mask on the child's head.

Masks Made from Sheets of Paper

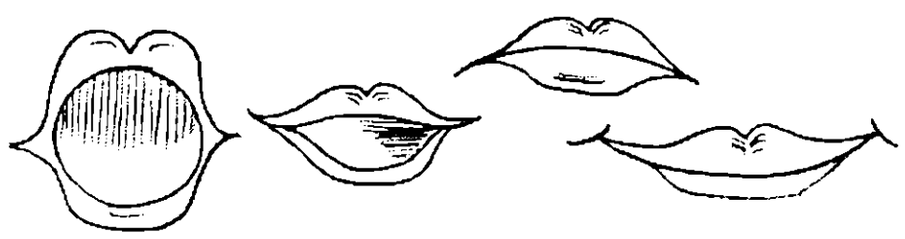
1. Draw a head at least 6″ wide and 9″ high. Divide it in fourths with a light horizontal line and a vertical line.
2. Draw the eyes close together on the horizontal line. Make them round, oval, triangular, square, or slanted slits. Draw a nose or construct one as shown in the last illustration. Add the mouth.



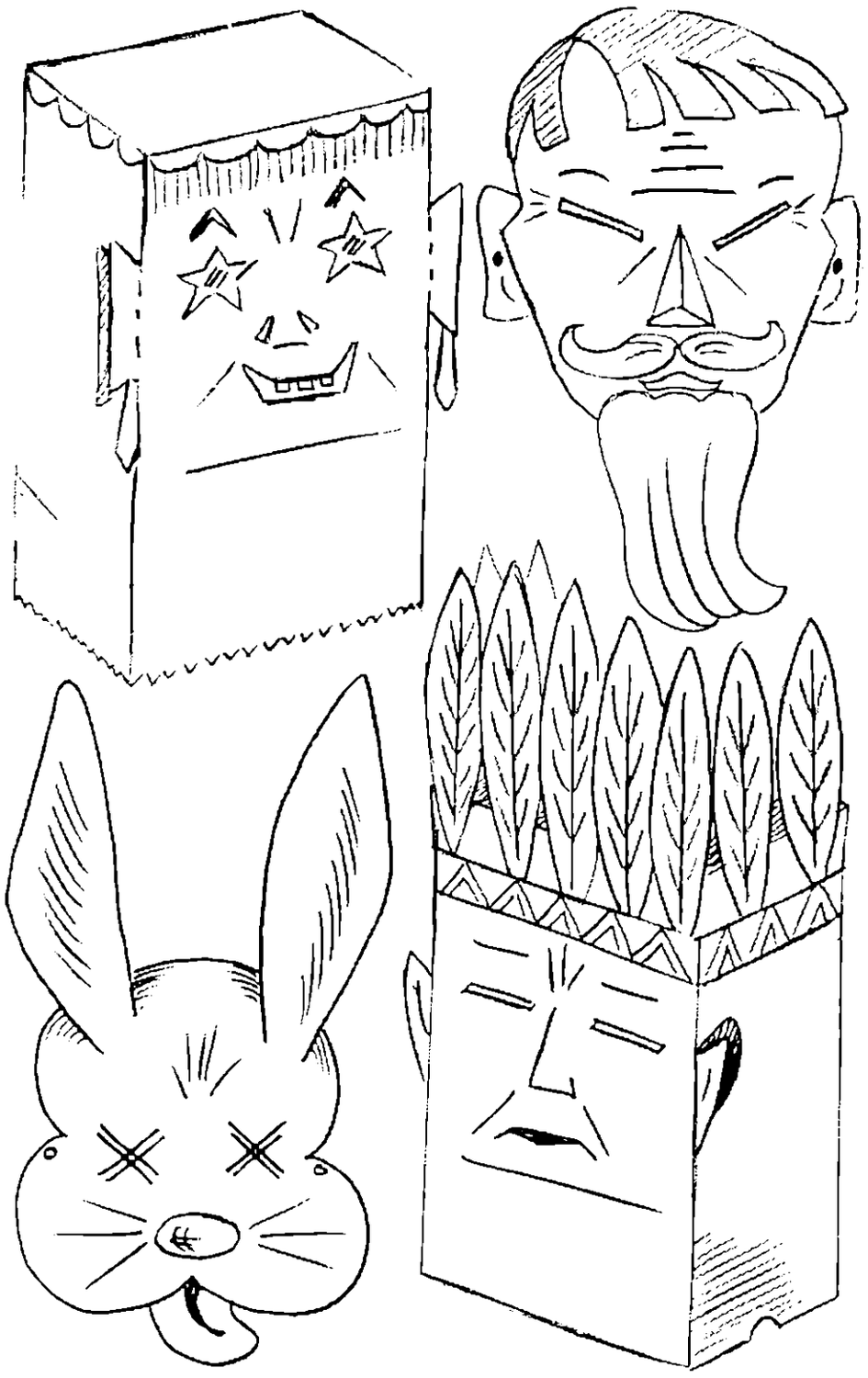
3. Eyebrows, hair, mustaches, and beards may be made of fringed paper with curled ends (see directions for curling paper on page 60), yarn, string, rope, twine, or cotton batting. Paste these to the paper.
4. Frowns, wrinkles, and creases may be added for effect.
5. Crayons or paints can be used to add colored detail.



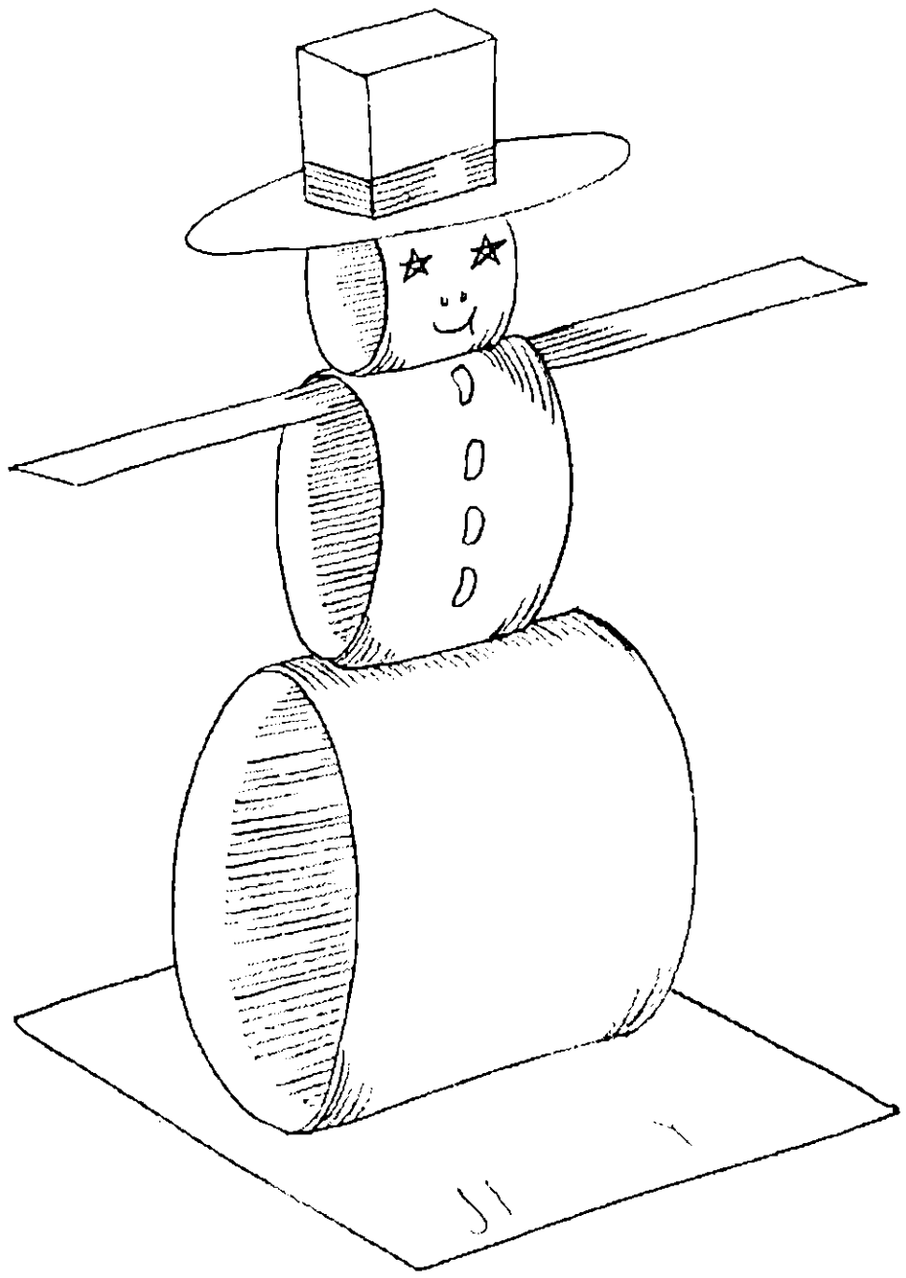
Noses



Mouths



A PAPER SNOWMAN



FOR CHRISTMAS TREE decorations, for the table, to illustrate a story or song, or just for fun, make a snowman out of three rings of white construction paper.

Materials Needed

Ordinary school paste, crayons or water colors
Construction paper as follows:
Piece No. 1 for big ball—1 strip white 3″ x 9″
Piece No. 2 for middle-sized ball—1 strip white 2¼″ x 8″
Piece No. 3 for head—1 strip white 1½″ x 6″
Piece No. 4 for arms—1 strip white ¾″ x 6″
Piece No. 5 for hat—1 piece black 3″ x 3″
Piece No. 6 for base—1 piece white 4½″ x 4½″
Piece No. 7 for hat—1 piece black 3½″ x 6¼″
Piece No. 8 for hat band—1 strip red ¼″ x 7″

Tools Needed

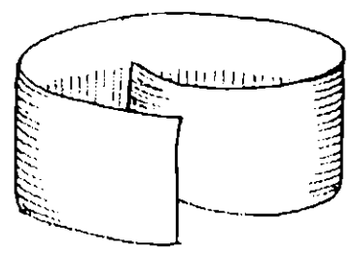
Ruler
Pencil
Scissors

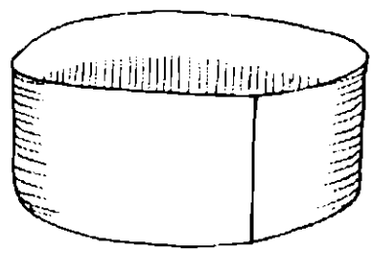
NOTE.—*It would simplify the project for children if the paper were cut in strips to size. Several pieces could be cut at one time on a paper cutter.*

PROCEDURES

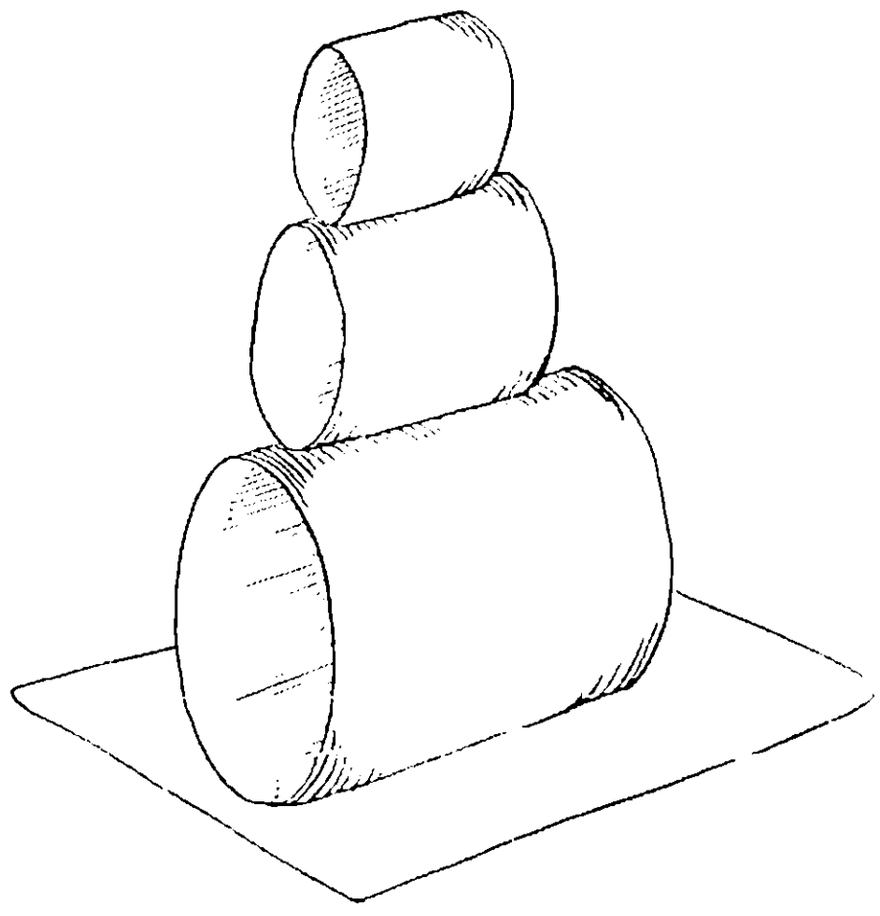
Steps in Constructing

1. Make cylinders out of pieces No. 1, No. 2, and No. 3 by applying paste to one end of each strip and bringing it around and pasting it over the other end to make a paper ring or cylinder. Overlap the ends about ½″ and hold until paste will stick.

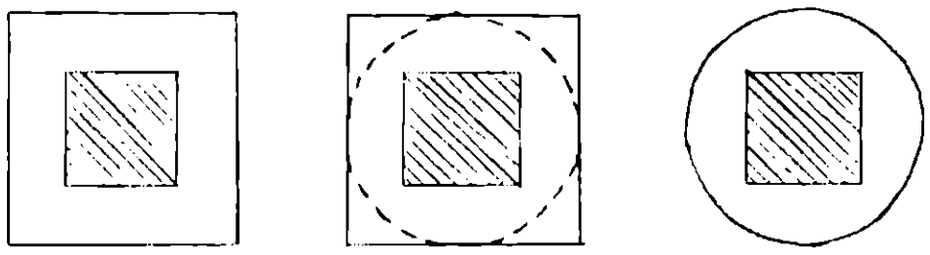




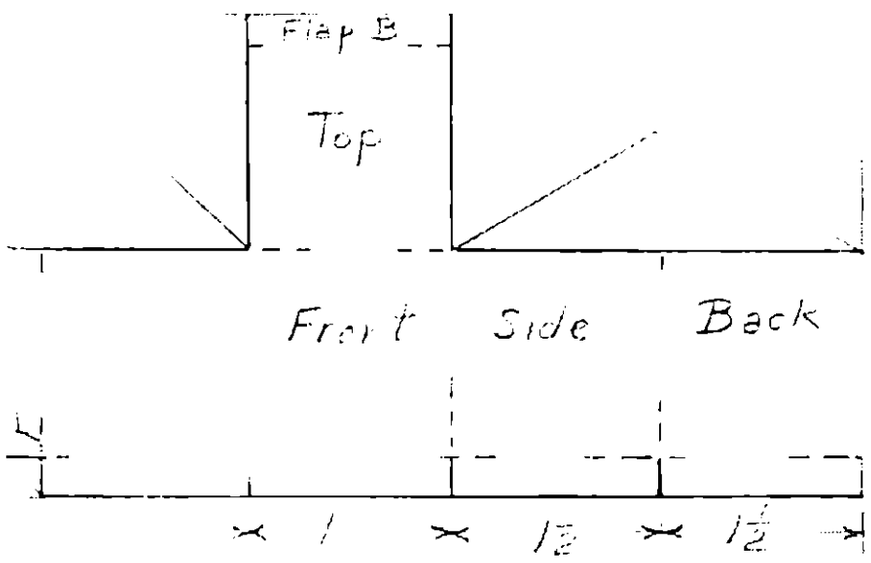
2. Paste the large cylinder on the middle of the white square, piece No. 6. Paste the middle-size figure on top of the large one. Paste the small cylinder on top of the other two. Hold each piece until the paste is dry enough to stick.



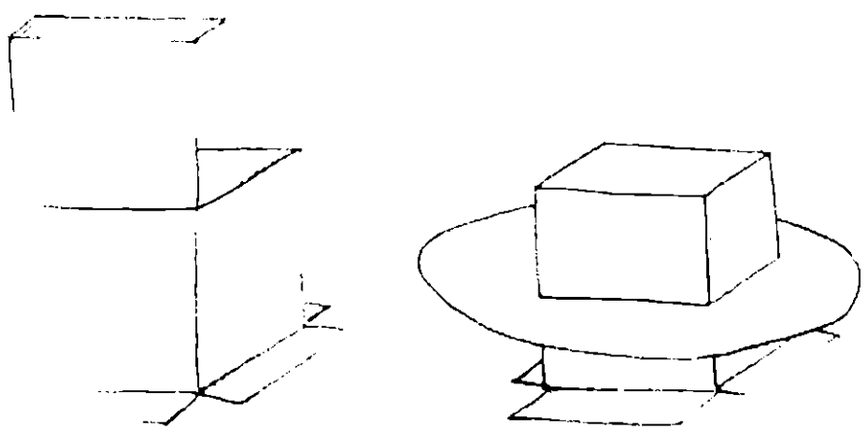
3. Add the arms. Apply paste to the middle of piece No. 4. Slide it through the middle-size cylinder and stick it to the top of the body.
4. Make the hat brim. Cut a 1½″ square out of the center of piece No. 5. Round off the outside of the corners to make a circle.

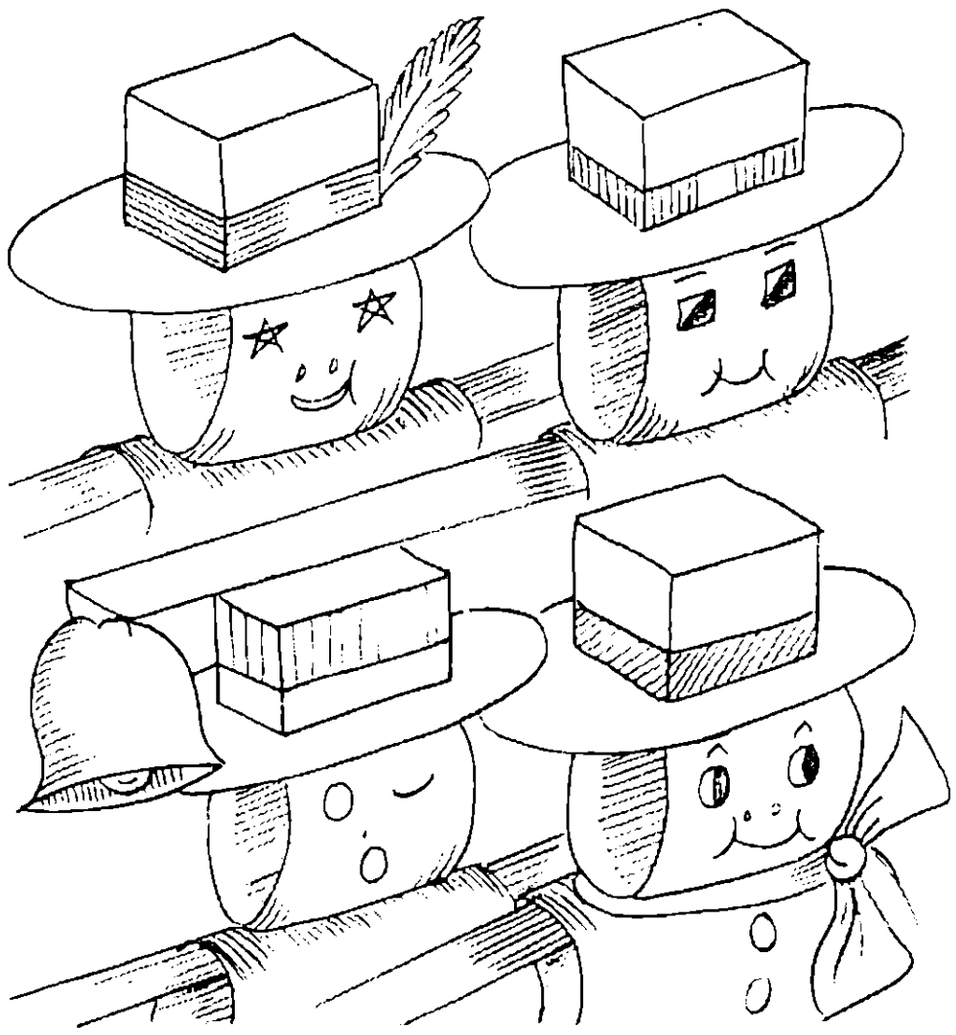


5. Make the crown of the hat. Use pattern below. Cut on solid lines, discarding sections having crosses. Fold on all other lines. Paste flaps *A* and *B* under the section marked "back."



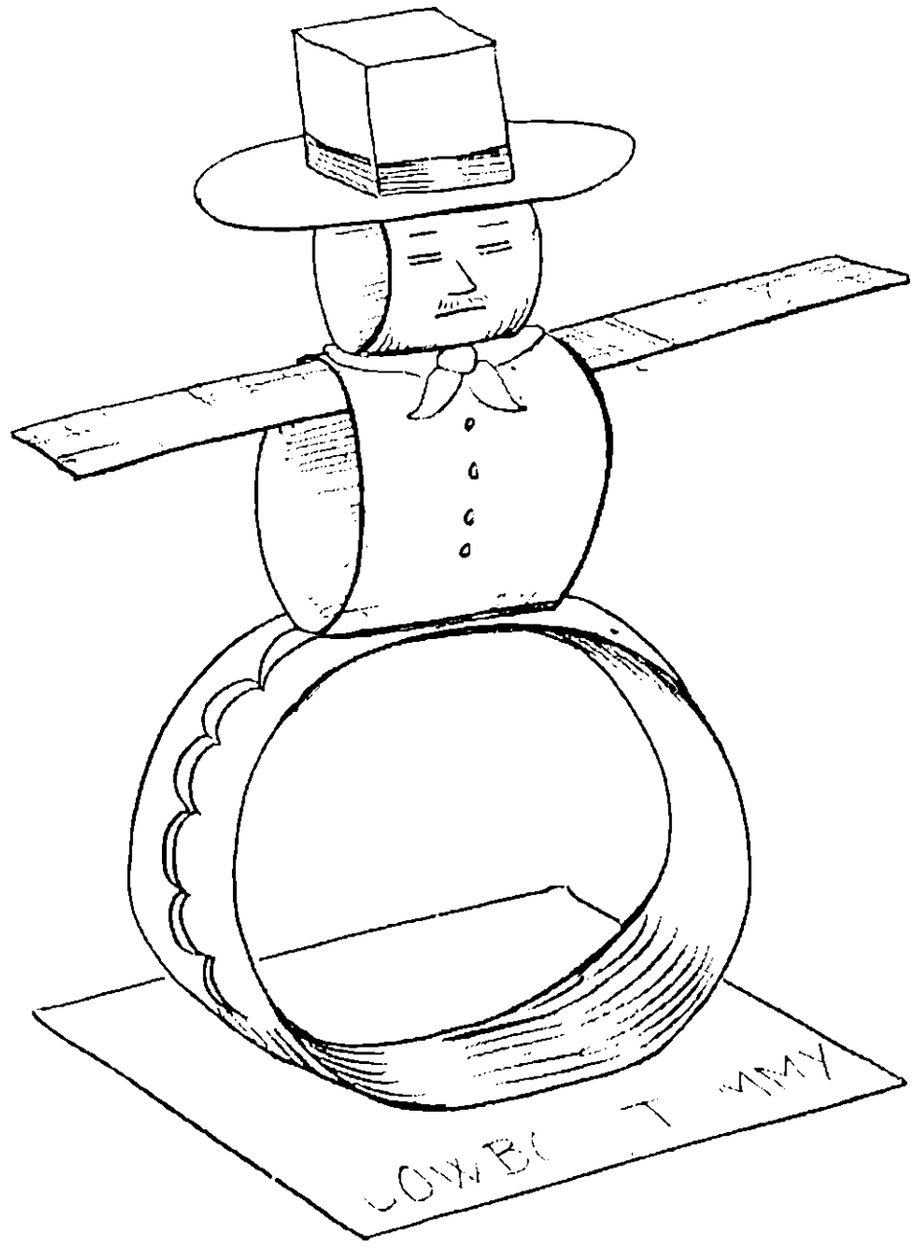
6. Put the hat together. Put paste on the top of the four flaps on the hat crown. Slide the brim down over the crown and stick it down tight. Paste piece No. 8, the red hat band, around the crown of the hat. Put the hat on the snowman. Tip it back on his head.
7. Paint or crayon the eyes, nose, mouth, and buttons.



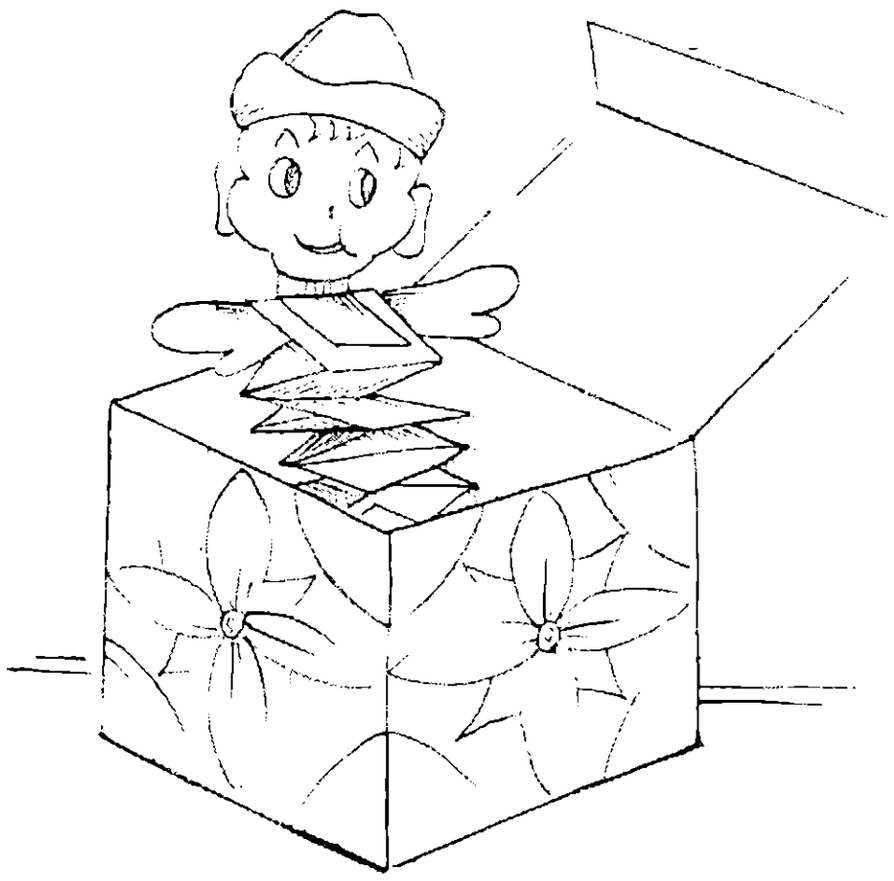


For Variation — A Cowboy

USE THE SAME procedure as for making the snowman, except reverse the position of the lowest cylinder to make him bowlegged. Color the arm strip and middle-size cylinder with a plaid design before pasting in position.



A PAPER JACK-IN-THE-BOX



THESE CAN BE made as toys, Christmas tree ornaments, or children's party favors. The jack-in-the-box involves the construction of a box and a paper spring with applied parts. For those interested in color and design, this paper craft problem offers a variety of possibilities.

Materials Needed

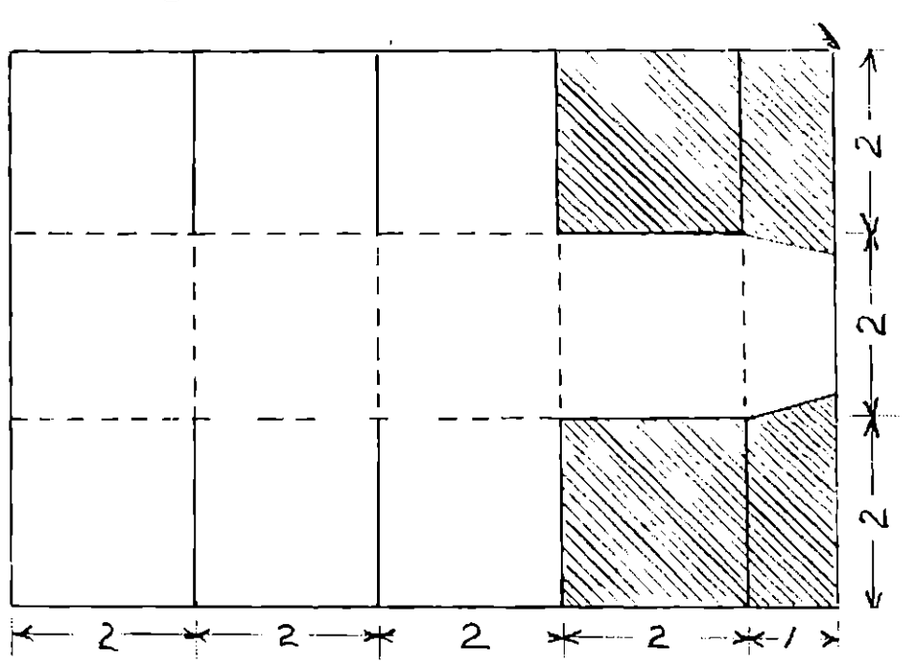
Construction paper
Paste
Crayons or paints

Tools Needed

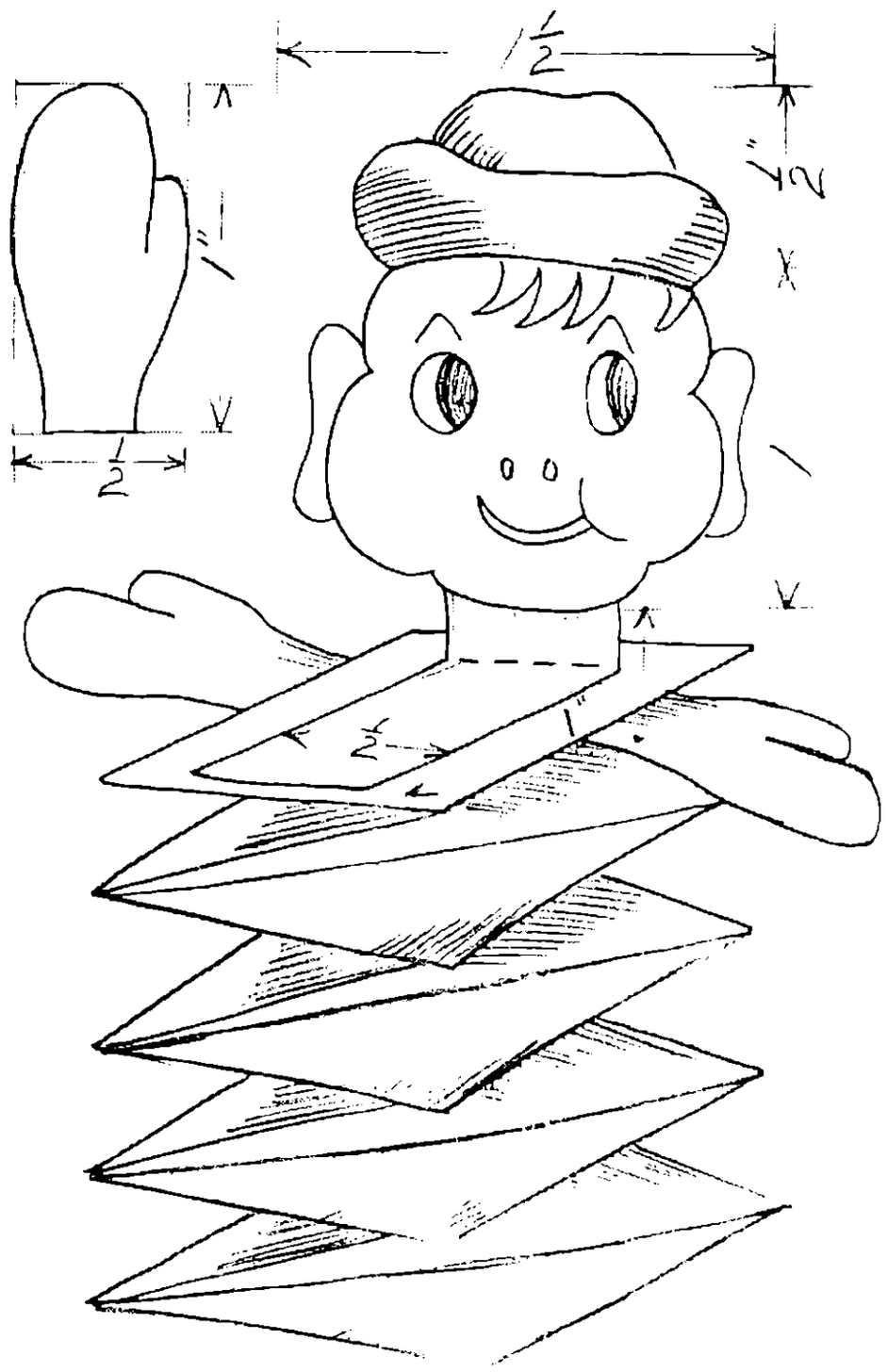
Scissors
Pencil
Ruler

PROCEDURE

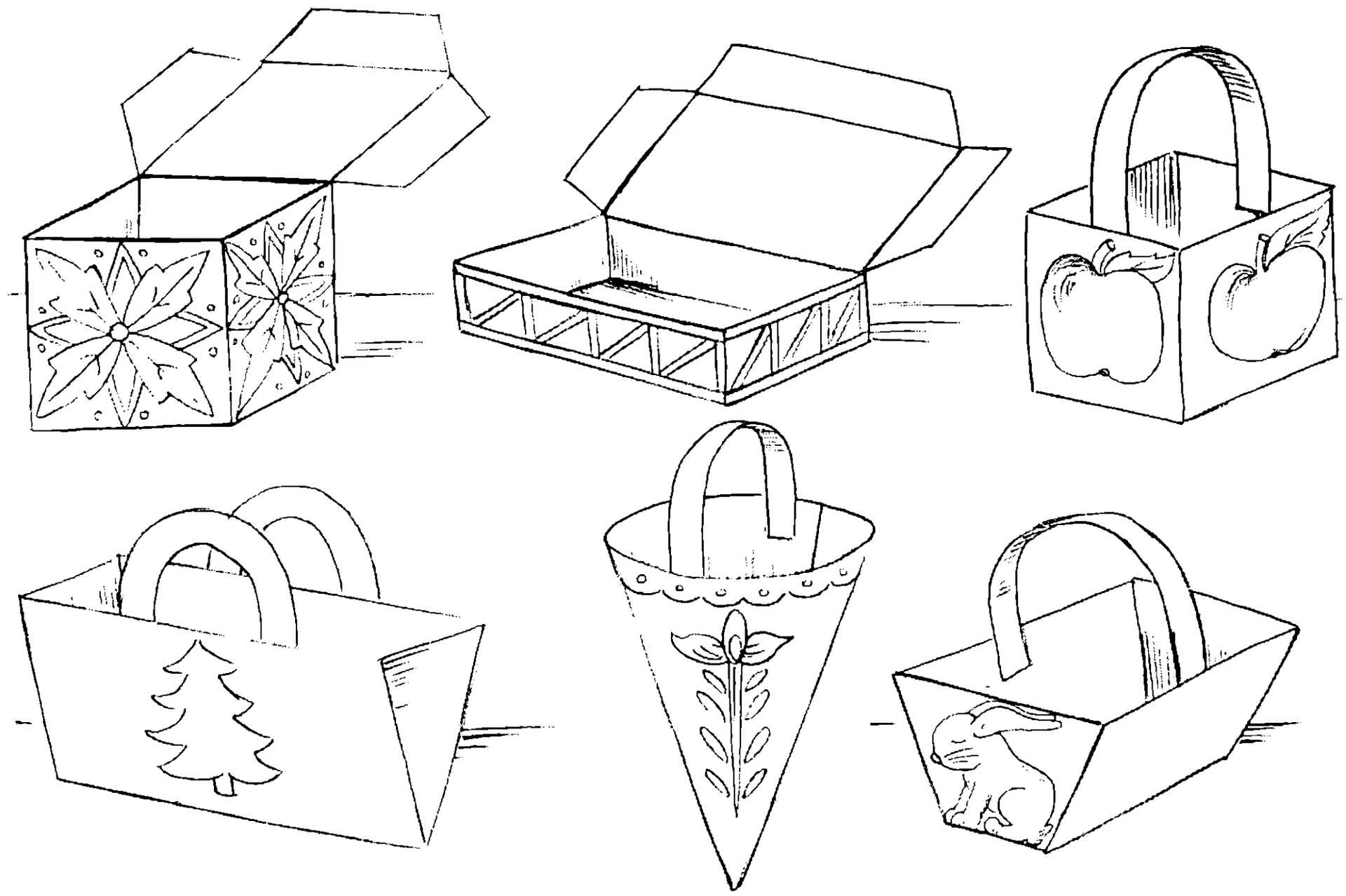
1. For the box use a piece of paper measuring 6″ x 9″.



2. Cut on solid lines. Discard the shaded corners.
3. Decorate with cutout, painted, or crayoned designs before folding.
4. Make the box according to the directions given on page 55.
5. To make paper spring, cut two strips 1″ x 12″. These may be different in color. Follow the directions on page 69 for making paper springs.
6. To make the head, use a piece of paper 1½″ x 2½″. Make the tab ½″ x 1″ under the chin. Cut out and color. Paste the head tab to the top of the spring. Fold up the head so that it stands up.
7. To make the hands, use pieces ½″ x 1″. Draw a mitten. Cut out the hands and paste them under the very top fold of the spring.
8. Paste the bottom of the spring to the bottom of the box.



BASKETS AND BOXES



MAKING GIFT BOXES and baskets is a timely and interesting project for youngsters at any age level. The baskets may be used for table favors, or they may be hung on the tree at Christmas time or on the door handle on May Day.

Materials Needed

Stiff construction paper 6″ x 9″ for boxes or baskets
Paste (Staples or paper brads may be used.)
Paints or crayons to add decoration

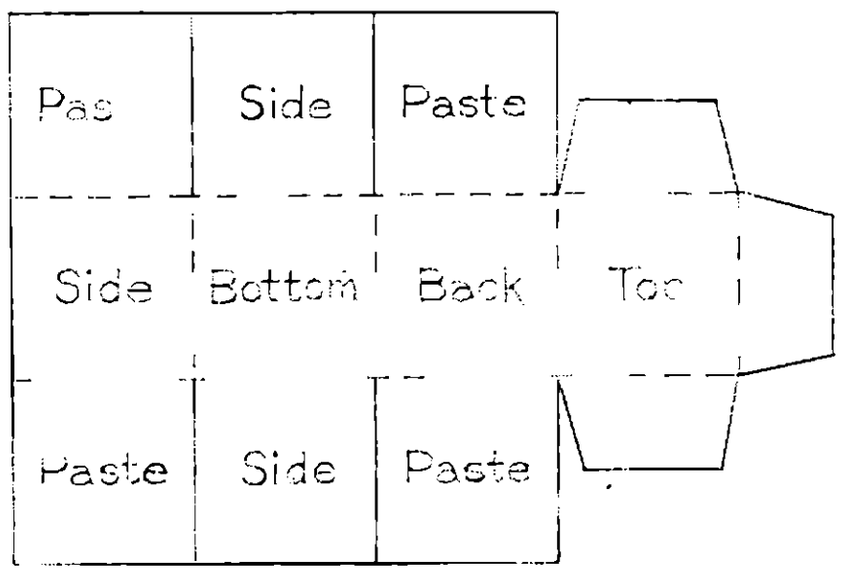
Tools Needed

Ruler
Pencil
Scissors

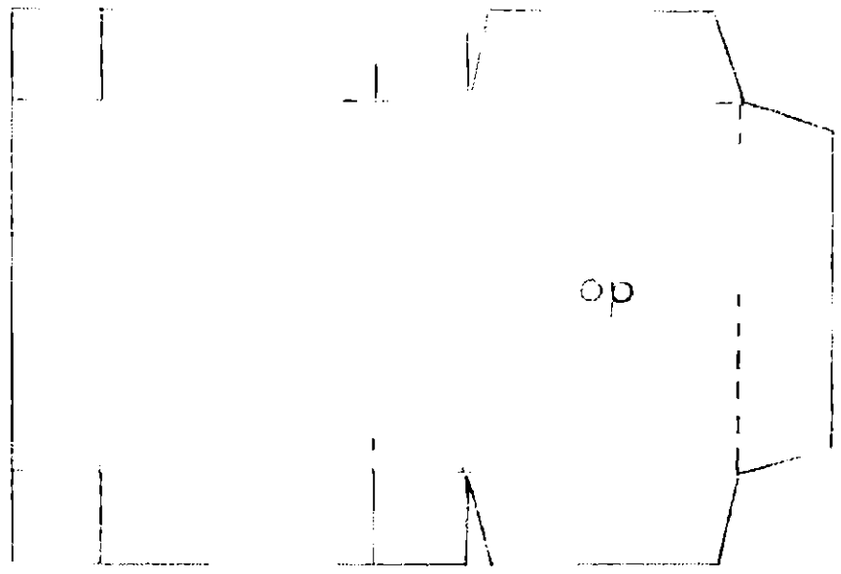
PROCEDURES

Covered Boxes

1. With ruler and pencil mark off on heavy, colored construction paper the diagram shown here. Sizes may be varied to suit the need.



Cube box

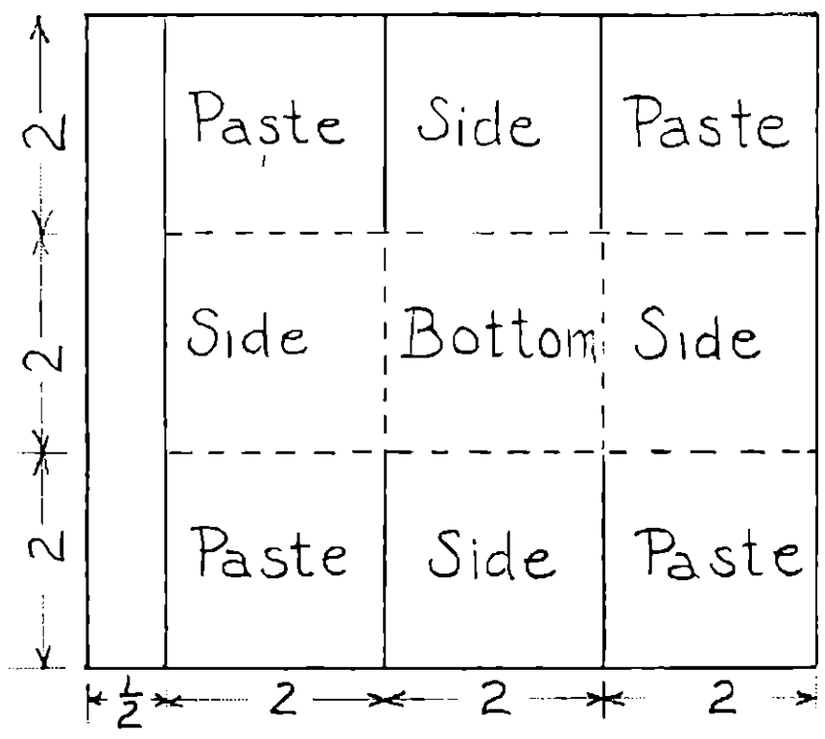


Flat box

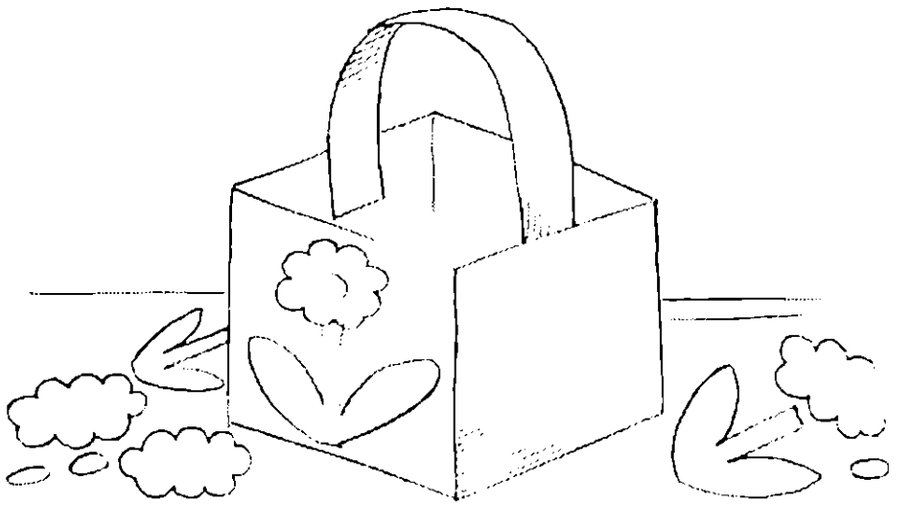
2. Cut out diagram. Cut in on solid lines.
3. Crease on dotted lines so that line is inside the fold.
4. Apply paste on bottom of parts so marked. Stick these parts inside or under the others to make corners stand upright.
5. Decorate with cutout designs or show card colors. Medallions cut from paper doilies and pasted on colored boxes are effective. Gummed stars, tape, and seals may be used.

An Open Cube Basket

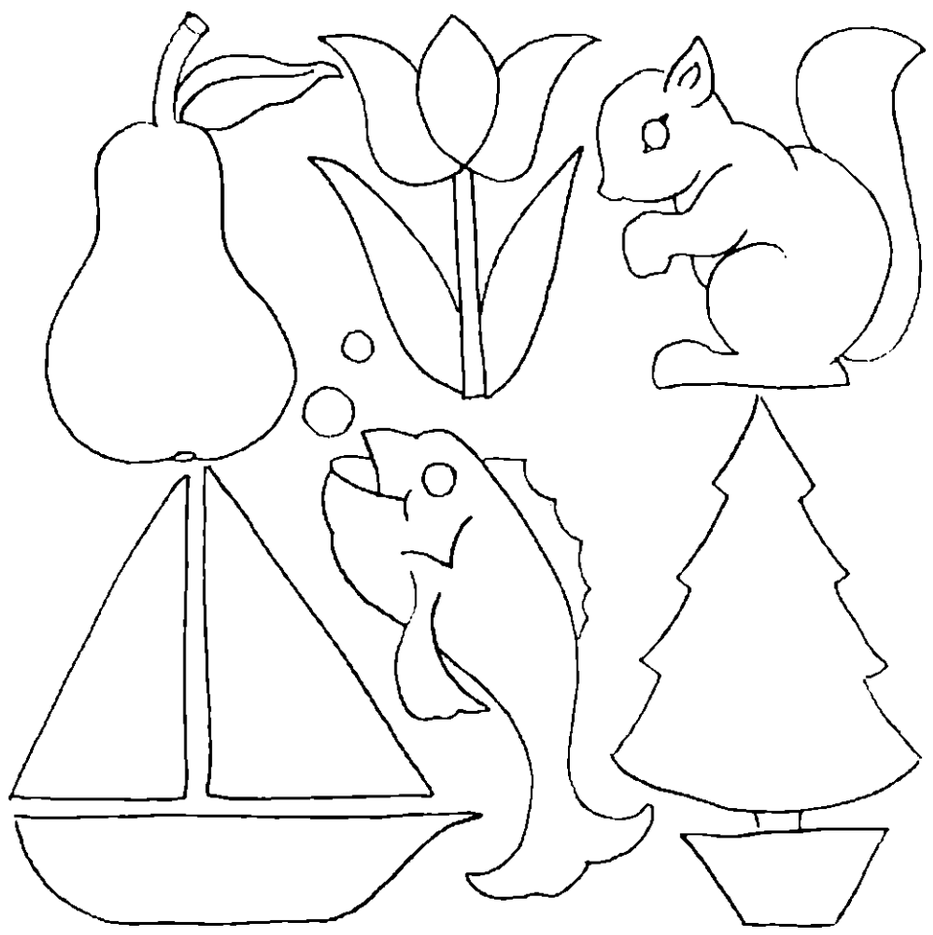
1. Rule off a piece of stiff construction paper as shown in the diagram. Sizes may be varied to suit need.



2. Cut on solid lines.
3. Fold on dotted lines (lines inside the fold).
4. Put paste on the four corner squares and fold into open box. Hold the corners in place until the paste is dry enough to stick.
5. Paste the ends of the handle inside the box.

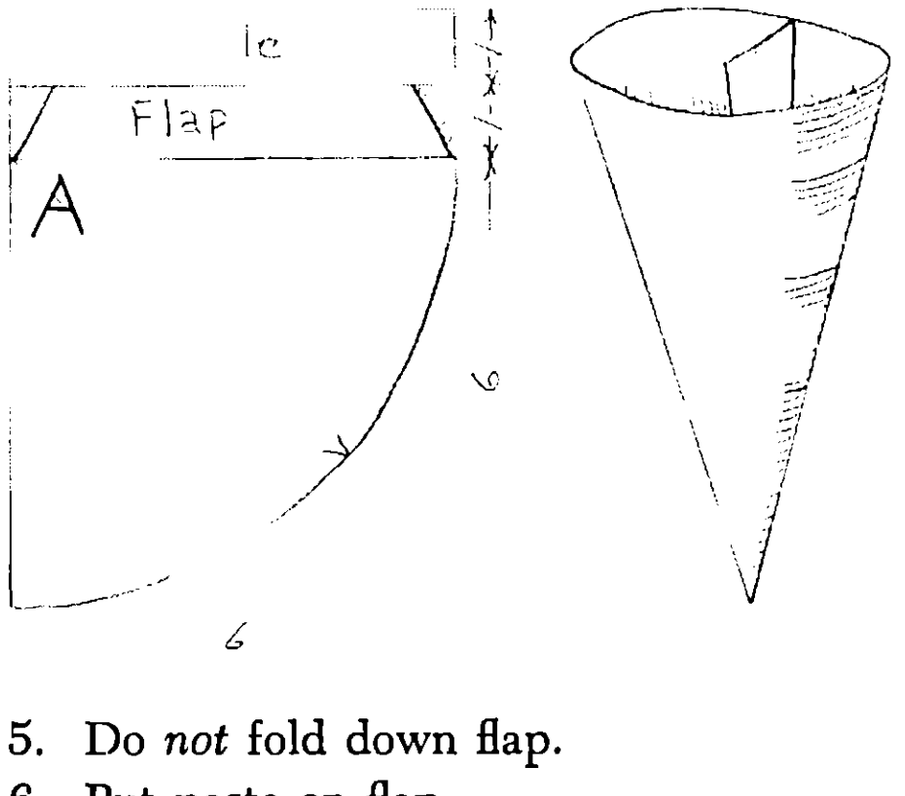


6. Decorate the sides with paper cutouts of trees, flowers, animals, fruit, boats, etc.

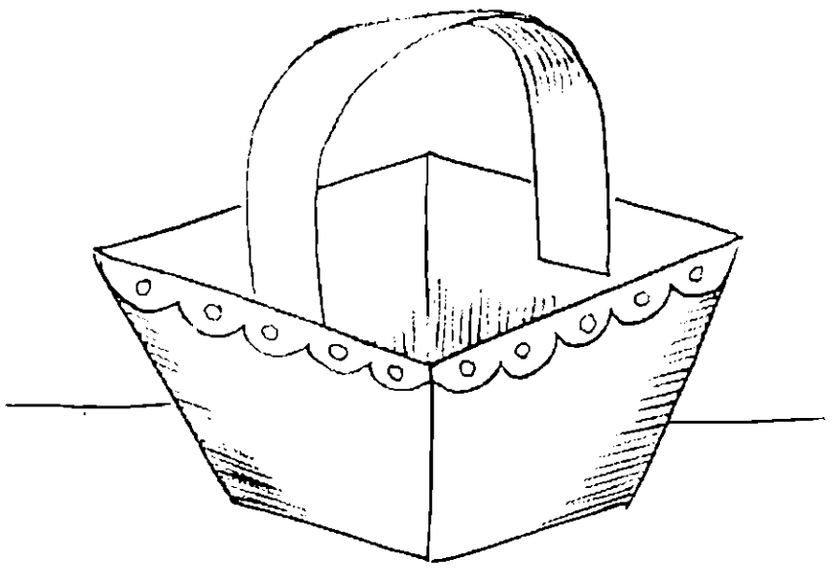


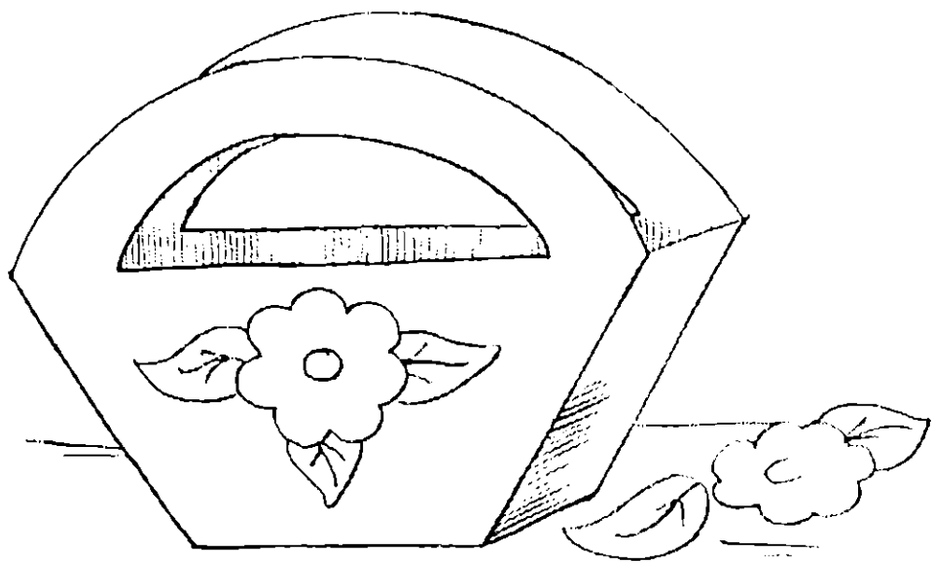
A Cone-shaped Basket

1. Set the compass at a 5″ or 6″ radius.
2. Measure off two 1″ strips.
3. Place point of compass at point *A* and draw a quarter of a circle.
4. Cut off handle strip.



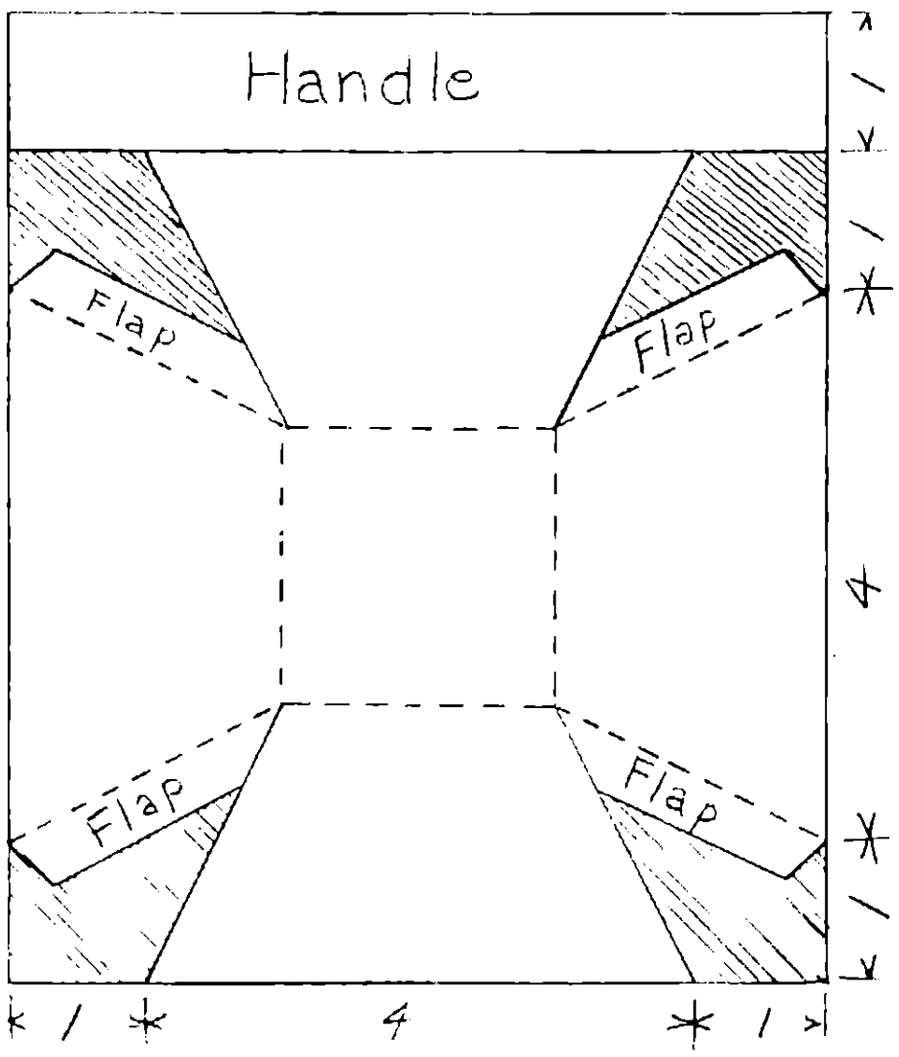
5. Do *not* fold down flap.
6. Put paste on flap.
7. Roll cone into shape and stick flap in *under* other edge. Hold in place until dry enough to stick. Rolling the cone into shape two or three times before pasting makes this step easier.
8. Paste the ends of the handle inside the cone.





A Flared Basket

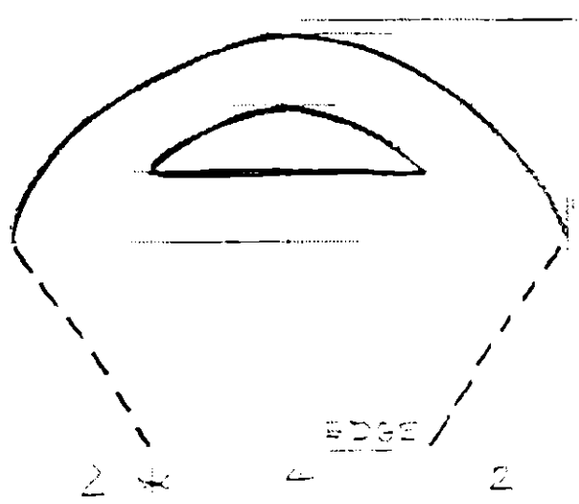
1. On a 6″ x 7″ piece of construction paper, draw the pattern as shown here. Draw ½″ flaps.



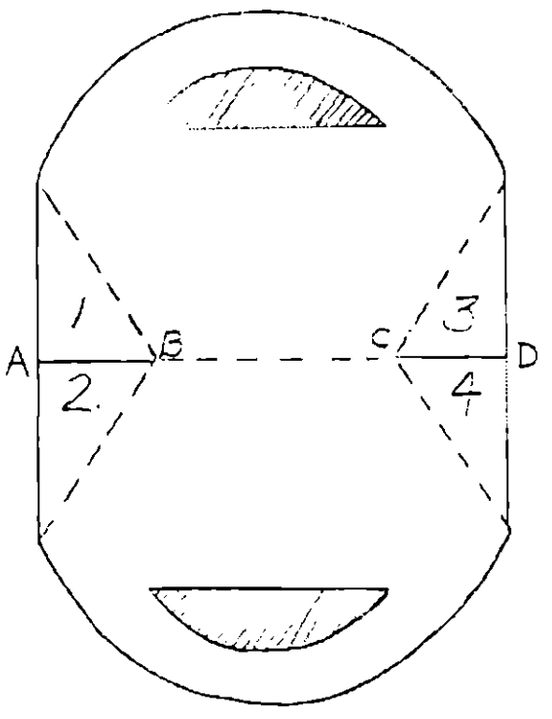
2. Cut on solid lines.
3. Fold on dotted lines with line inside the fold.
4. Paste flaps under sides at four corners.
5. Paste ends of handle inside the basket.
6. Trim with paper cutouts or painted designs.

A Satchel

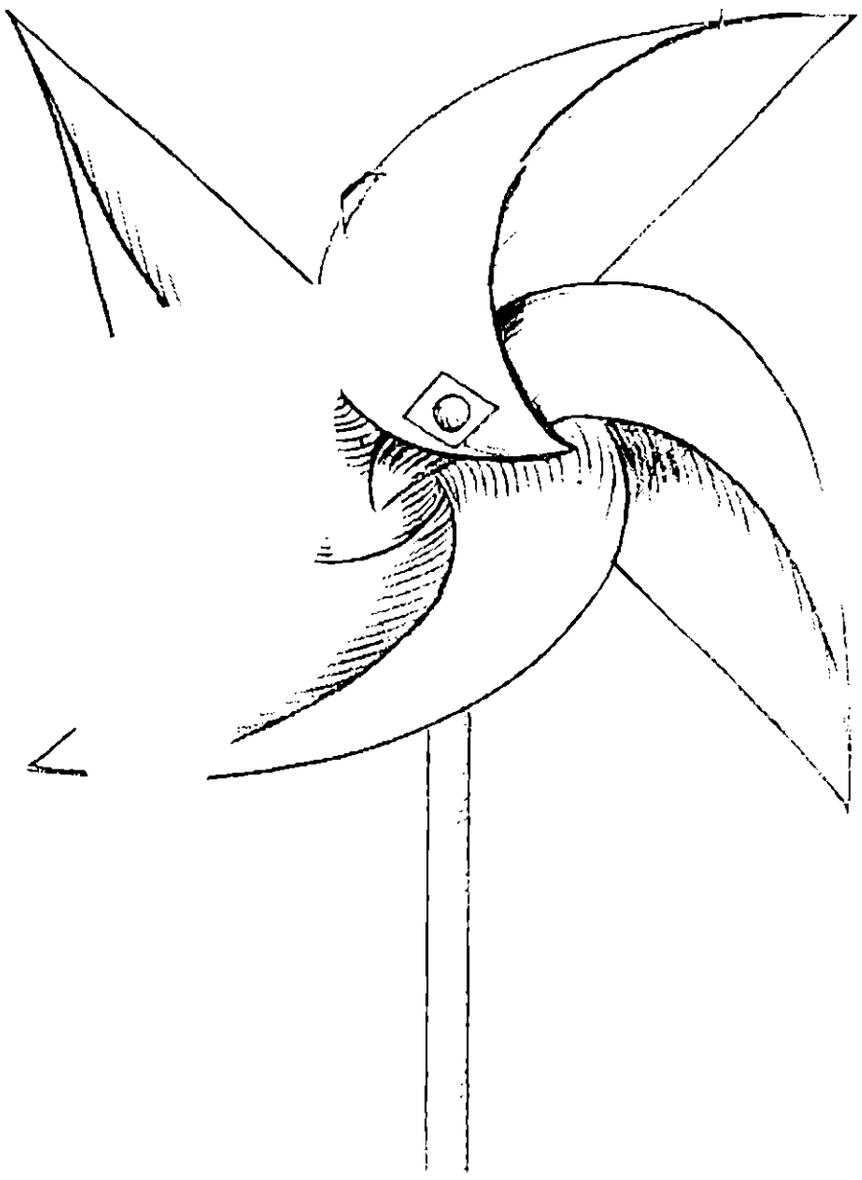
1. Fold a piece of 8″ x 12″ construction paper in half. Keep the fold at the bottom.
2. Rule off in 1″ squares.
3. Draw the pattern for the satchel. Follow the directions given for enlarging by squares on page 57.
4. Keep paper folded. Cut on solid lines, cutting through both thicknesses of paper. Discard shaded parts.



5. Open paper. Cut slashes *AB* and *CD*.
6. Fold on dotted lines. Fold all lines inside the crease.
7. Put paste on section *1* and paste it over section 2.
8. Put paste on section 3 and paste it over section *4*.
9. Decorate with cutouts or painted designs.



PINWHEELS



OF ALL THE paper projects, the pinwheel is the simplest. Yet, pinwheels hold a charm for the children who make them. How they love to run with them, watching the wind blow the four points around until, spinning rapidly, they form a circle of whirling color!

Materials Needed

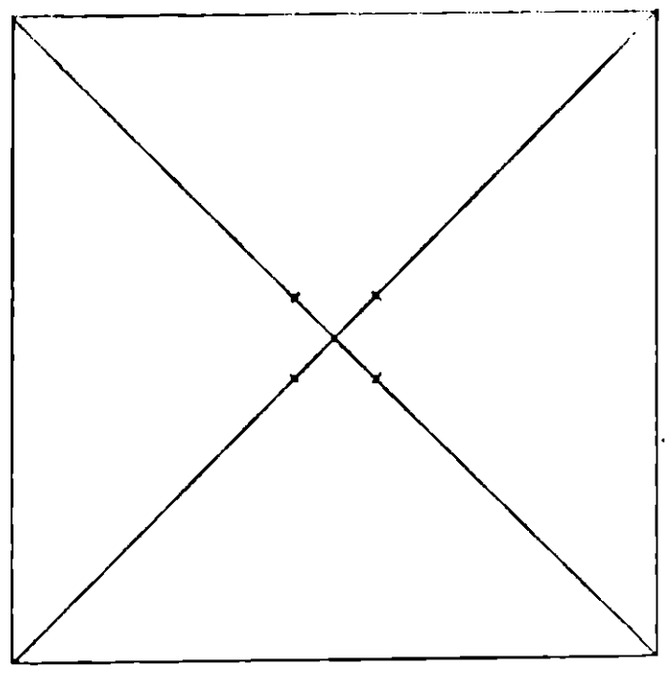
6″ Square of colored paper
½″ Square of colored paper
Thumbtack with long point or pin with large head (Large pin could be stuck through a small button.)
Thin stick—¼″ dowel or ¼″ x ¼″ strip 7–15″ long, or a clothespin

Tools Needed

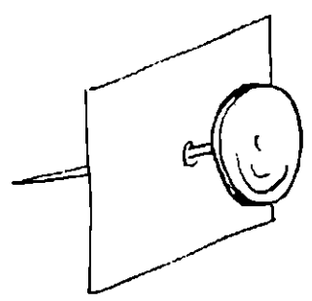
Ruler
Pencil
Scissors

PROCEDURE

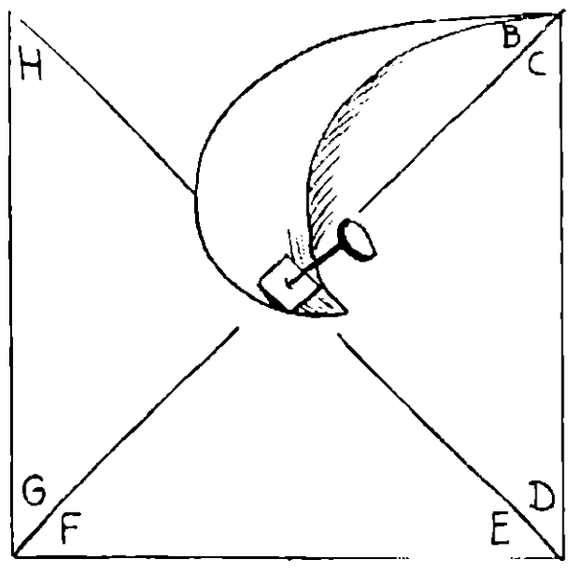
1. With the ruler draw lines from one corner to the opposite on the 6″ square.
2. On each line make a dot ½″ from the center crossing.



3. Starting at the corners, cut in on each line. Cut to the dot and stop.
4. Put the point of the thumbtack through the middle of the ½″ square.

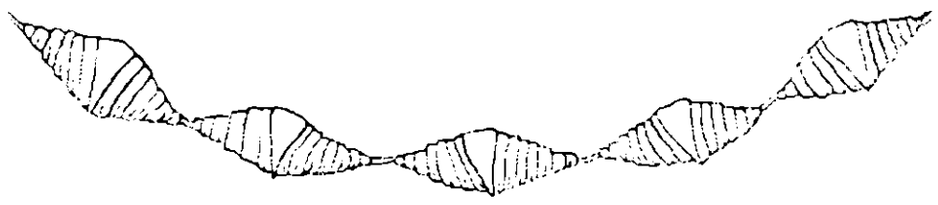


5. Next bring one point of the pinwheel up over the center of the square.
6. Push thumbtack through this point but *not* through the center of the big square.



7. Then bring point *C* up under the thumbtack. Push the tack through the end of that point.
8. Do the same with points *E* and *G*.
9. When every other point is on the thumbtack, push the tack through the center of the big square.
10. Then push the thumbtack into the end of the stick. Do not fasten the pinwheel so tightly to the stick that it will not turn easily.

PAPER BEADS



CHILDREN ENJOY "dressing up" in jewelry particularly if they make it themselves. Beads and bracelets transform a little girl into a princess or a fairy queen. Boys enjoy making Indian and African jewelry for others to wear.

Materials Needed

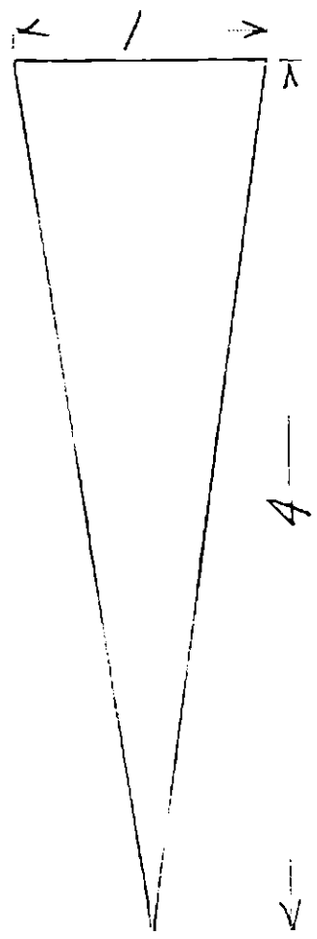
Colorful pages from magazines
Round toothpicks
Paste
Show card colors
Shellac—white
Strong, heavy thread

Tools Needed

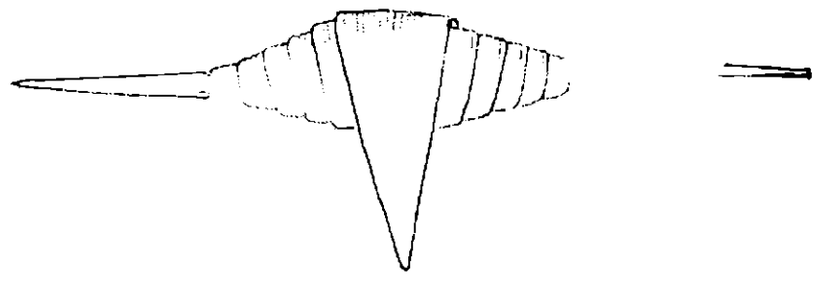
Large-eyed needle
Scissors
Ruler
Pencil

PROCEDURE

1. Cut a triangular pattern 1″ across the base and 4″ long.

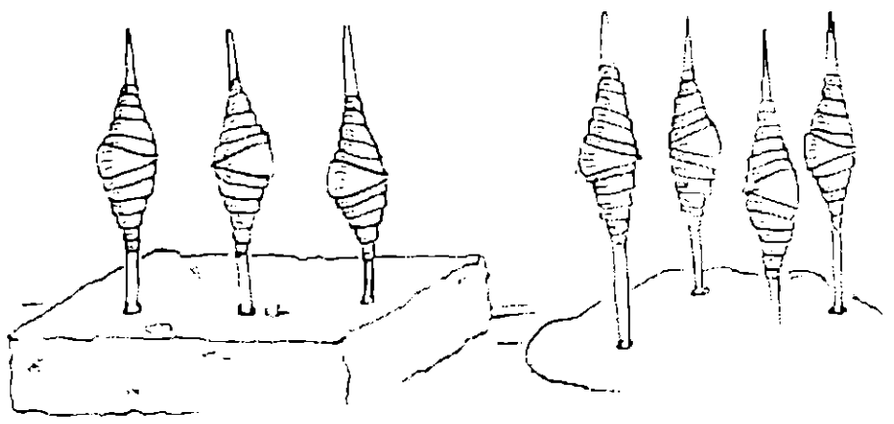


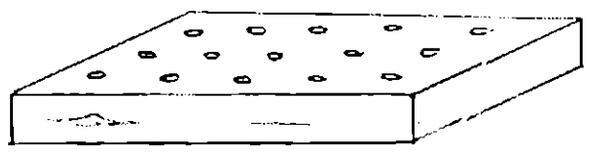
2. For a 24″ necklace cut 24 triangles from the brilliant sections of colored ads or illustrations in old magazines.
3. Take one triangle. Place the most colorful side face down. Spread paste over three fourths of the pointed end.
4. Wrap the paper triangle carefully around a round toothpick, starting with the 1″ base of the triangle and ending with the point. Be sure the colorfu … of th paper is outside. Hold the … in place until the paste s … process until desired nur … ds has been made.



5. Leave beads on toothpicks. Holding the toothpick, brush white shellac over the dried bead. Stick other end of toothpick into rubber sponge, lump of clay, or tiny hole in board to permit shellac to dry. A second coat of shellac may be added 24 hours later if desired.
6. When the beads are thoroughly dry, remove them from the toothpicks. String them on heavy, strong thread using a large, blunt-pointed needle. Tie ends of thread together.

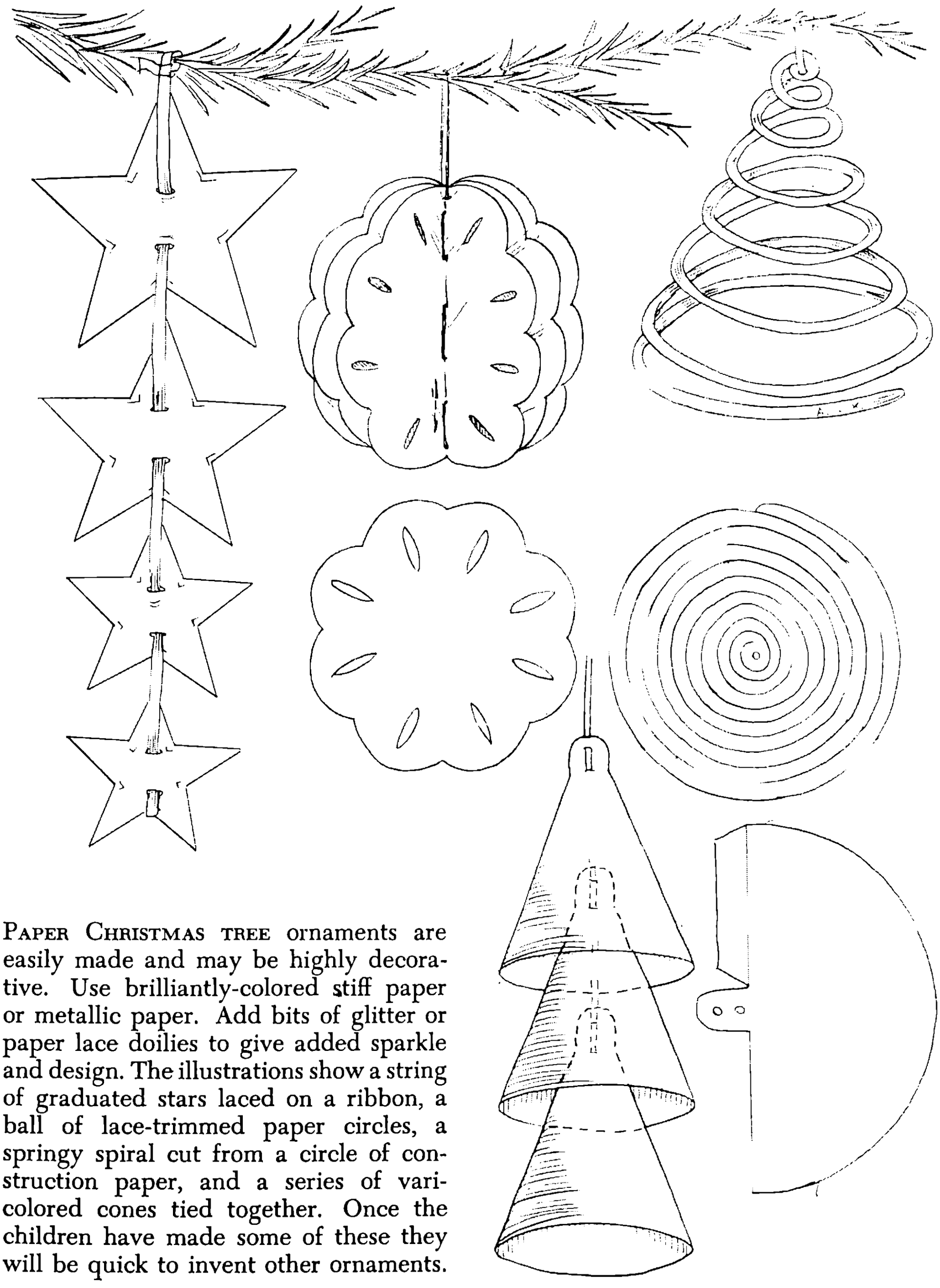
NOTE.—*Beads may also be made of colored construction paper, or magazine-paper beads may be painted solid colors.*





Beads drying

CHRISTMAS ORNAMENTS



PAPER CHRISTMAS TREE ornaments are easily made and may be highly decorative. Use brilliantly-colored stiff paper or metallic paper. Add bits of glitter or paper lace doilies to give added sparkle and design. The illustrations show a string of graduated stars laced on a ribbon, a ball of lace-trimmed paper circles, a springy spiral cut from a circle of construction paper, and a series of varicolored cones tied together. Once the children have made some of these they will be quick to invent other ornaments.

A PAPIER-MÂCHÉ BOWL



PAPIER-MÂCHÉ ENABLES the craftsman to make three-dimensional figures out of paper. Bowls may also be made in papier-mâché. These offer the child the opportunity to experiment with decorating on the curved surface. Specific instructions are given for making a bowl; the procedure in making other papier-mâché articles is similar.

Materials Needed

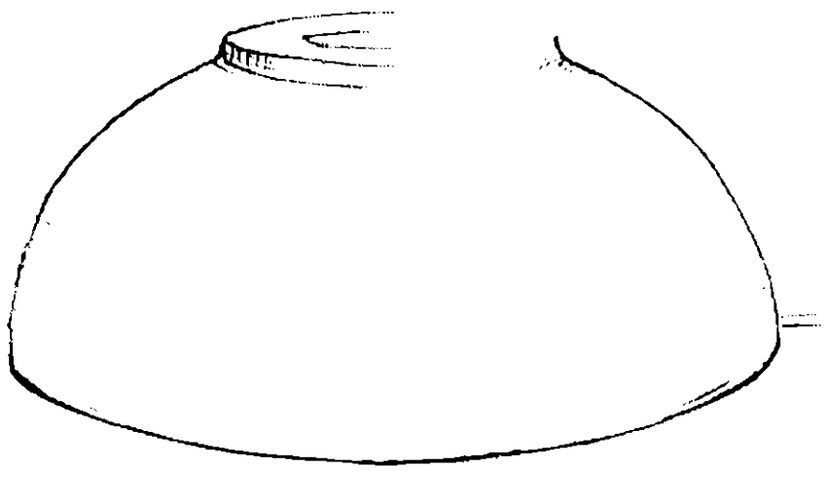
China bowls—with sides that curve out
Wire—stovepipe or other wire that is approximately 1/16″ in diameter and easily bent
Strips of cloth, ¾″ wide
wspaper or paper towels
(paperhanger's paste plus salt and
—salt prevents souring)
d paints
lard, or white shortening

Tools Needed

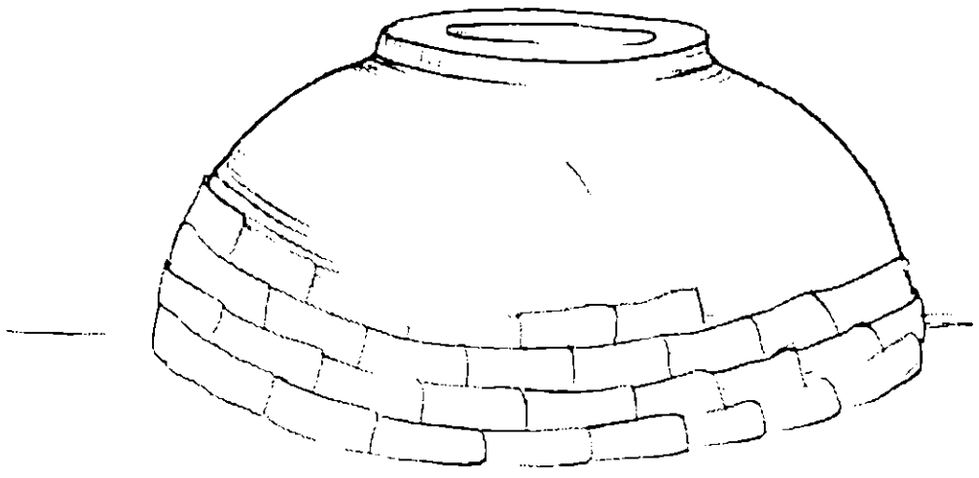
Wire cutters
Needle and thread

PROCEDURE

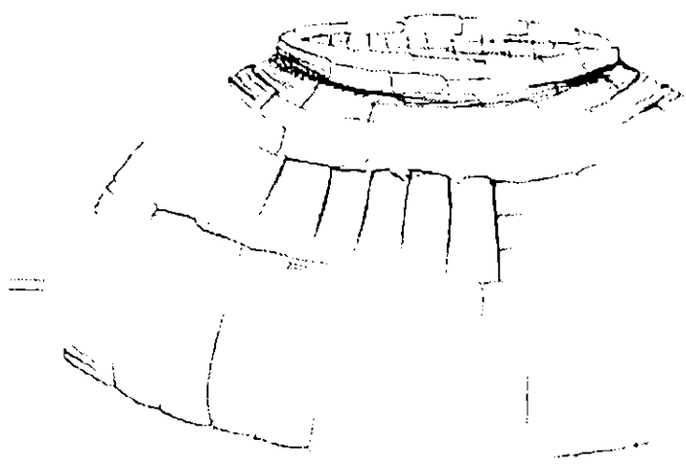
1. Spread old newspaper over the table or desk to protect the surface.
2. Turn the bowl upside down. Cover the outer surface with a thin, smooth layer of vaseline.



3. Tear newspaper or paper towels into small strips about ½″ x 3″. Torn edges stick better than cut edges.
4. Dip each strip in the pan of paste, one at a time. Use each strip before putting another in the paste.
5. Cover the entire surface of the bowl with one layer of strips that slightly overlap each other.



6. Apply a second layer, running the strips in the opposite direction.



7. After the second layer is stuck in place, brush a thin coating of paste over the entire surface.
8. Allow to dry thoroughly.
9. Add a third and fourth layer in the same manner as the first and second. Make each layer as smooth as possible, placing the strips in the direction opposite to the strips in the layer just below.
10. Brush a thin coat of paste over every second layer. Allow to dry before going on to the next layer.
11. Six to eight layers are enough to make a sturdy bowl.
12. The last layer should be applied with special care for smoothness, especially where one strip overlaps the other.
13. After the last layer has had 24 hours in which to dry, lift the papier-mâché bowl off the china bowl. If it sticks, gently pry the edges with the tip of a knife.
14. Bowls may be sanded lightly with fine sandpaper when they are as dry as wood and as hard as wood.
15. Enamel or show card colors may be used to paint the surface and any decoration that is to be added. Be sure the undercoat of paint is thoroughly dry before painting another color over it.
16. If painted with show card colors, the bowl should first be sprayed with thin shellac. Use one part of shellac mixed with one part of alcohol. Put mixture in small fly-spray gun.

SUGGESTIONS FOR FURTHER READING

Bolander, Ella Langenberg, *Let's Make Our Own*. Sandusky, Ohio: The American Crayon Company, 1947.

de Lemos, Pedro J., *Creative Art Crafts*. Worcester, Mass.: Davis Press, Inc., 1943.

Hening, Viola, *Fun with Scraps*. St. Paul, Minn.: Bruce Publishing Company, 1947.

Knapp, Harriet, *Design Approach to Crafts*. The American Crayon Company, 1951.

Newkirk, Louis V., and LaVada Zutter, *You Can Make It*. New York: Silver Burdett Company, 1944.

Newkirk, Louis V., and LaVada Zutter, *Your Craft Book*. Scranton, Pa.: International Textbook Company, 1946.

Powers, Margaret, *A Book of Little Crafts*. Peoria, Ill.: Manual Arts Press, 1942.

CHAPTER 6

Novelty Crafts

Availability of Novelty Materials

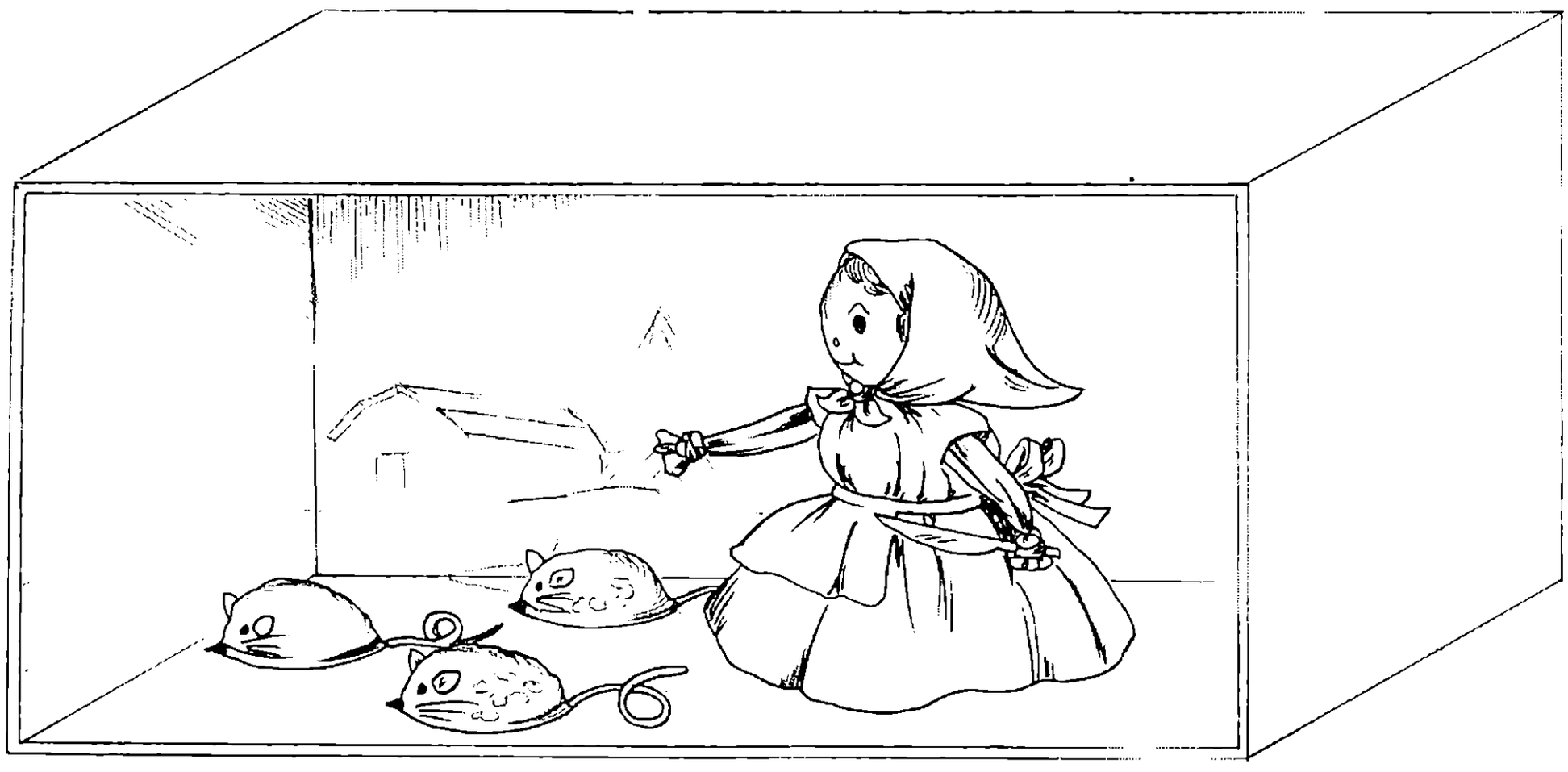
A never-ending source of materials is found in the home of every child. Corks, clothespins, spools, nut shells, pipe cleaners, broomsticks, toothpicks, vegetables, macaroni and noodles, and lollipop sticks can be used to create interesting and amusing projects. Children will use considerable imagination and ingenuity in working with these odds and ends found in the kitchen drawer. Wire, string, glue, paste, paints, bits of felt and feathers, beads, and buttons may be added to the list above.

No special tools are required. The coping saws, files, drills, sandpaper, scissors, knives, needles and thread, pliers, and brushes found in almost every school and home can be used to work with these novelty or miscellaneous materials.

Projects are Inexpensive but Valuable

Miniature story-telling dioramas may be built inexpensively and quickly to illustrate the literature, geography, or history units. Party favors are easily made. However, the construction of the projects described in this chapter is very much worth while for the child if for no other reason than the fact that there is pure joy and fun in creating.

Each of these projects should be carefully planned and constructed. Inexpensive materials should be no excuse for



Three blind mice made of halves of walnut shells, with tiny, pink felt ears and pink yarn tails. The farmer's wife is a spool doll. The tiny stage is a shoe box.



Corks, pieces of paper, and toothpicks make Sambo and the tigers.

slovenly workmanship. The child will find no lasting satisfaction in work that is not well done. Proper use of tools is essential at all times. Standards of achievement in sandpapering, cutting, gluing, painting, and shellacking should be maintained in every handcraft project regardless of the cost of the material or the size of the project. Habits of good workmanship and respect for tools and equipment are even more important than the finished article.

Things to Make, Unlimited

Only a few of the many possibilities in the field of novelty crafts are included in these pages. Teachers and students will devise other uses for these materials and will discover other materials equally useful. When planning a new project, it is wise for the teacher or one of the pupils to carry the idea through from design to completion before a group of pupils begins to work on a similar project. This prevents waste of materials and time and student disappointment if there should be some error in the planning.

Projects included in this chapter could easily be made in the home. Teacher guidance and encouragement in planning will aid the child in his work. Sincere praise and careful criticism of work done in the home will inspire the child to do more. Handcraft hobbies at home are the most desirable outcomes of work done at school.

Handcraft supply houses have numerous kits for working with such materials

Grade Placement of Novelty Craft Tool Processes

GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Cutting with scissors Drilling with hand drill Sandpapering Gluing Shellacking Threading spools Filing	Sawing with coping saw Painting with show card colors Printing Cutting with paring knife	Measuring Woodburning Nailing Cutting pipe cleaners with tin snips	Tying Lacing	Painting with enamels	Cutting wire with side-cutting pliers Sewing

as beads, shells, macaroni and novelty noodles, reeds, brushes, gimp, and wood links. All of these have a place in the handcraft program. When children receive such kits as gifts, they should be encouraged to work with them.

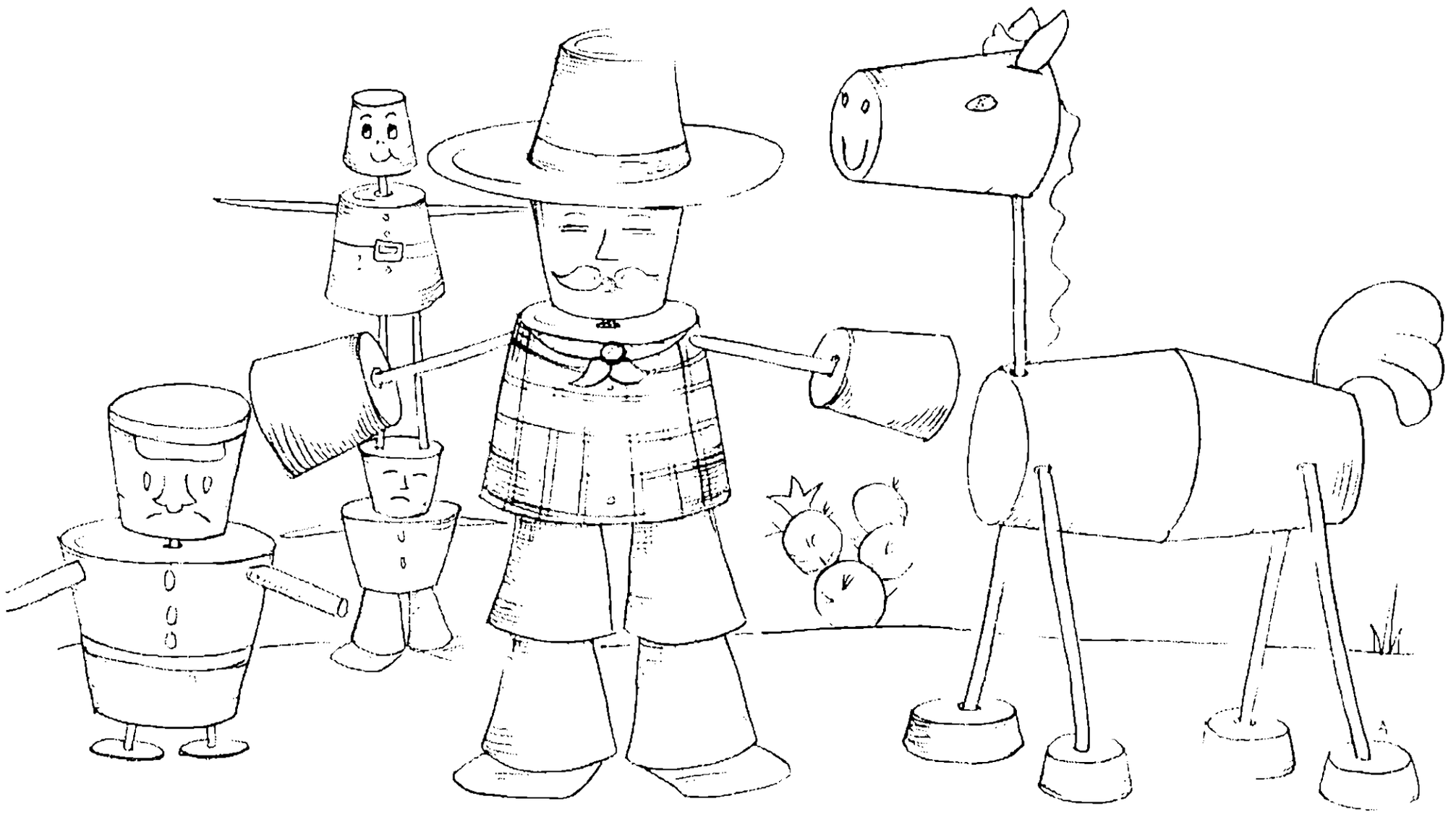
Tool Processes and Skills

In working with novelty crafts the tool processes and skills required are, with few exceptions, the same as used in other craftwork. Some novelty materials are relatively soft and therefore easy to cut. For that reason, certain tool processes may be introduced to children quite early. For example, carving *wood* with a knife is not ordinarily done successfully by children until they are in the fourth grade. But a child in the second grade can safely and easily use a paring knife to carve the potato reindeer shown on page 131. The simple skills children acquire in working with novelty materials become a useful basis for the more mature skills needed in working with other craft materials.

Grade Placement of Individual Novelty Craft Projects

GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Cork animals Cork people Spool doll No. 1 Spool animals	Spool printing Nut shell animals Fruit and vegetable animals	Cork belts Clothespin airplane Clothespin grasshopper Spool furniture Spool tops	Covering boxes with cork Covering book ends with cork Covering trays with cork Clothespin furniture Clothespin people Spool doll No. 2 Nut jewelry	Cork bracelets Cork book covers	Broomstick animals Wire dolls

CORK PEOPLE AND ANIMALS



Miniature people and an animal made of bottle corks, toothpicks, thumbtacks, and paper

THESE AMUSING and useful items are made from sheet cork and bottle corks. Sheet cork of various thicknesses may be purchased from handcraft supply dealers. Bottle corks may be purchased by the dozen from the local dime stores or from hardware stores. Corks are easily cut with a coping saw. Sheet cork may be cut with scissors or with a sharp knife. Decorations may be burned into the cork or applied with crayons or show card colors.

Materials Needed

Bottle corks of various sizes
Round toothpicks
Construction paper
Liquid wood glue or quick-drying cement
Show card paints
Thumbtacks
Sandpaper, No. 0

Tools Needed

Coping saw
Hand drill
1/16" Twist drill
Scissors

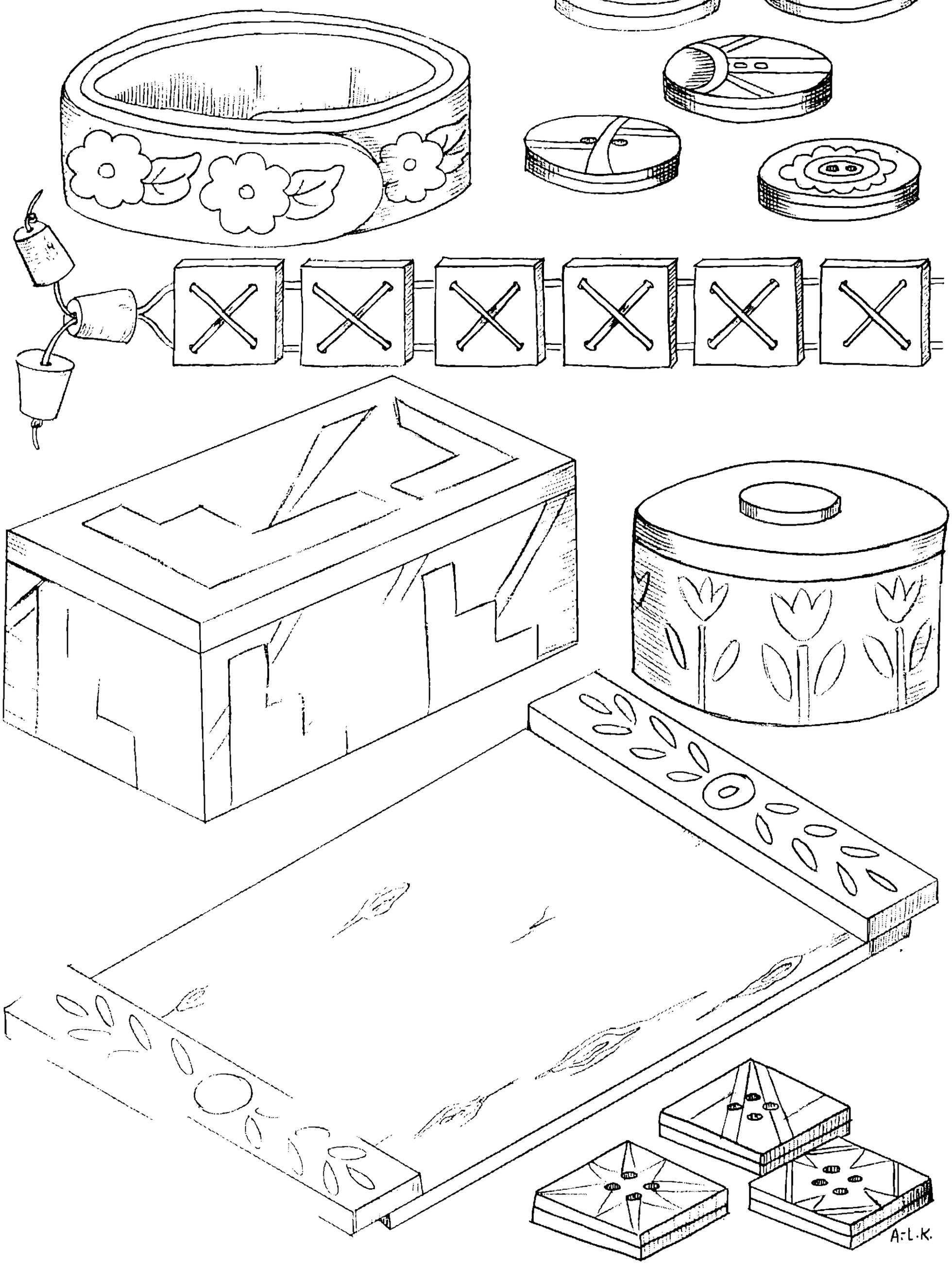
Skills Used

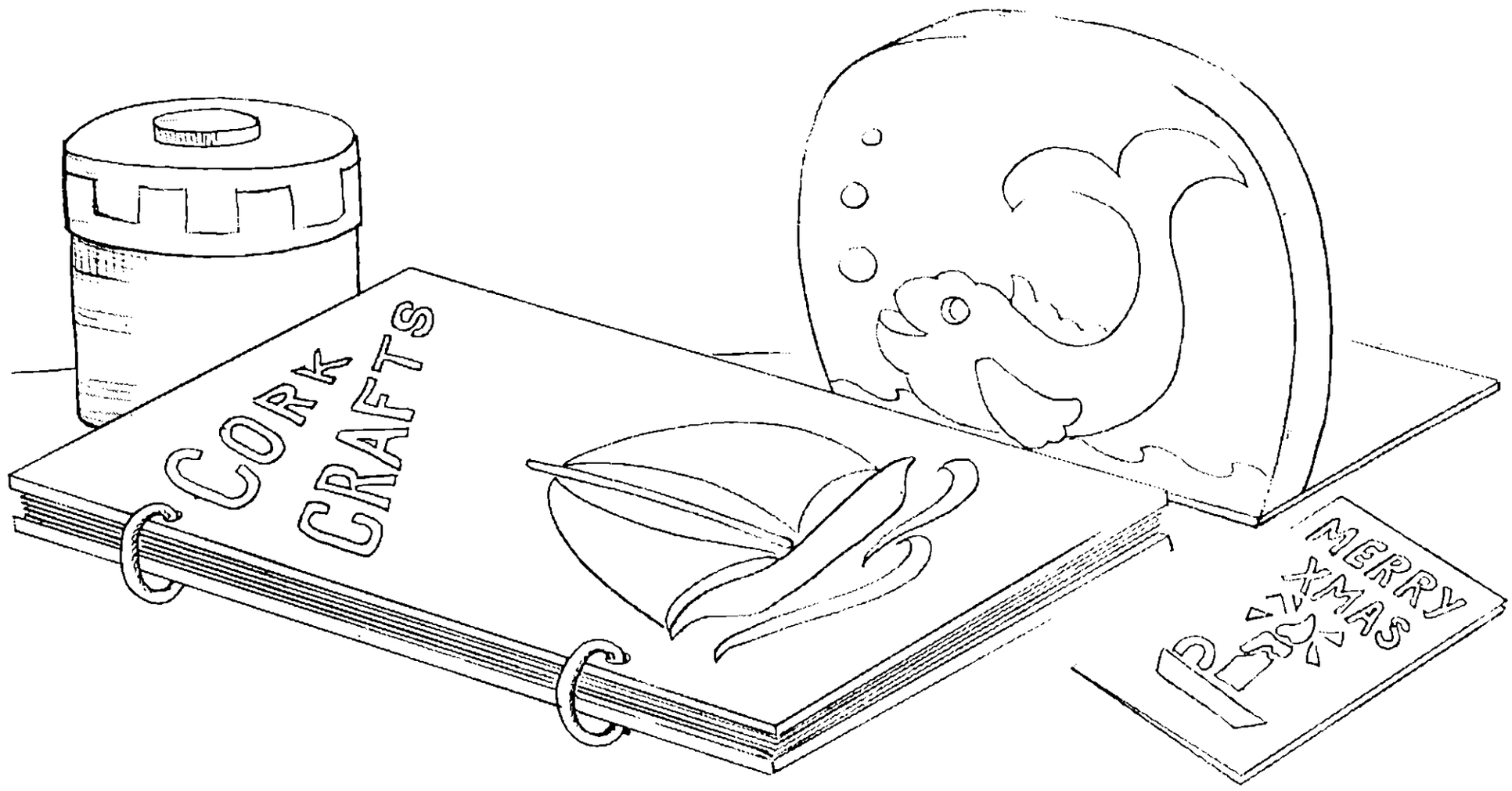
Planning
Sawing
Sandpapering
Drilling
Cutting with scissors
Painting

PROCEDURE

1. Plan the animal or figure to be made. Select corks of the proper size and shape necessary for constructing the article.
2. If any corks need to be cut in half or into discs, use the coping saw.
3. Sandpaper the rough edges and any dirty surfaces.
4. Assemble the figure. Glue corks together with liquid wood glue or a quick-drying cement. Drill holes in the cork wherever toothpicks are to be inserted. Glue the toothpicks into these holes.
5. Add paper, felt, or feather decorations. Glue these in place.
6. Paint details on with show card colors.
7. Shellac.

USING SHEET CORK





THE DRAWINGS ON these two pages only begin to suggest the many things that can be made from sheet cork. Sheet cork may be used for table mats and for mats around pictures. It is useful in making greeting cards, cork-covered boxes, trays, and book ends. Bracelets, napkin rings, coasters, and lapel pins are readily made from sheet cork. Cork can be purchased in sheets of various sizes and in 1/16″ or 1/8″ thicknesses.

Materials Needed

1/16″ Sheet cork
1/8″ Sheet cork
Liquid wood glue or quick-drying cement
Plastic lacing for belt (four times the length of the belt)
Show card colors
Shellac

Tools Needed

Ruler
Old pair of scissors or tin snips
Hand drill
1/8″ Twist drill
Electric woodburning needle

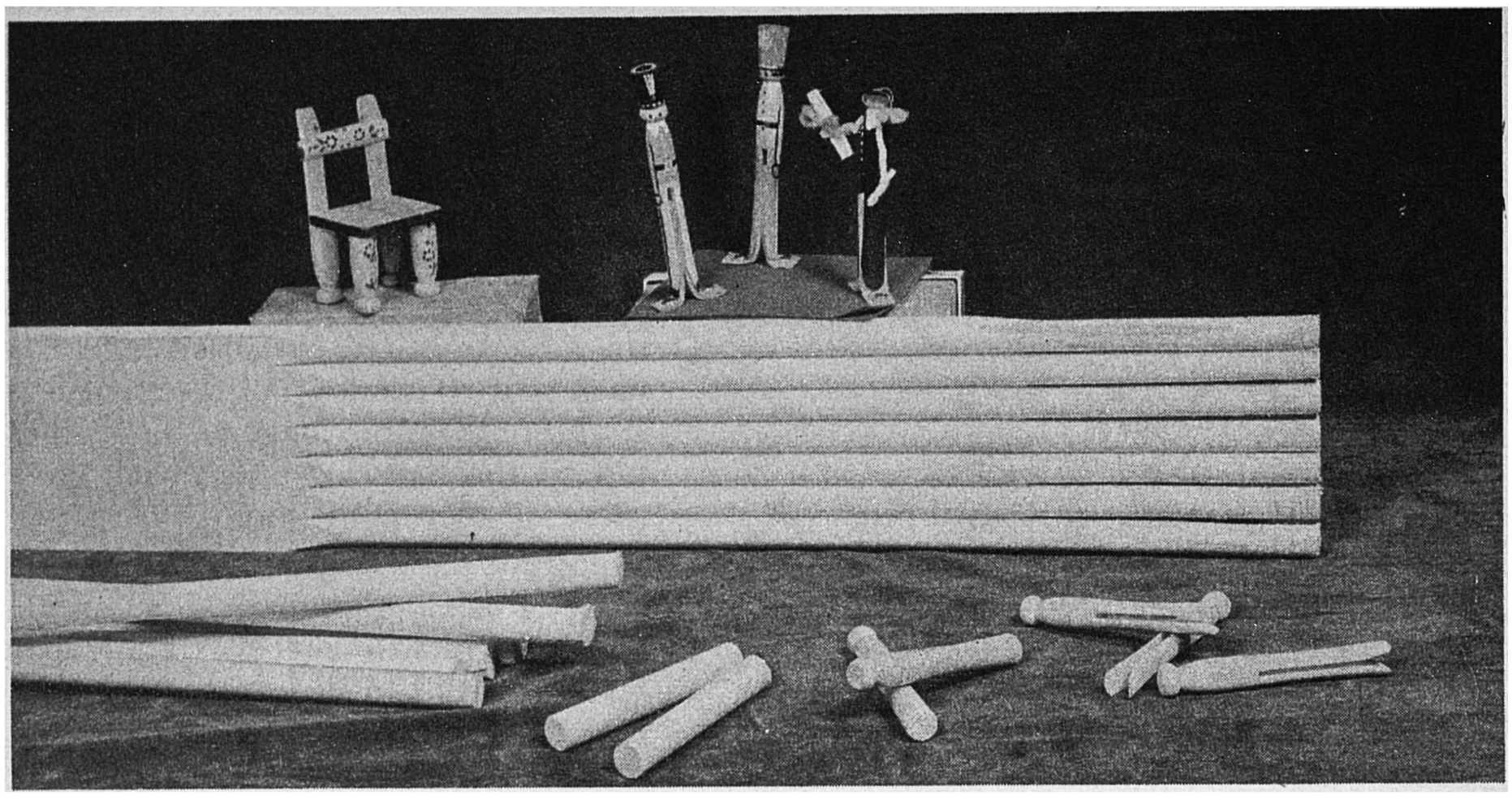
Skills Used

Measuring
Cutting
Drilling
Painting
Woodburning
Shellacking

PROCEDURE

1. Plan the project to be made. Determine the thickness of the cork to be used. For covering boxes, trays, and book ends or for making picture mats, use 1/16″ cork. For bracelets, belts, and book covers, use 1/8″ cork.
2. Measure the project to be made. Mark off to size with a pencil. For a strap bracelet measure the distance around the wrist and add 2″. Use a strip 1″ wide and 2½ times this length. For a tray use a piece that is equal in measurements to those of the tray. For a round box measure the distance around the box with a tape measure or with a strip of paper. Belt squares are 1″ across and ½″ apart. Coasters are 3″ in diameter or 3″ squares.
3. Cut on the measured pencil line, using an old pair of scissors or tin snips. Do not use good dressmaking shears.
4. Glue all pieces of cork in place. Spread a thin layer of glue over the entire surface of the cork. Press cork in place. Make sure all edges adhere tightly to the surface on which the cork is applied.
5. Decorate by woodburning, using show card colors, or gluing on applied designs cut from more sheet cork.
6. If cork has been decorated with show card colors, it should be shellacked.

CLOTHESPIN FURNITURE



From freshly cut tree to the finished product in one day is one claim the clothespin has to being unique. It is one of the very few products on the market that can be made of green lumber. Logs are cut into slabs $\frac{5}{8}$" thick. These slabs are made into dowels in a dowel machine. The dowel rods are cut to clothespin length. They go on to a shaper, a slotter, and through a tumbler. The tumbler smooths and waxes the clothespins in one process. Another claim the clothespin can make is that it is the foundation for many amusing and some useful handcraft projects.

Materials Needed

1 doz. Round clothespins
1 pc. ¼" x 5" x 9" Pine or basswood
½" No. 19 Brads
Glue

Tools Needed

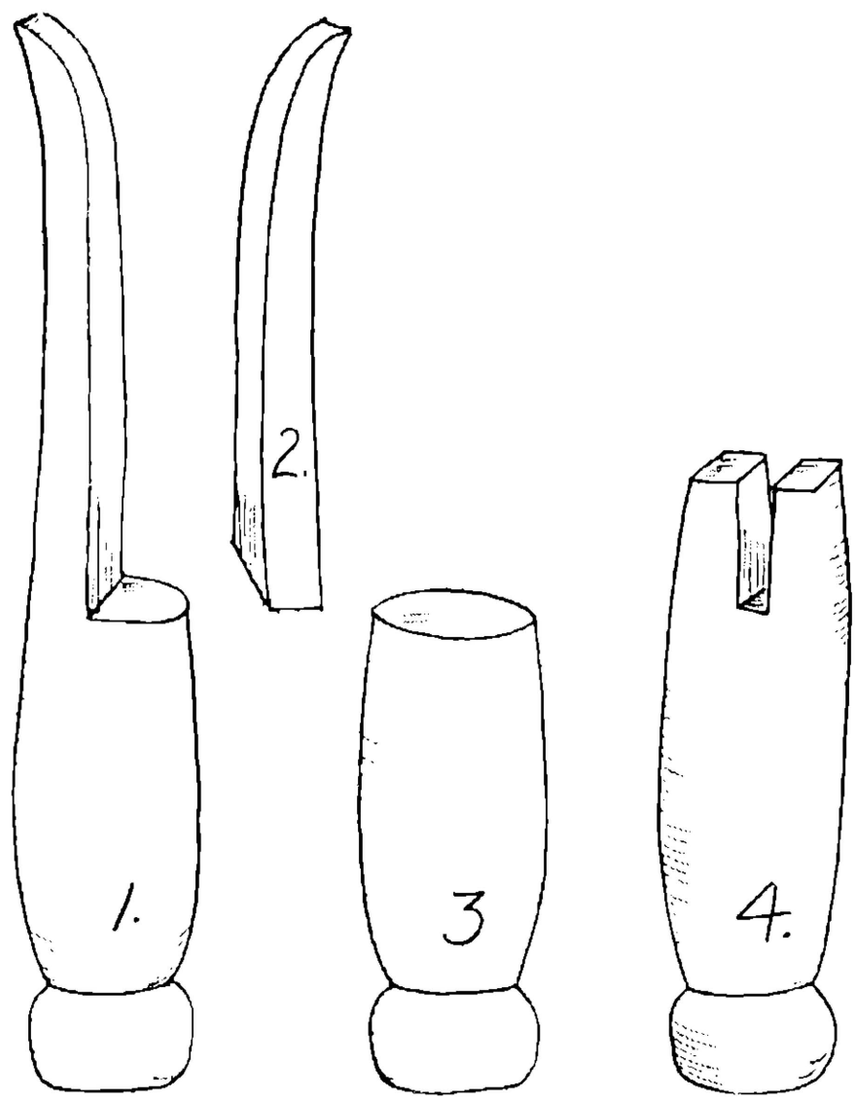
Ruler	Hammer
Coping saw	Vise
V block	File

Skills Used

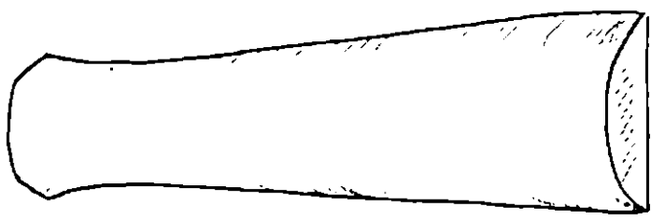
Measuring	Sandpapering
Sawing	Nailing
Filing	Gluing

PROCEDURE

1. Cut both prongs off four clothespins at the slot. See No. 3 in the illustration below. Save two prongs. Cut one prong off four clothespins. See No. 1 below. Cut 1" off the prong ends of the remaining four clothespins to make the table legs. See No. 4.



2. File all the rough edges.

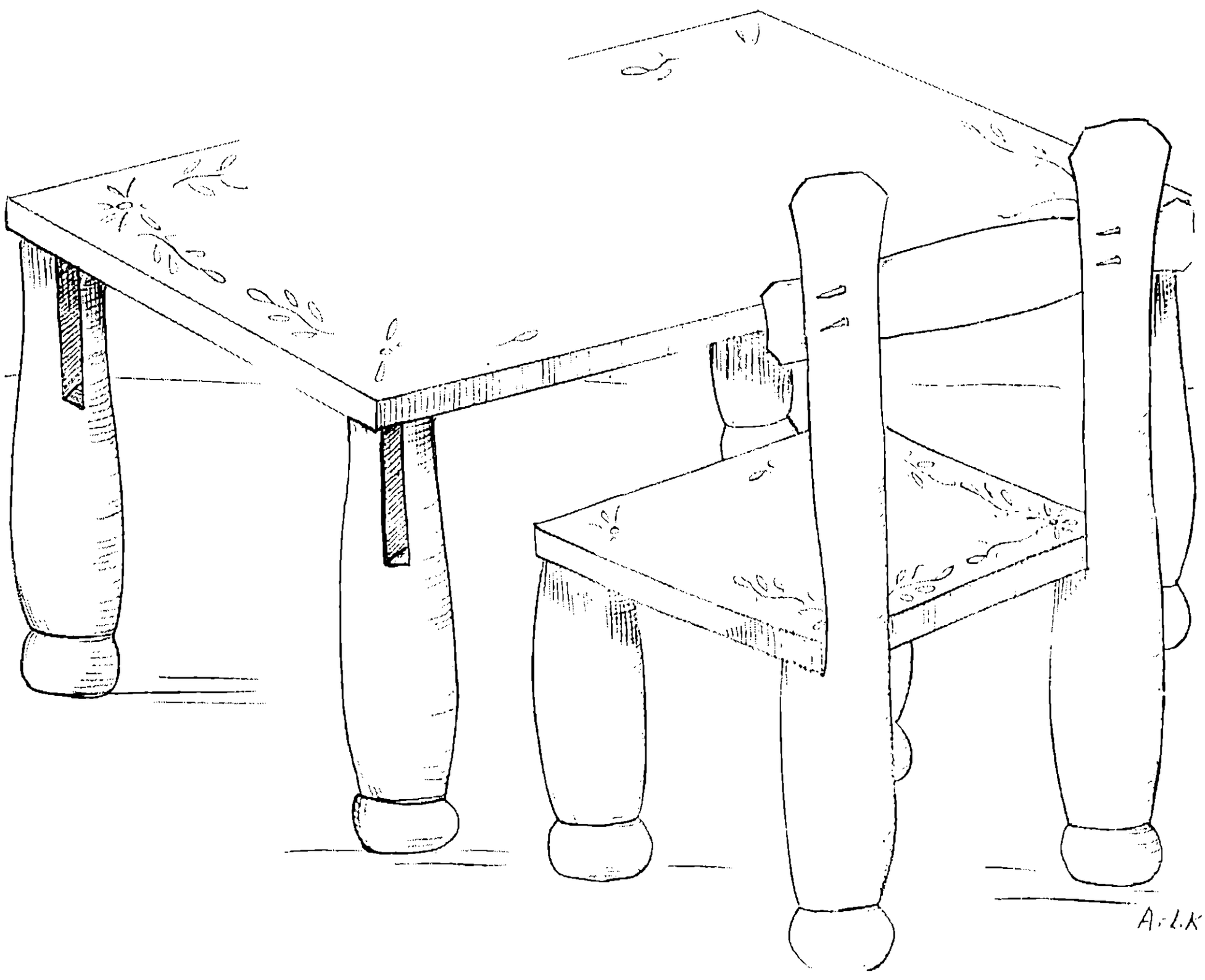


Before filing



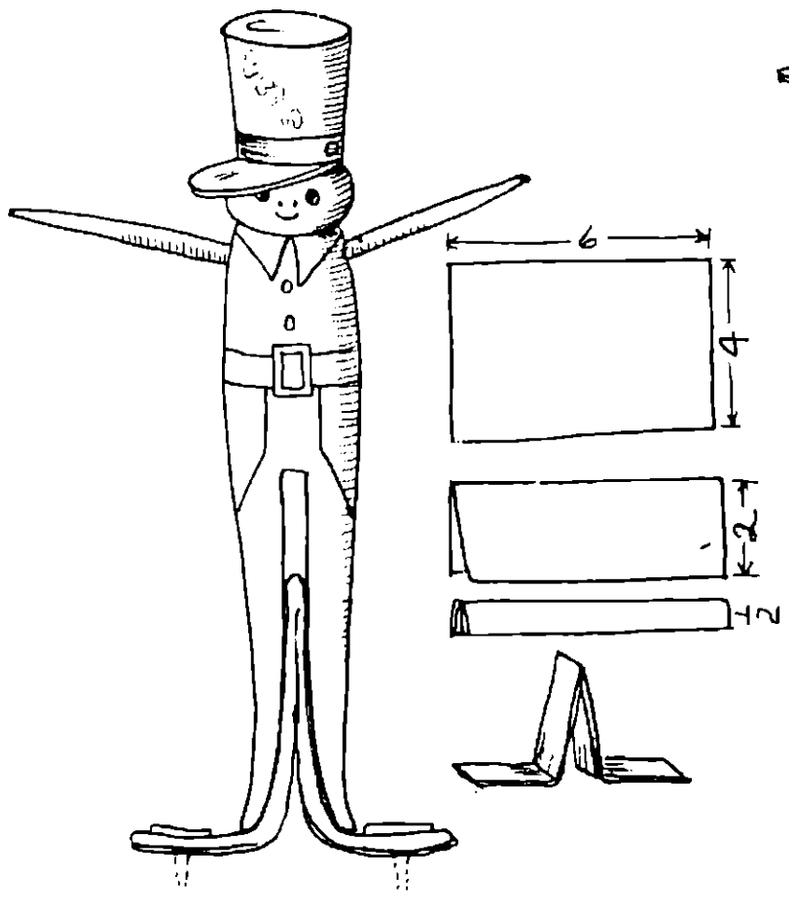
After filing

3. File the big end of each of two prongs until they are the same size and shape as the small end. See illustration above. These two pieces form the crosspieces on the backs of the chairs.
4. Measure off 6½″ on the length of the ¼″ wood to make the table top. This makes a table top ¼″ x 5″ x 6½″. Divide the remaining piece of wood in half to make two 2½″ squares for the chair seats. Cut with the coping saw. File all the edges.
5. Sandpaper all the clothespin legs, the crosspieces for the backs of the chairs, the chair seats, and the table top.
6. Glue and nail the pieces together. Set the table legs in ¼″ from the edge. The chair seat rests on top of the front legs. It also rests on the ledge of the clothespin on the back legs. The back crosspiece is ½″ from the top.
7. Furniture may be decorated with tiny show card color designs or woodburning and finished with shellac. It might be finished with two coats of enamel or finished with maple stain and shellac.

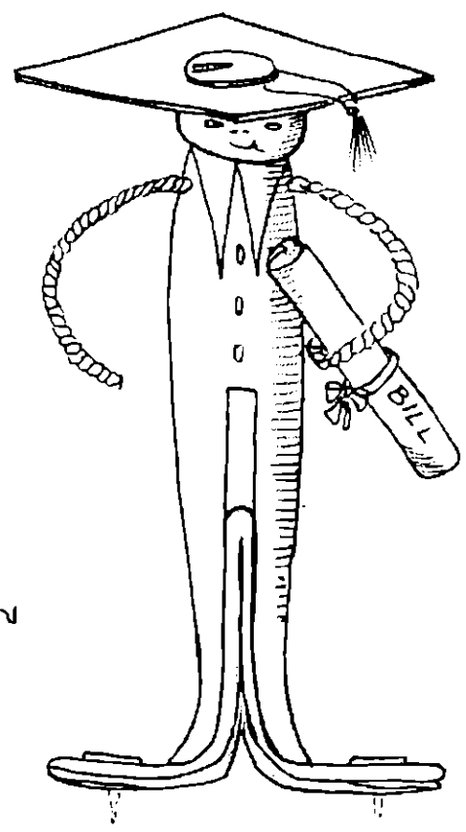


Clothespins and white pine or basswood are used to make this doll furniture.

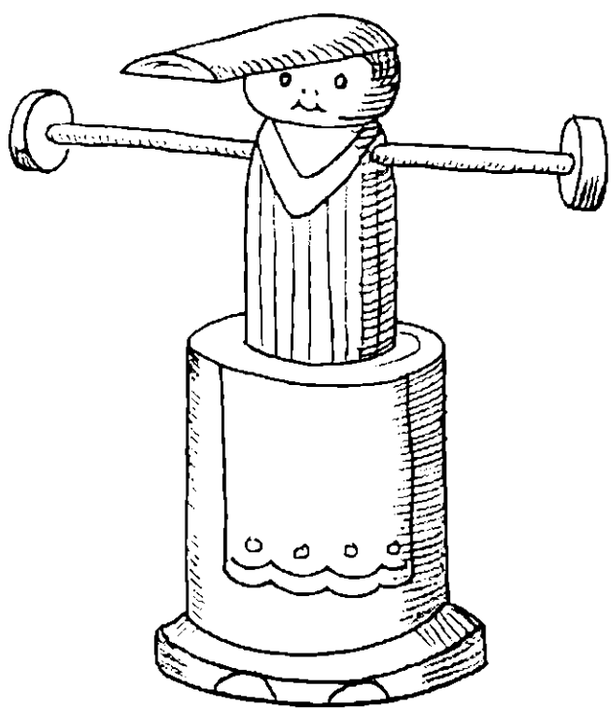
CLOTHESPIN PEOPLE



A soldier with a cork hat and toothpick arms



A graduate with a black paper cap, tassel of thread, pipe cleaner arms, and a tiny diploma



Top of clothespin and bottom of spool make this lady with toothpick arms. Tip of clothespin prong makes hat.

Materials Needed

Round clothespins
Small corks
Spools
Round toothpicks
Small wooden button molds
Show card paints
Pipe cleaners
Construction paper
Thumbtacks
Glue
Thread
Sandpaper
Shellac

Tools Needed

Coping saw
Hand drill
3/32″ Twist drill
Vise
File

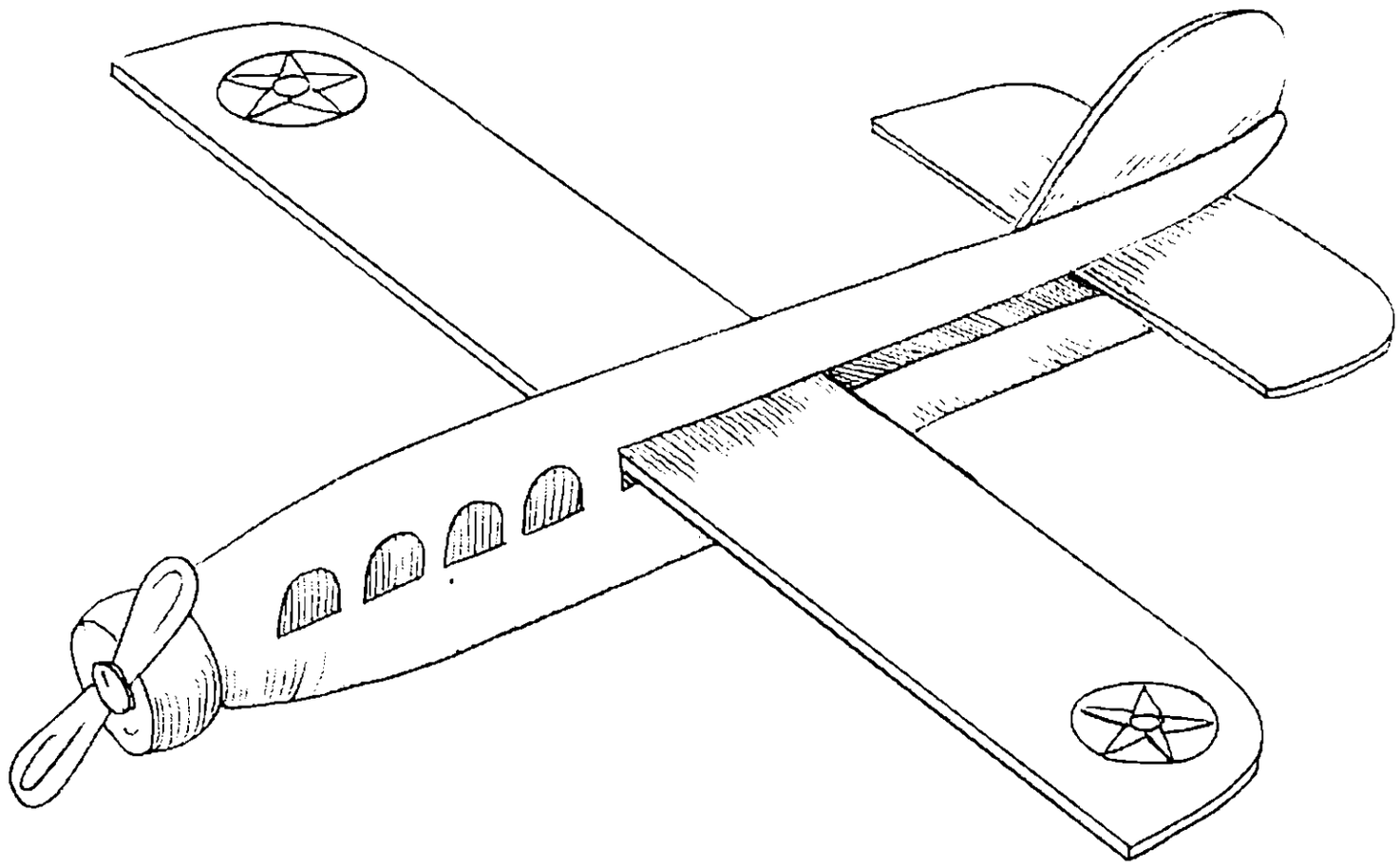
Skills Used

Sawing
Filing
Drilling
Sandpapering
Gluing
Painting
Shellacking

PROCEDURE

1. Design or plan the figure. Gather the materials necessary for construction.
2. Drill a 3/32″ hole just below the head of the clothespin for inserting toothpick or pipe cleaner hands. Sandpaper the clothespins. Cut toothpicks or pipe cleaners and insert them in this hole.
3. Make the hat. On the soldier a small cork is glued on a cardboard or paper peak which is in turn glued on the head. On the graduate a 1″ square of black paper is thumbtacked to the head. A tassel of thread is tied under the thumbtack. The tip of a clothespin prong glued to the top of the head makes the lady's hat.
4. Make the figure stand. Figures like the soldier and the graduate are held upright by a piece of 4″ x 6″ construction paper folded in half lengthwise again and again until it is a strip ½″ x 6″. This heavy folded strip is folded in half crosswise and the folded end is forced half way up the slot of the clothespin. The ends are bent out and fastened to a soft piece of ¼″ scrap wood with thumbtacks. The lady is made from the top of a clothespin glued onto a spool that has one end sawed off and filed and sandpapered. Tiny button molds are glued on for hands.
5. Paint the features and other details with a very fine brush using show card colors.
6. Finish with shellac.

A CLOTHESPIN AIRPLANE



Materials Needed

Round clothespin
Thumbtack
Construction paper or 1/16" balsa wood
Show card paints
Glue
Sandpaper

Tools Needed

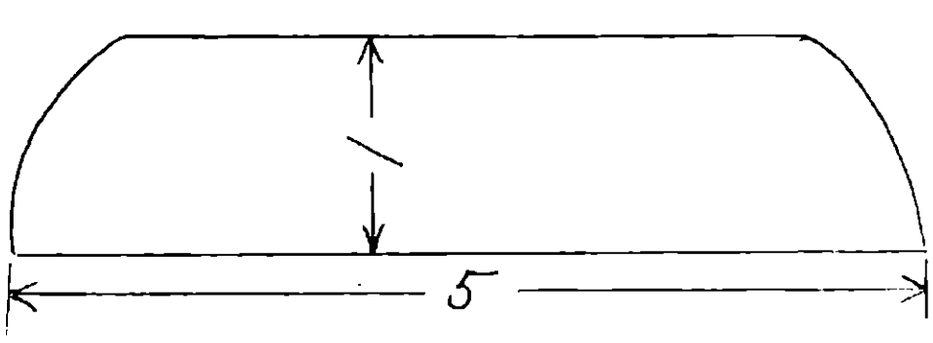
Scissors or sharp knife
Ruler

Skills Used

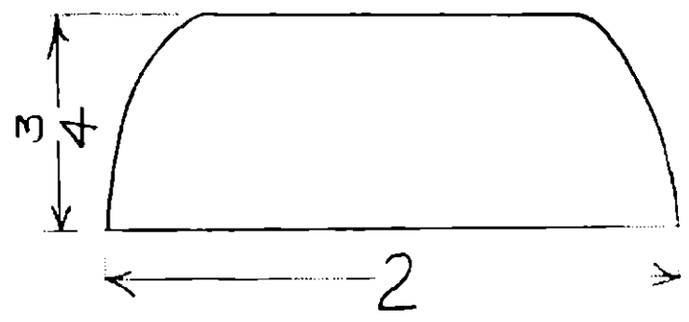
Cutting
Gluing
Sandpapering
Painting
Shellacking

PROCEDURE

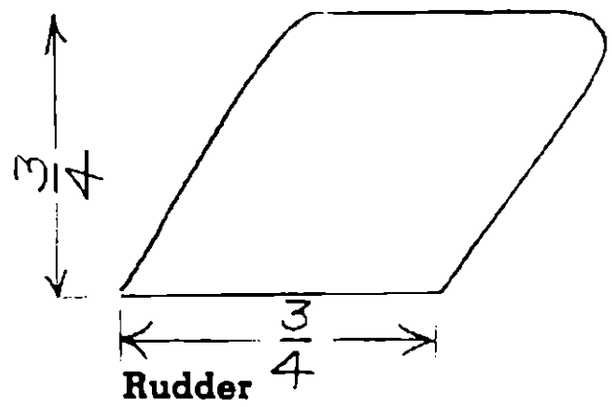
1. Sandpaper the clothespin.
2. Cut the wings, tail, and propeller out of stiff construction paper or 1/16" balsa wood. Use scissors to cut the paper. Use a sharp knife to cut the balsa wood.
3. Glue the wings and tail in place.
4. Use a large needle or hat pin to make a hole through the center of the propeller. Fasten the propeller to the center of the top of the clothespin with a thumbtack.
5. Paint cabin windows and insignia on wings with show card colors.
6. Finish with shellac.



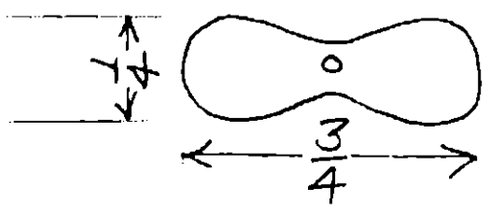
Wings



Stabilizer



Rudder



Propeller

CLOTHESPIN GRASSHOPPER



Paper wings and pipe cleaner legs make an ordinary clothespin into a grasshopper.

Materials Needed

Round clothespin
Pipe cleaners
Glue
Sandpaper
Construction paper
Broom straw
Show card colors

Tools Needed

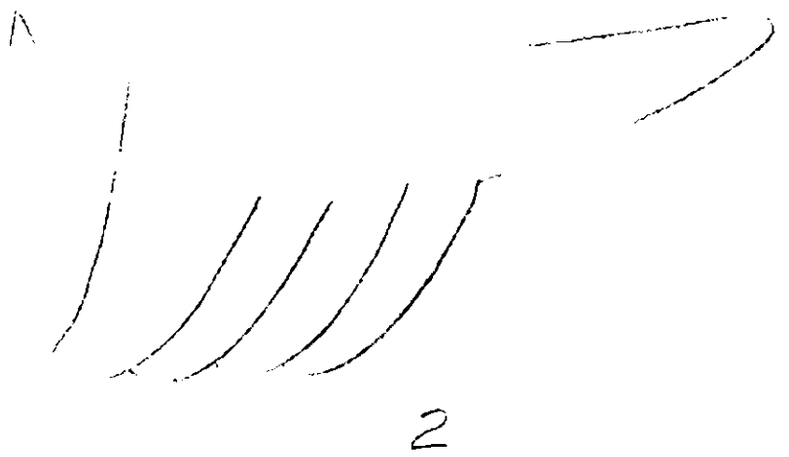
Scissors
Hand drill
3/32″ Twist drill
Tin snips or old scissors

Skills Used

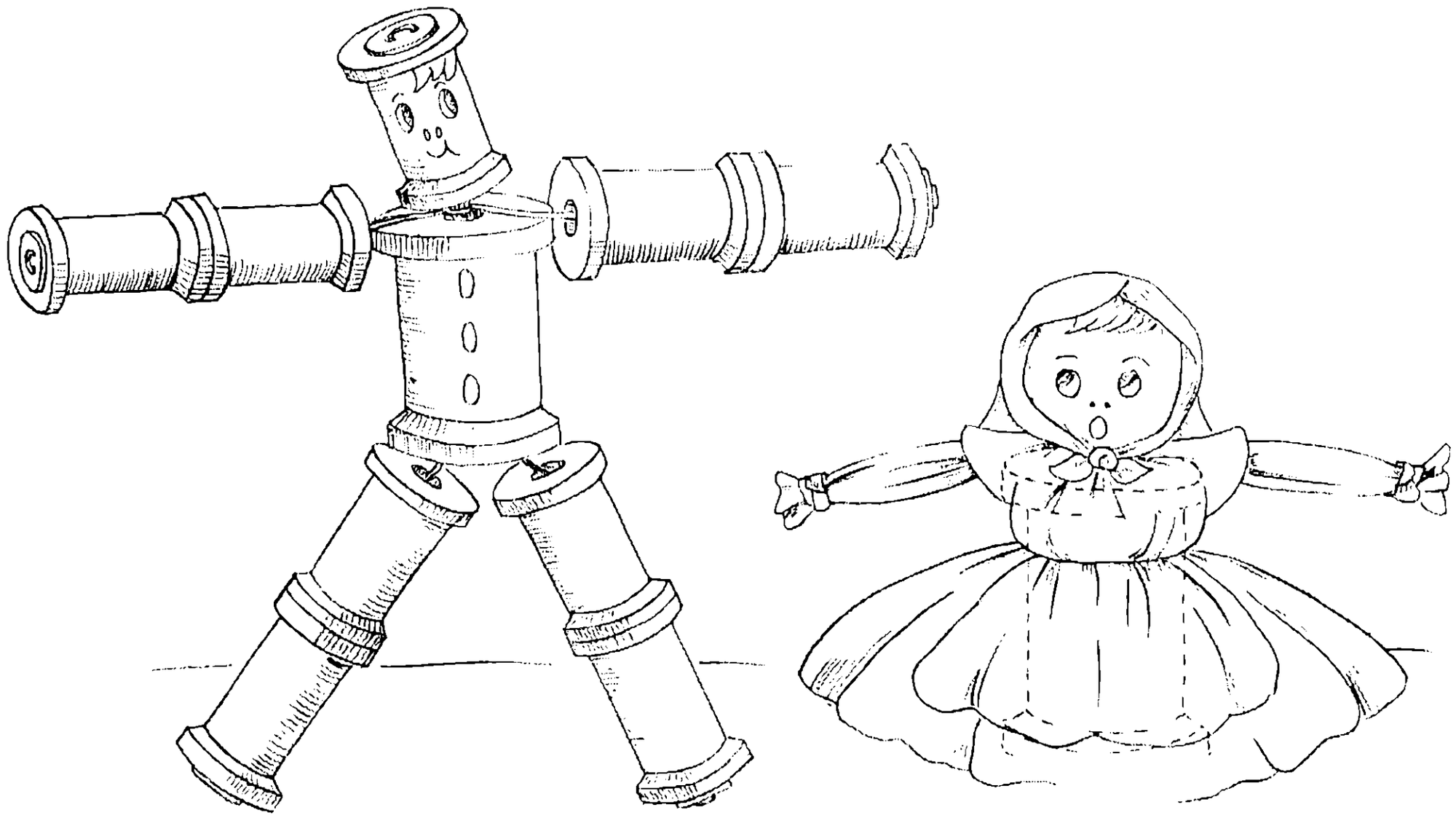
Cutting
Drilling
Gluing
Sandpapering
Painting
Shellacking

PROCEDURE

1. Drill 3/32″ holes in the three places designated in the illustration. These are 1″ apart and below the center of the clothespin. Note that two holes go through a prong.
2. Sandpaper the clothespin.
3. Cut three pieces of pipe cleaner each 3″ long. Insert through the holes and bend for leg joints as shown.
4. Cut paper wings and glue in place.
5. Cut ½″ pieces of broom straw and glue on for antennae.
6. Decorate with show card colors.
7. Finish with shellac.



SPOOL DOLLS



ORDINARY THREAD SPOOLS of various sizes and shapes supply us with another free craft material. These spools may be used whole or sawed into parts. Often they are used in combination with other materials as in the clothespin figure shown on page 114.

The dolls shown here are easily made by five- and six-year-old children in the kindergarten and first grade.

Materials Needed (Spool Doll No. 1)

1 Large spool
9 Smaller spools
5 Buttons
1½ yds. Heavy cord
Several colors quick-drying enamel
Sandpaper

Tools Needed

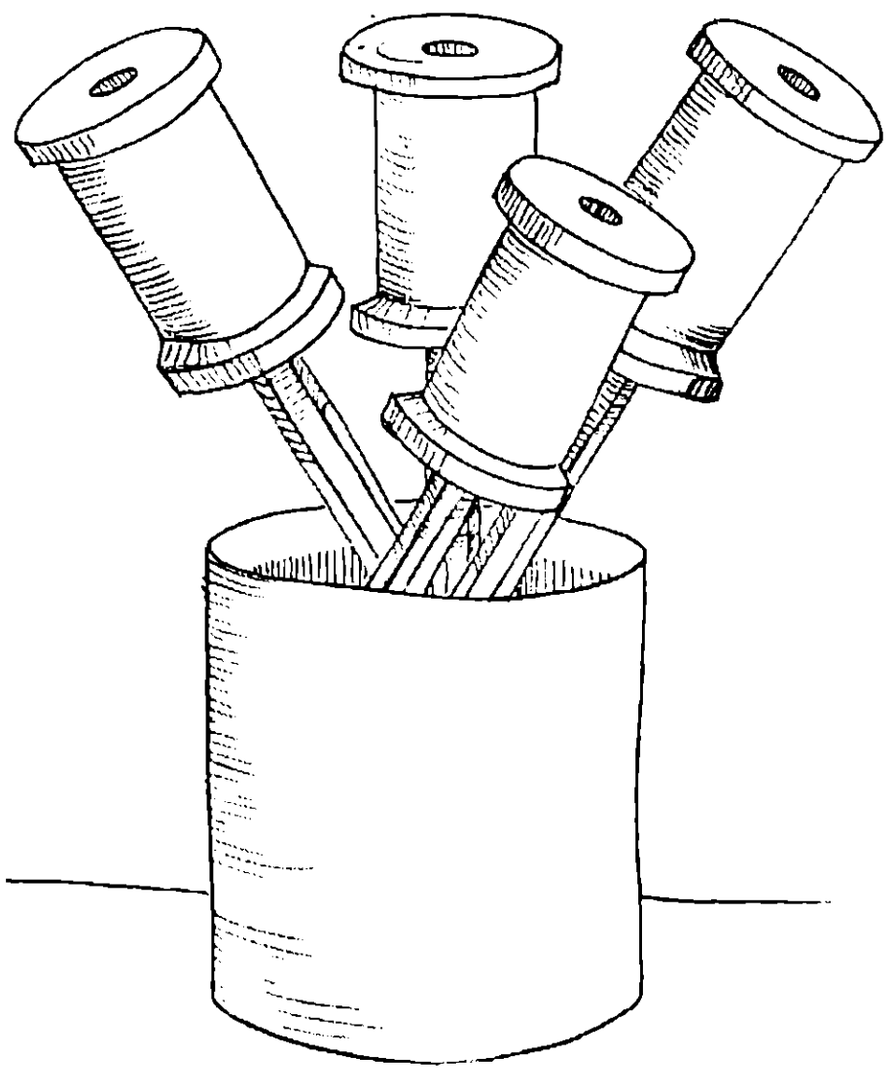
Scissors

Skills Used

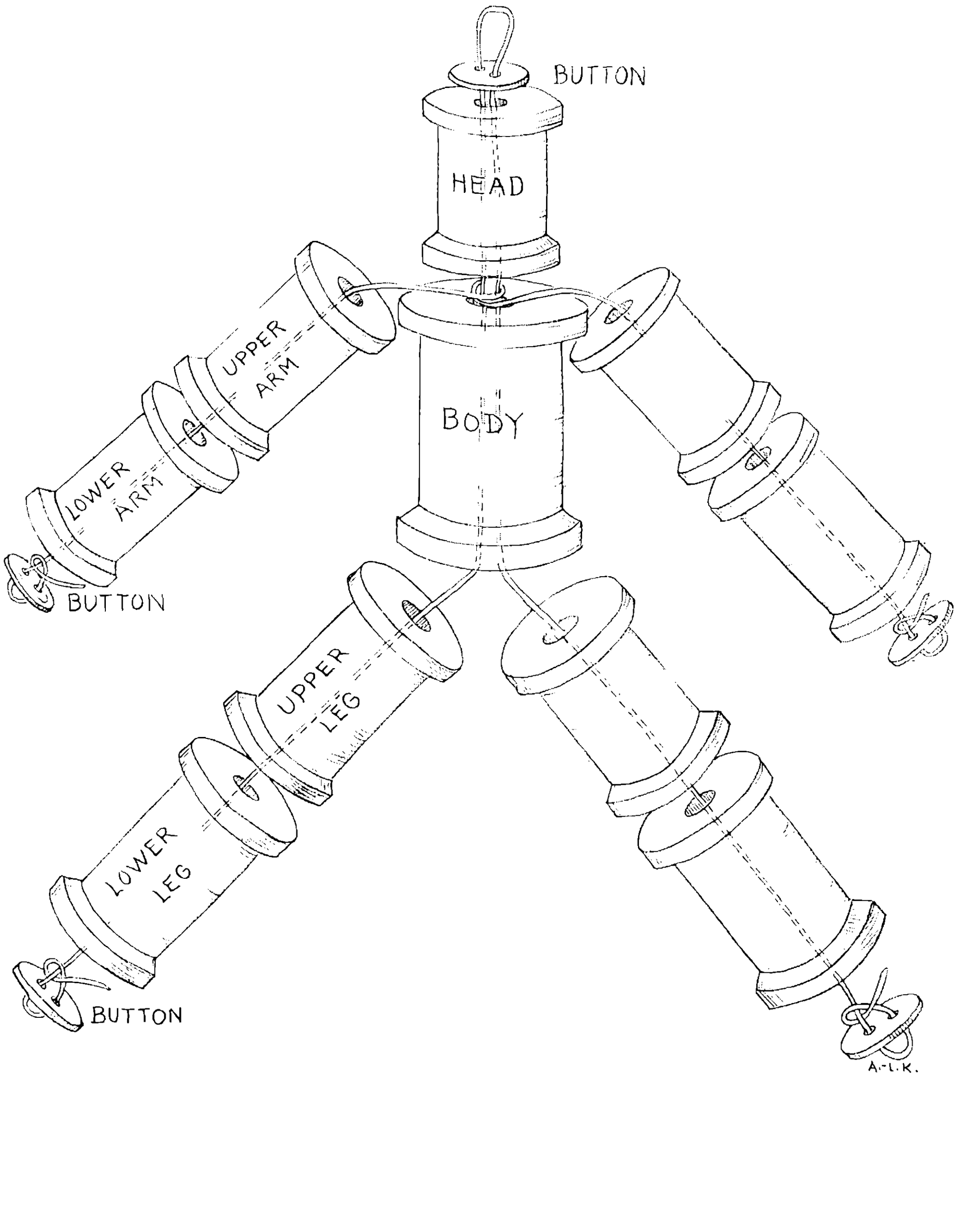
Sandpapering
Painting with enamels
Threading

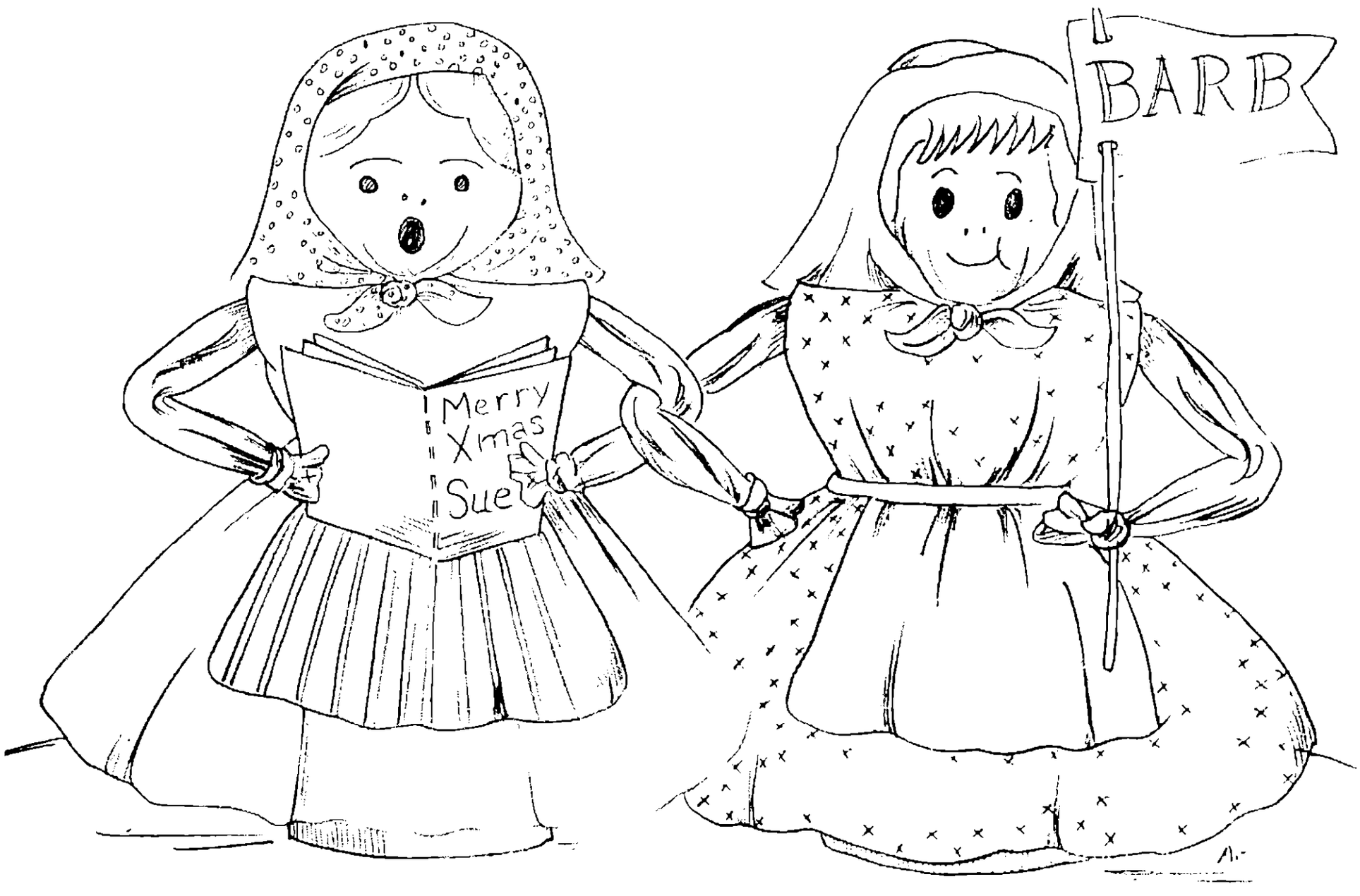
PROCEDURE

1. Sandpaper all the spools.
2. Give each spool a coat of quick-drying enamel. Use a suitable skin color for the spool that is to make the head. Hold the spool on the end of a pencil while painting and drying. Spools of one color, still held on pencils, may be placed in jars or cans to dry.



3. When spools are thoroughly dry (at least twenty-four hours later), sandpaper lightly with worn-out sandpaper to remove any roughness caused by raising the grain when painting.
4. Give each spool another coat of enamel.
5. When spools are thoroughly dry add details to those used for the body and the head. Dry thoroughly again.
6. String the spools together to make the doll. Start with a cord 24″ long. Put both ends of the cord through one of the buttons, then through the head spool and the body spool. Separate the ends of the cord, and string two more spools and a button on each end. Pull the cord up tight and tie the ends tightly to the last two buttons. Cut off excess cord. To make the arms, use a piece of cord 18″ long. Tie one end to a button. String on two spools. Wrap the cord tightly around the neck, string on two more spools, and add the button and tie.





Spool dolls used as party favors. Left. A paper book is held in place by sewing hands to each side. Right. A toothpick is inserted in knot of one hand, and a paper pennant is attached.

Materials Needed (Spool Doll No. 2)

1 Large spool
1 Small walnut or a wad of cotton of equal size
1 pc. Pink cotton cloth, 5″ square
1 pc. Pink cotton cloth, 1″ x 9″
1 pc. Bright print cloth, 5″ square
1 pc. Another print cloth, 6″ circle
1 pc. Still another color, 1½″ x 9″
Thread
Show card colors

Tools Needed

Scissors

Skills Used

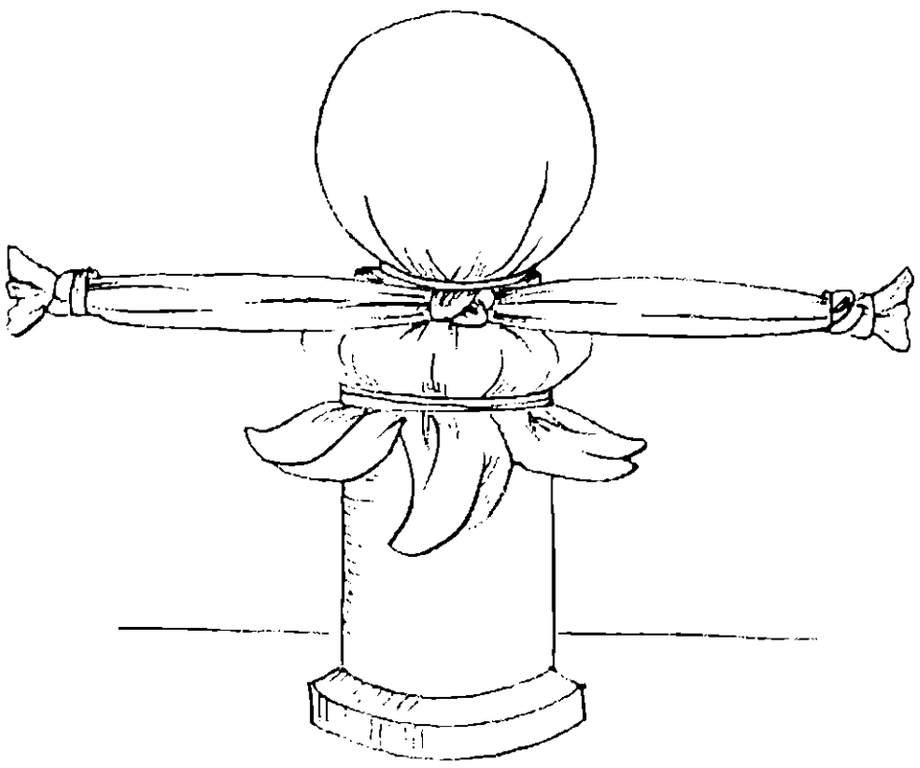
Measuring
Cutting
Tying
Painting

PROCEDURE

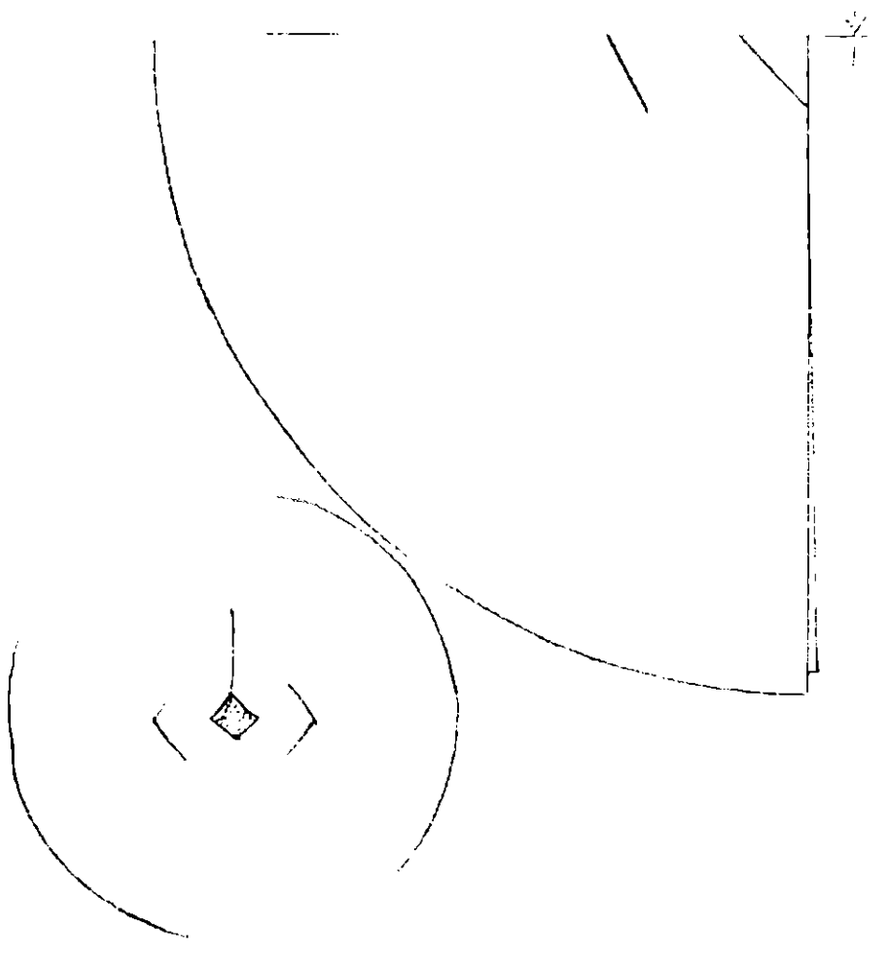
1. Tie the 5″ pink square over the walnut (or over a wad of cotton batting of equal size) to make the head. Wrap the thread around tightly several times before tying.
2. Spread out the four corners of the head cloth and tie the head over the top of the spool.



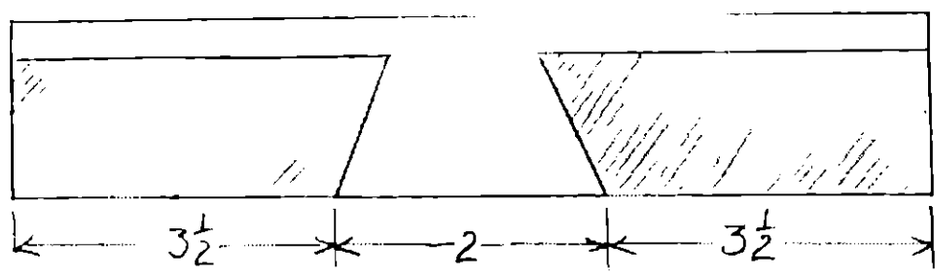
3. Use the 1″ x 9″ pink strip to make the arms. Tie a single knot at each end of the strip. Tie the arm strip around the neck.



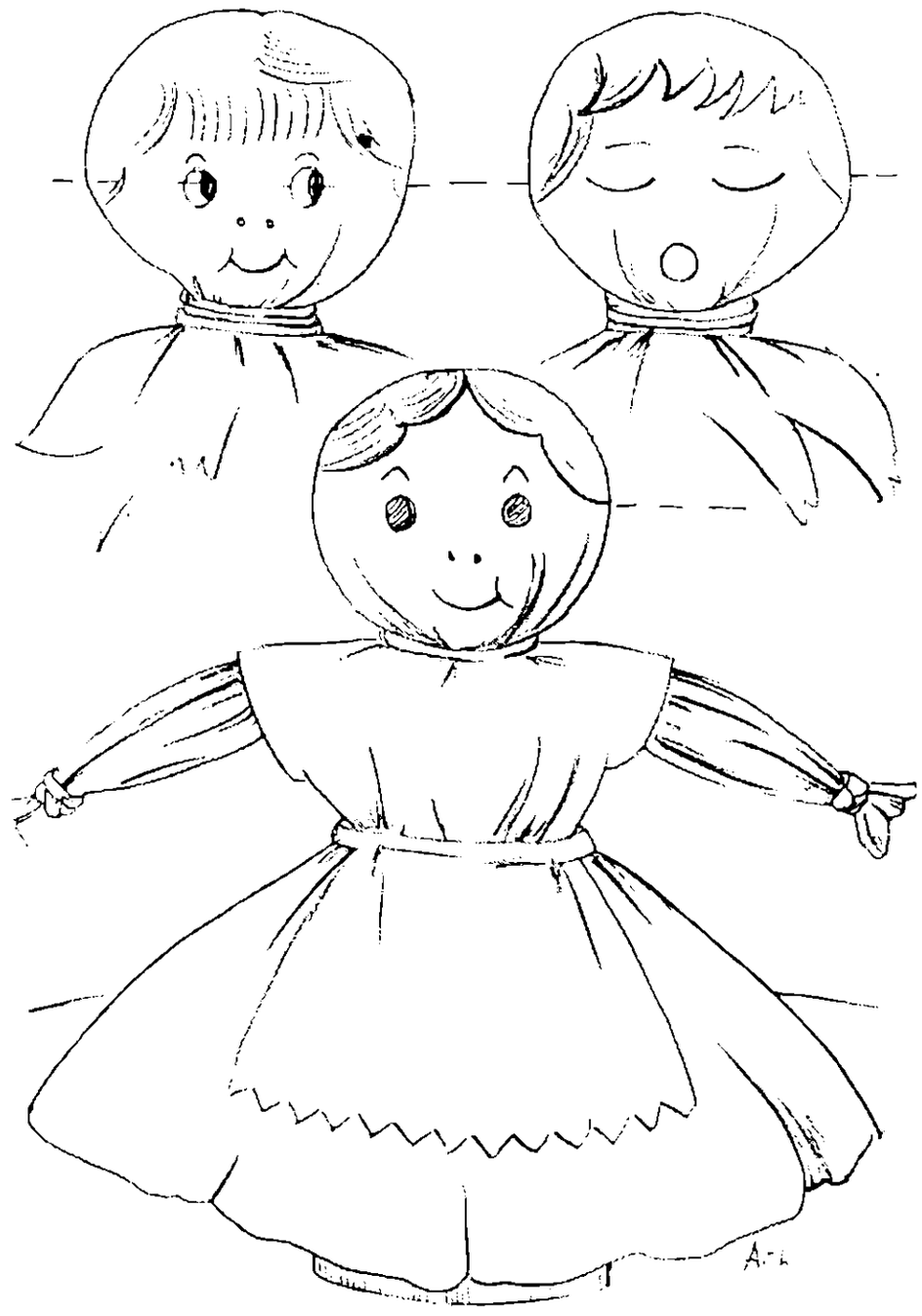
4. Use the circle of cloth to make the dress. Fold the circle in fourths. Cut off ¼″ across the corner for a neck opening. For arm holes cut a slit ¾″ from the center on one of the straight edges. Open the circle and cut a slit down the back of the dress from the neck. Slide the dress over the head of the doll. Pull the arms through the sleeve holes. Be sure the neck slit is down the back so that it will be hidden by the babushka.



5. Cut an apron from the 1½″ x 9″ strip of printed cloth. Tie it around the doll. Arrange the gathers in the skirt.

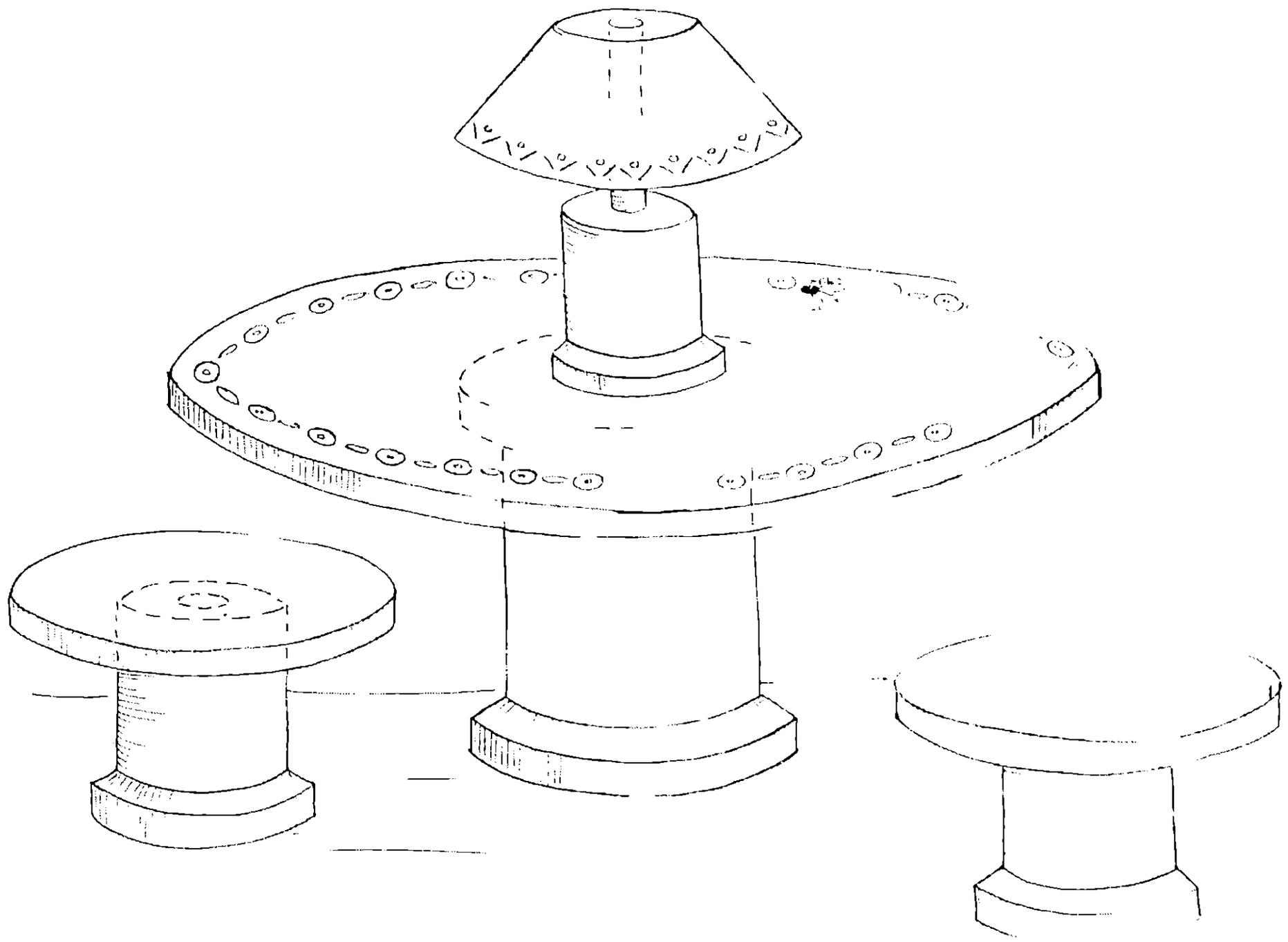


6. Paint a face and hair on the doll. The eyes should be close together and half way down the face, on a horizontal center line. Paint must be rather thick. Use very little paint on a fine brush to prevent spreading.



7. Tie on the babushka. If using as party favors, make a small paper book and sew one hand to each side with a small stitch or two; or insert a toothpick in the knot of one hand for a flagpole. Write the name on a paper pennant. Punch two holes in it and thread it over the toothpick.

SPOOL FURNITURE



Circles of very thin wood are nailed and glued to spools to make a table and stools.

SATISFY A LITTLE girl's desire to make doll furniture with this very simple spool furniture.

Materials Needed

1 Large spool
2 Small spools
1 pc. ¼″ x 5″ x 5″ Basswood or white pine
2 pcs. ¼″ x 2″ x 2″ Basswood or white pine
½″ No. 19 Brads
Glue
Show card colors
Shellac
Sandpaper

Tools Needed

Coping saw
V block
File
Vise
Hammer
Cabinet saw

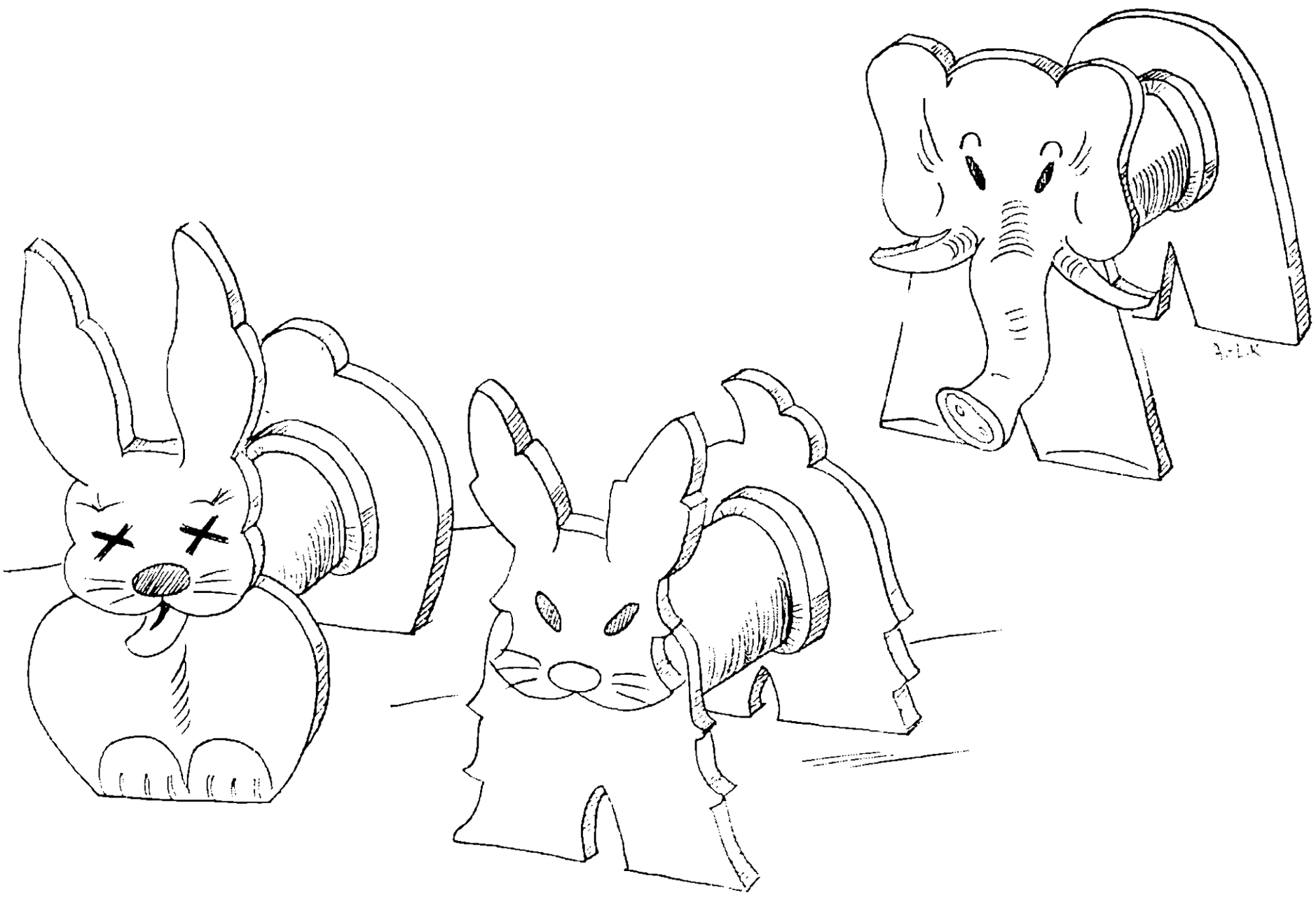
Skills Used

Sawing
Filing
Sandpapering
Nailing
Gluing
Painting
Shellacking

PROCEDURE

1. Saw off the tops of the two small spools so that they will be approximately two-thirds the height of the large spool.
2. Saw out a 5″ circle for the table top. Saw out two 1½″ circles for the stool seats.
3. File the tops of the cut spools and the edges of the circles.
4. Sandpaper all the pieces.
5. Glue and nail the table top to the top of the big spool. Glue and nail the stool tops to the cut ends of the small spools.
6. Paint a tiny border design around the table top.
7. Finish with shellac.

SPOOL ANIMALS



START IN THE first grade to make these simple little animals that will stand. Spools make the bodies. With little children use cardboard for the front and rear views. With older children use thin wood.

Materials Needed (for one animal)

Spool
1 pc. ¼" x 3" x 7" White pine or basswood (cardboard may be substituted)
½" No. 19 Brads
Glue
Show card colors (crayons for the first graders)
Shellac

Tools Needed

Coping saw (scissors if cardboard is used)
V block
File
Vise
Hammer

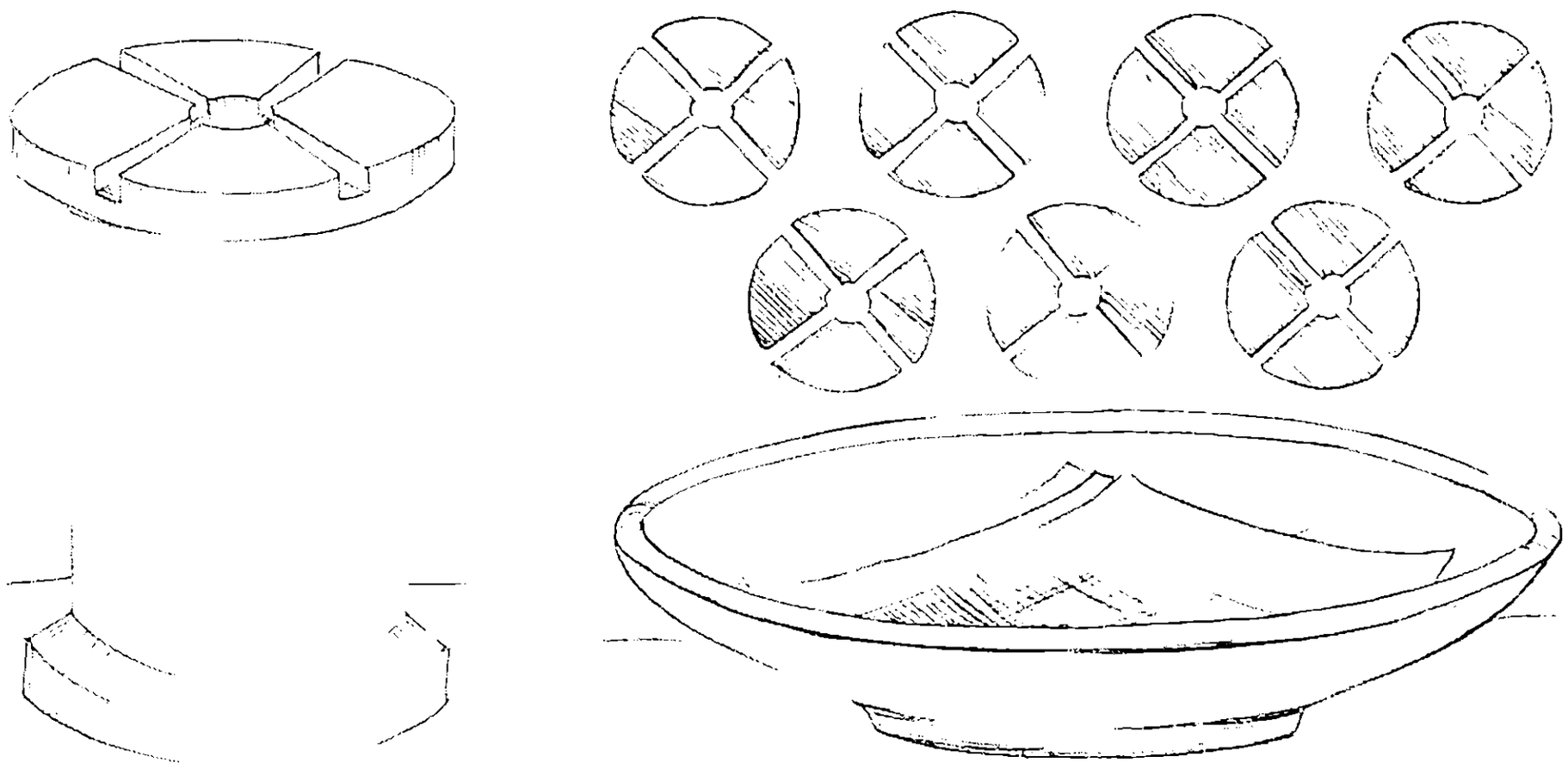
Skills Used

Sawing (or cutting with scissors)
Filing
Sandpapering
Nailing
Gluing
Painting
Shellacking

PROCEDURE

1. Saw the front and rear view out of wood or cut them out of cardboard.
2. File the edges of the wood.
3. Sandpaper the spools. Sandpaper the edges and surfaces of the wood. The edges of the cardboard may be sanded with fine sandpaper. Do *not* sandpaper the surface of cardboard.
4. Glue and nail the front and rear view of the animal to opposite ends of the spool.
5. Paint the animal if it is made of wood. Crayon the animal if it is made of cardboard.
6. Shellac the animal if it is made of wood.

SPOOL PRINTING



PRINTING WITH THE carved end of a spool fascinates children. Unit, border, or surface designs may be printed. To add further detail use the eraser on a pencil, either end of a clothespin, or the carved end of a stick.

Materials Needed

Spool
Saucer
Felt or blotter
Ink or water colors
Paper with a soft finish (paper towels, manila, bogus)
Sandpaper

Tools Needed

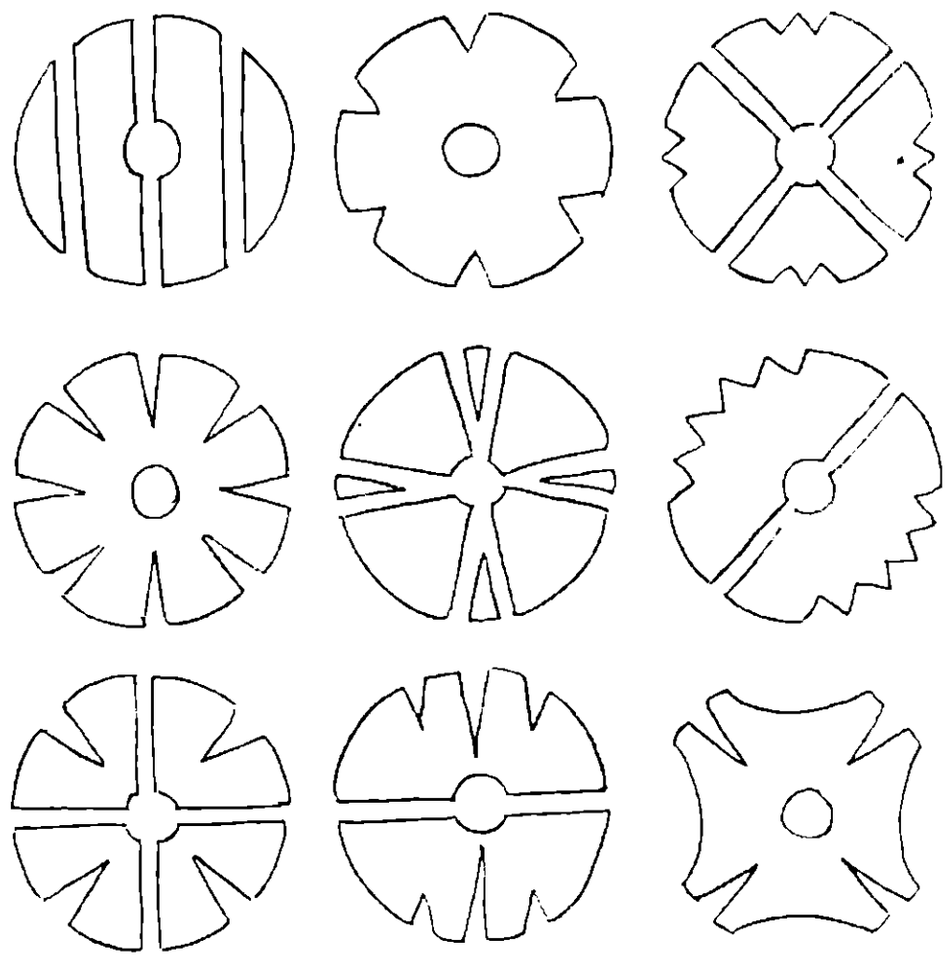
File

Skills Used

Designing
Filing
Sandpapering
Printing

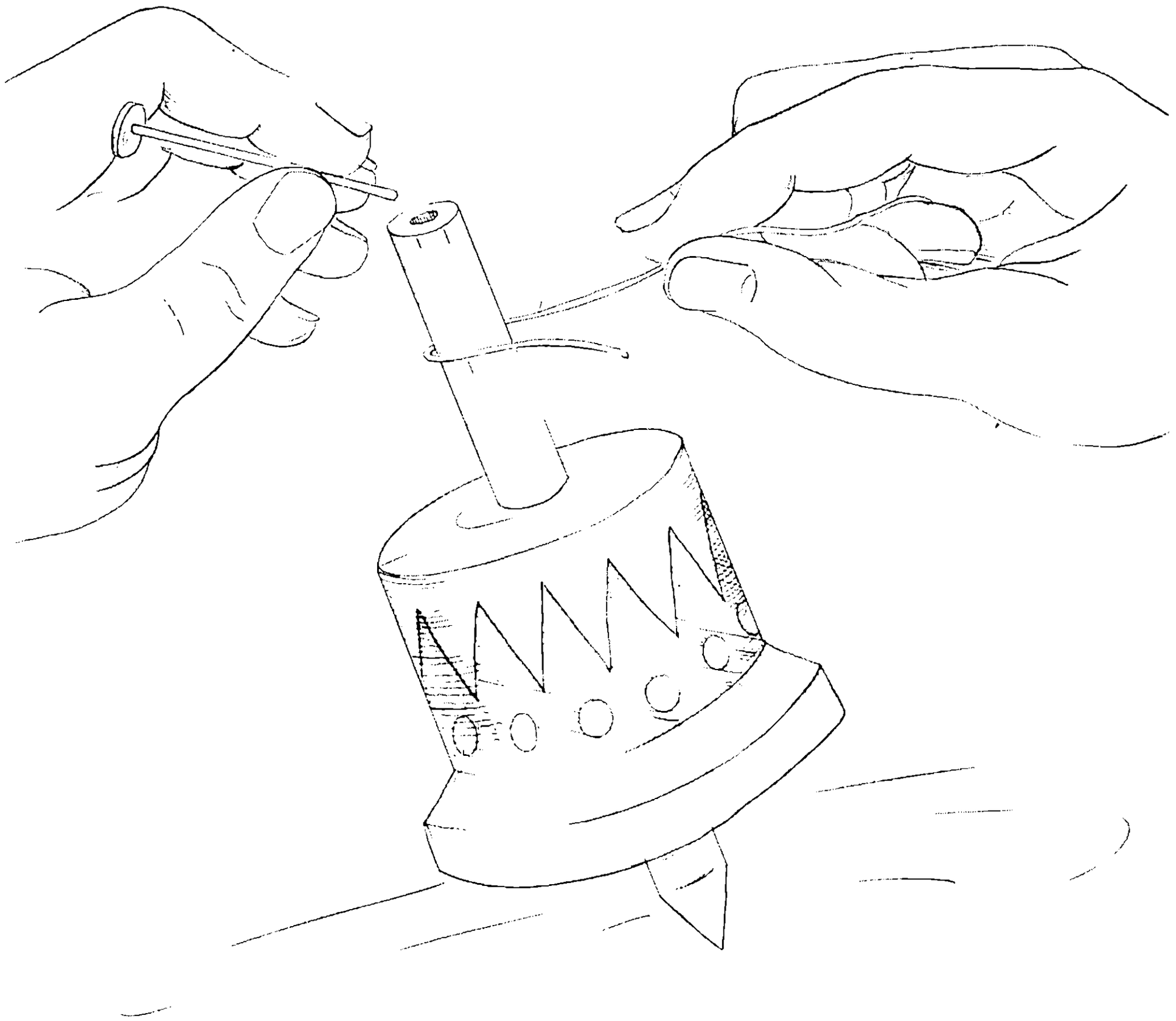
PROCEDURE

1. Use the edge of the file to cut a design into the end of spool. Experiment with other designs carved in the top of the spool. Both ends of the spool may be used.
2. Rub the cut end of the spool over the sandpaper. Sandpaper should be on a level or flat surface.
3. Put three or four layers of felt or a blotter in an old saucer or a tin can lid. Soak the felt with ink or dye or water colors.
4. Press the end of the spool into the ink-soaked pad. Press the inked spool on the paper to be printed.
5. Use the printed paper to cover boxes and books, to wrap gifts, or to make place mats.



Designs carved in the tops of spools

SPOOL TOPS



Part of a spool, a sharpened dowel rod peg, a nail, and some string will make a top that spins for a surprisingly long time.

THESE SPOOL TOPS may be spun by winding a string around the dowel rod, holding the top upright with a nail, and then pulling off the string and dropping the spinning top from the nail. Children develop skill in making them and use other skills in spinning them.

Materials Needed

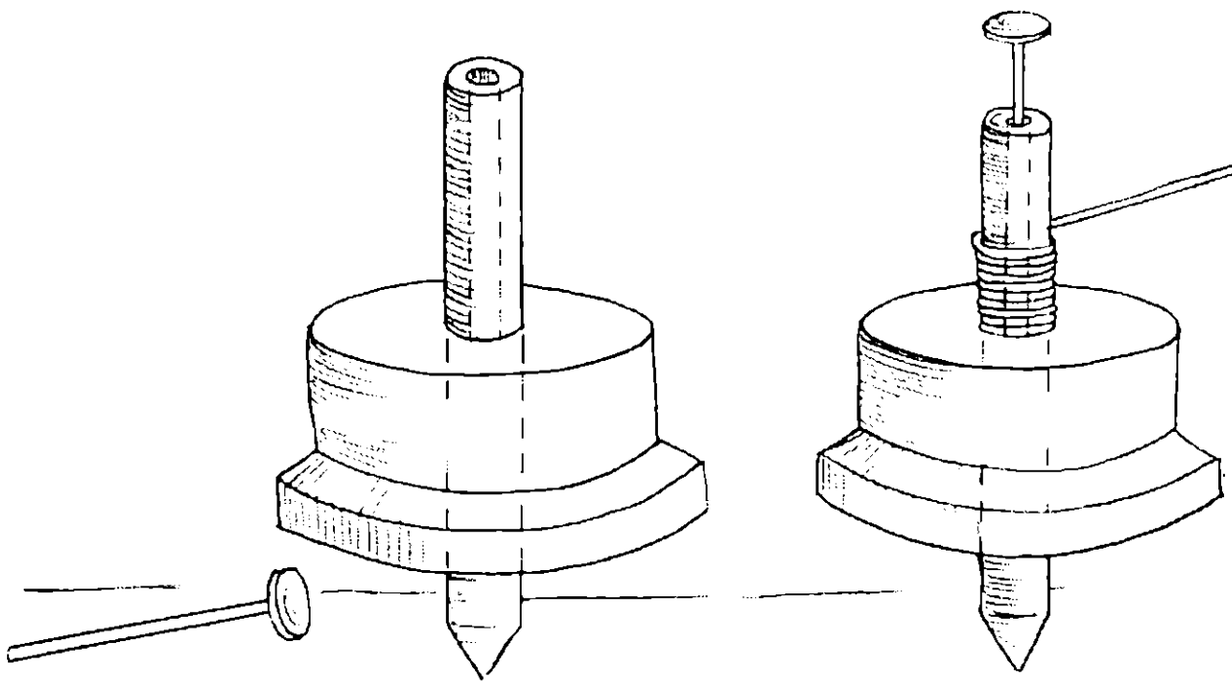
Large spool
¼″ Dowel rod, 3″ long
2″ Nail with a head
String, 24″ long
Glue
Sandpaper

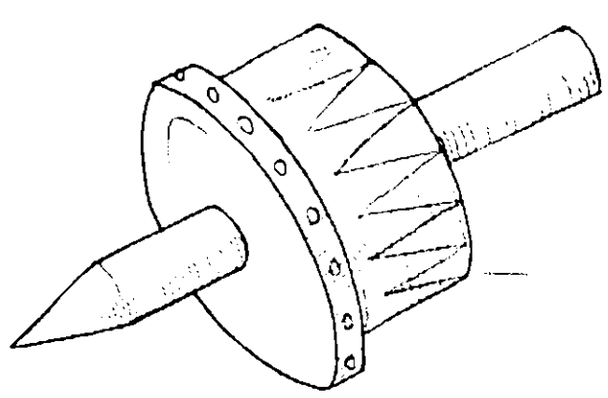
Tools Needed

Cabinet saw
Vise
¼″ Drill
3/32″ Twist drill
File
Side-cutting pliers

Skills Used

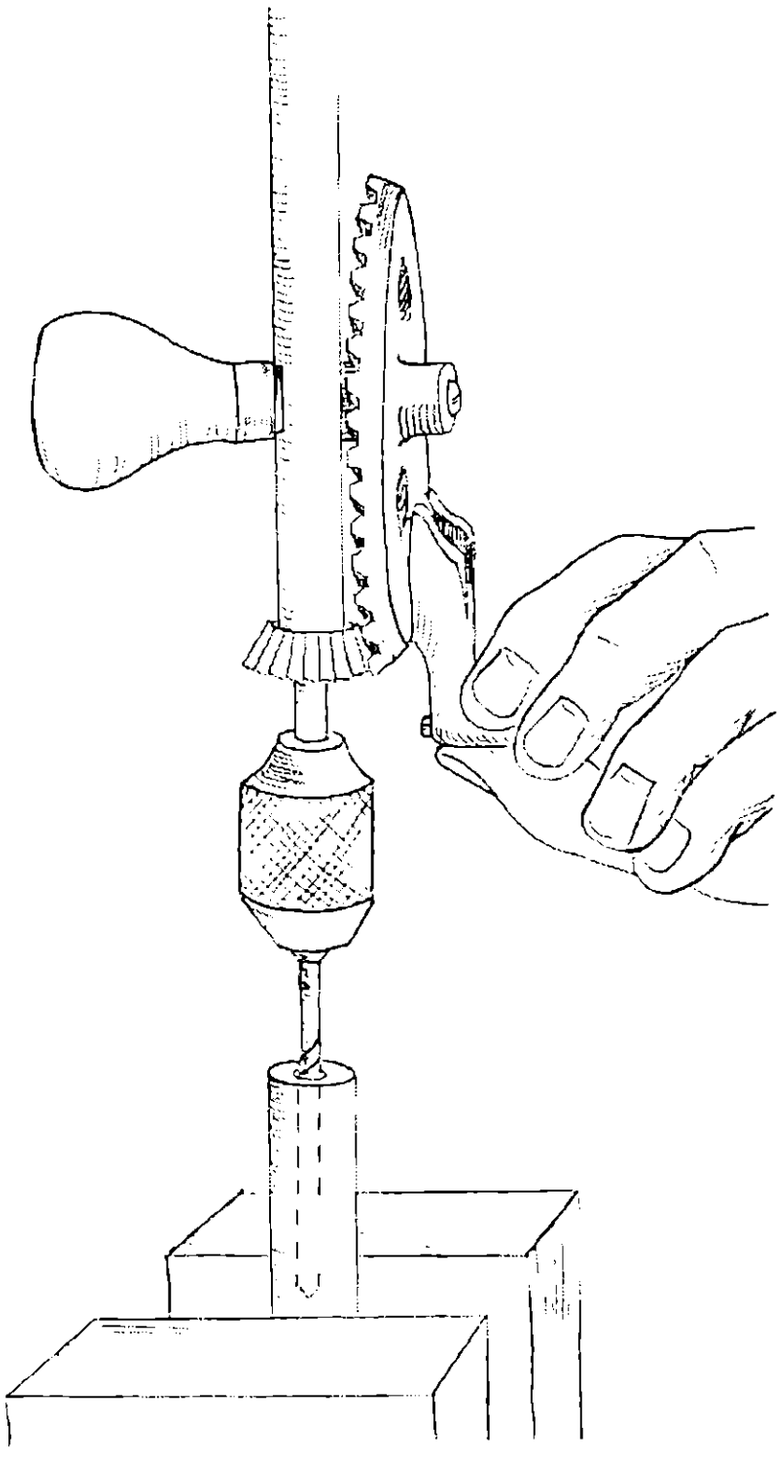
Sawing
Filing
Sandpapering
Drilling
Gluing

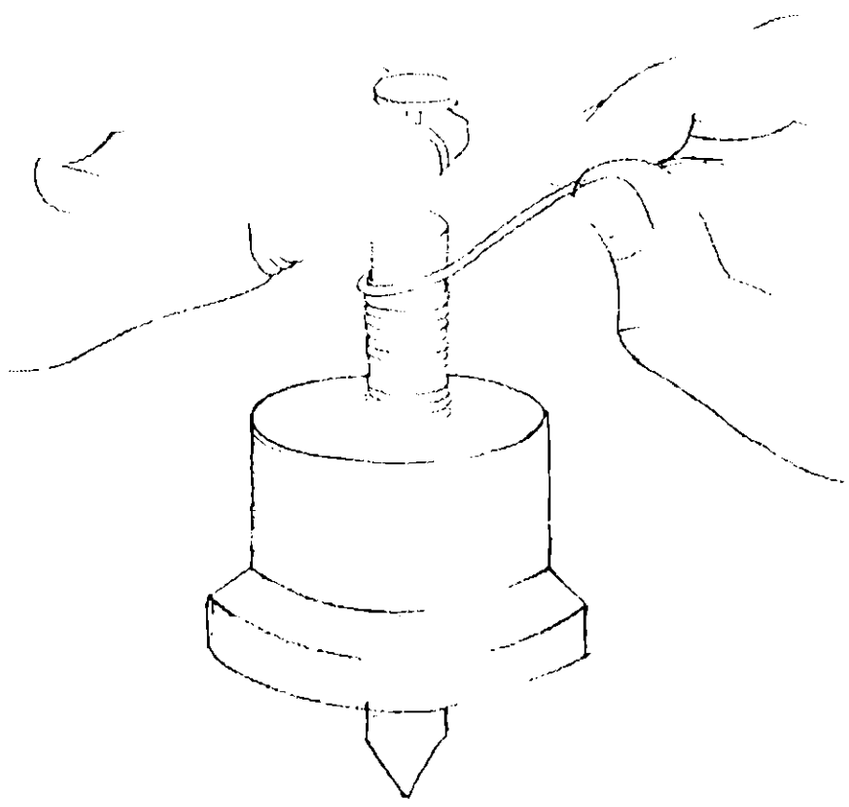




PROCEDURE

1. Saw off one third of the large spool. This smaller part of the spool is the part to be used.
2. File the sawed end.
3. Sharpen one end of the dowel rod in the pencil sharpener or with a file.
4. Drill a 3/32″ hole half way down into the peg from the flat end. Drill a 1/4″ hole in the top of the spool.
5. Sandpaper the peg and the piece of the spool.
6. Glue the peg into the hole in the spool. Let 3/4″ of the pointed end of the peg protrude from the big end of the spool.
7. Cut the point off the nail with the side-cutting pliers and file the point of the nail with a metal file until dull.
8. The top may be left unfinished or it may be decorated with show card color designs and finished with shellac.
9. To spin the top, wind the string around the peg, starting just above the spool. Place the nail in the hole and keep the top upright on the bench by holding the nail with the left forefinger and thumb. With the right forefinger and thumb pull the string off with a quick, steady jerk. Then pull out the nail and the top will spin.





USING NUTS AND SHELLS



ALMOST LIFE-SIZE, and certainly amusing, are the mice and turtles made from walnut shells.

Materials Needed

Walnut shells
Construction paper
Scraps of yarn
Thread
Glue
Show card paints

Tools Needed

Scissors

Skills Used

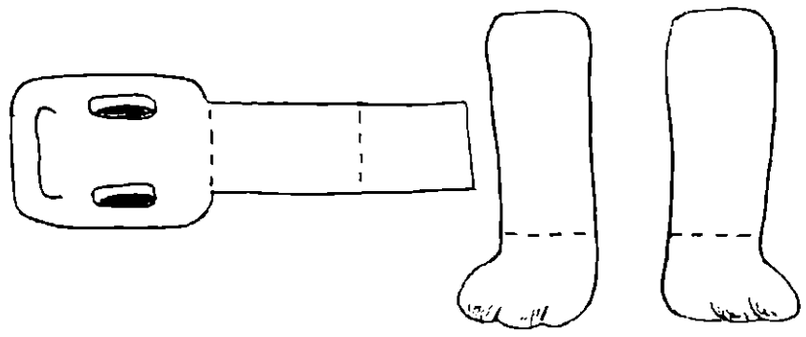
Cutting
Gluing
Painting

PROCEDURE

1. Crack the walnuts carefully so as to obtain perfect half shells.
2. Cut parts out of construction paper. Ears for the mice should be about ¼" long. The neck and legs of the turtle should be cut long enough to tuck up under the shell.
3. Glue the paper ears, legs, and heads to the shells.
4. Add the yarn tails to the mice. Glue them up under the shell.
5. Glue tiny whiskers of thread on each side of the mouse's nose.
6. Use show card paints to color eyes, turtle shell, and other parts.

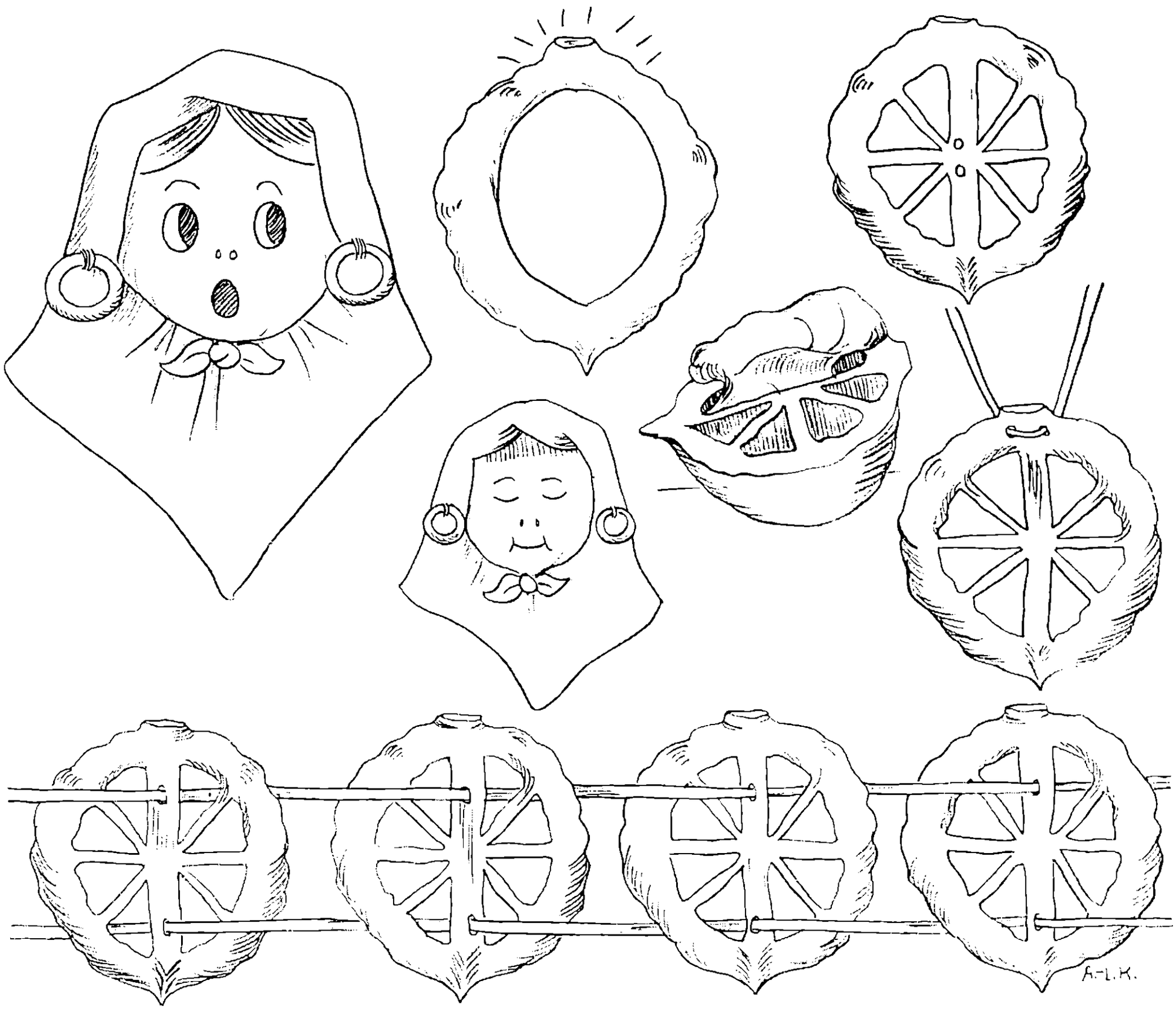


Actual size of mouse ear and tail



Actual size of turtle head and legs

PEACH STONE AND NUT JEWELRY



A LAPEL ORNAMENT, a ring, a belt, and buttons may be made from nut shells and bits of other materials. A pecan is used for Aunt Jemima's head. Black walnuts are sliced for the buttons and for the belt. The ring is made from a peach stone.

Materials Needed

Pecans
Black walnuts
Peach stones
Plastic lacing
Small brass curtain rings
5″ Square of red calico
Glue or quick-drying cement
Wax
Show card colors
Small safety pin
Needle and thread

Tools Needed

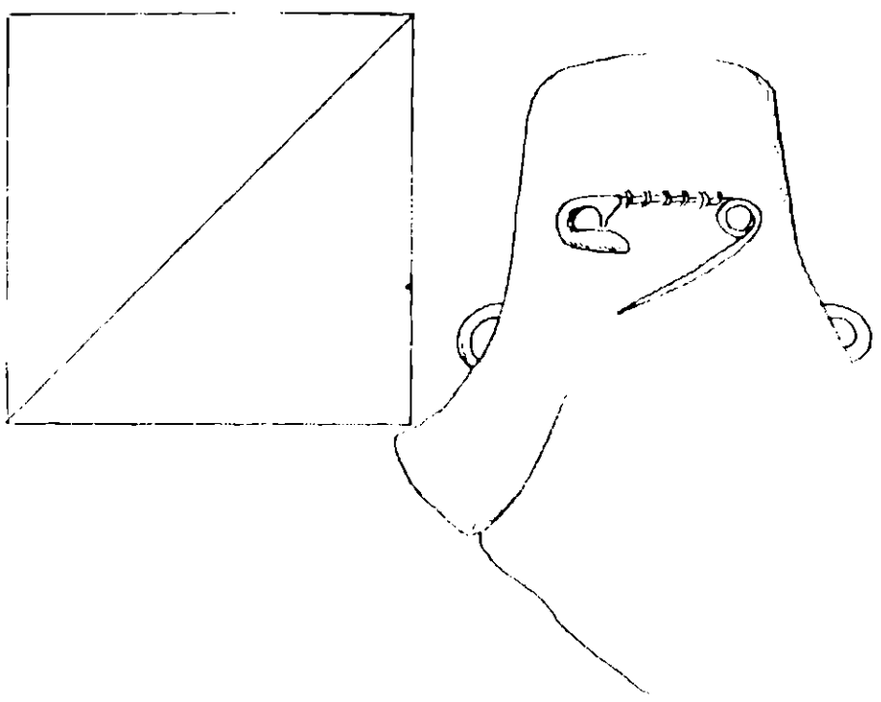
Vise
Coping saw
File
Rattail file
Hand drill
3/32″ Twist drill

Skills Used

Sawing
Filing
Sandpapering
Sewing
Drilling
Painting
Lacing
Waxing and polishing

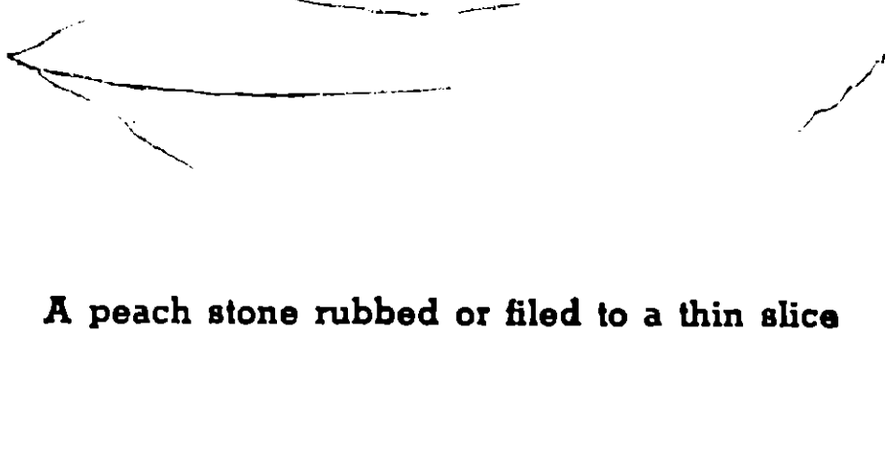
PROCEDURES

1. *Making the lapel pin.* Fifth- and sixth-grade girls like these. Paint the face and hair on the pecan shell with show card colors. When the paint is thoroughly dry, shellac the pecan. Use half of the square of cloth for the babushka. Cut diagonally, from one corner to the opposite corner. Glue and tie the babushka on the head. Glue will prevent slipping. Sew the brass rings to the babushka for earrings. Sew a small safety pin to the back of the babushka.



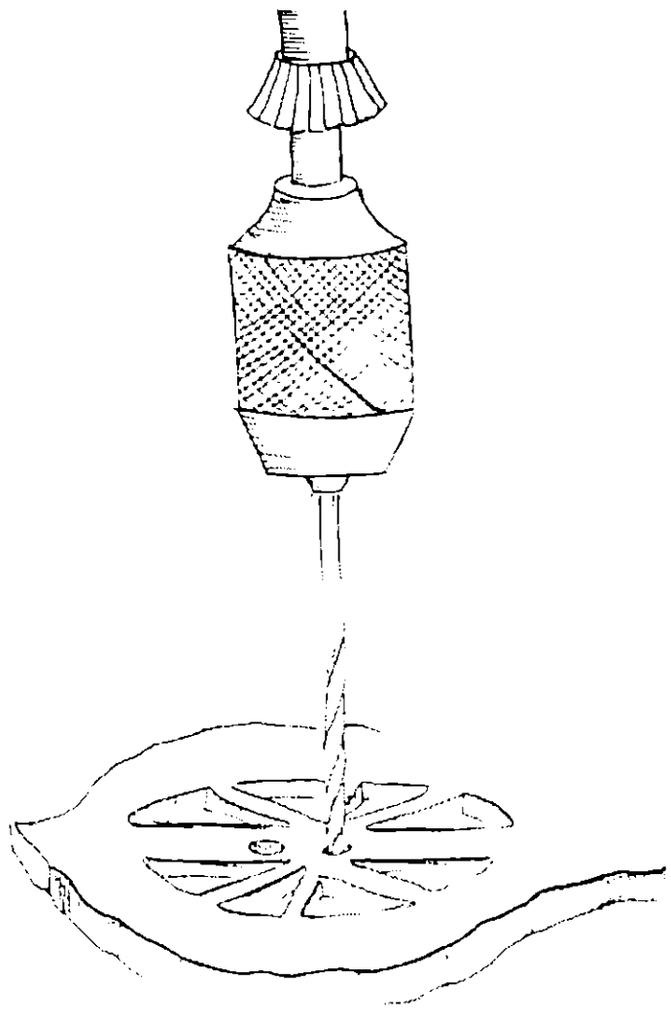
Rings and safety pin sewn to babushka

2. *Making the peach stone ring.* First and second graders will enjoy this. Allow a peach stone (the seed of a peach) to dry out thoroughly before using. Both sides of the stone are then rubbed back and forth over a stone sidewalk or a smooth concrete drive or filed until the slice left in the middle has been worn down to about ⅛″ in thickness. The seed in the center will then fall out. File the center hole with the rattail file until the ring fits the finger. Sandpaper with a very fine (No. 00) sandpaper. Wax the smooth surfaces and polish.

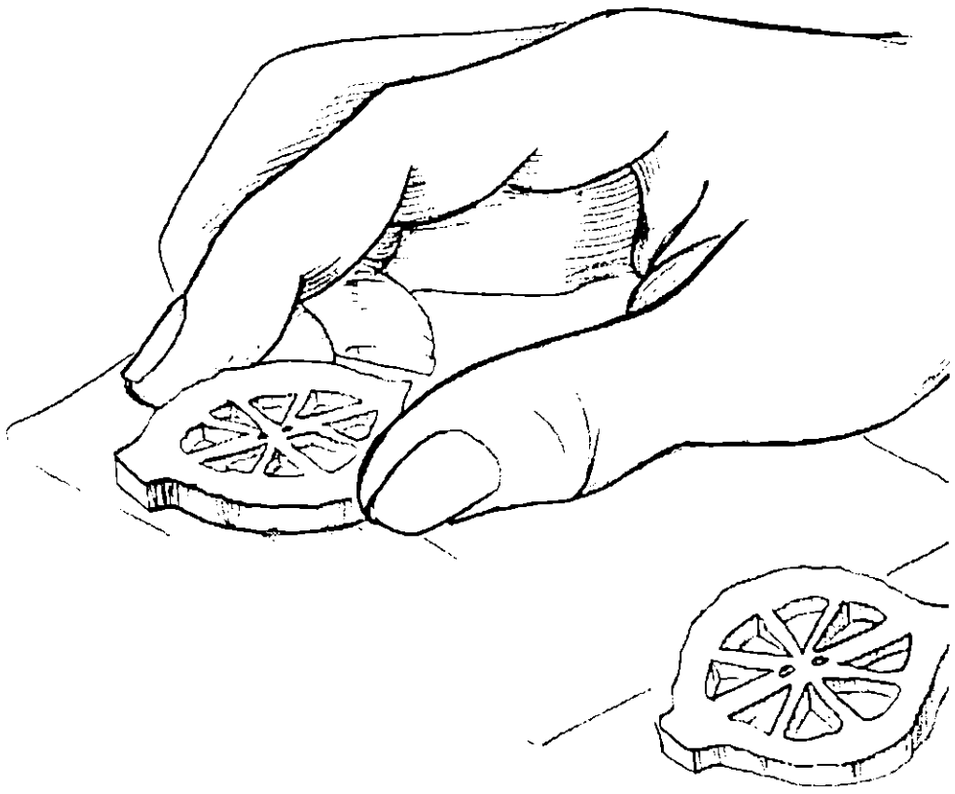


A peach stone rubbed or filed to a thin slice

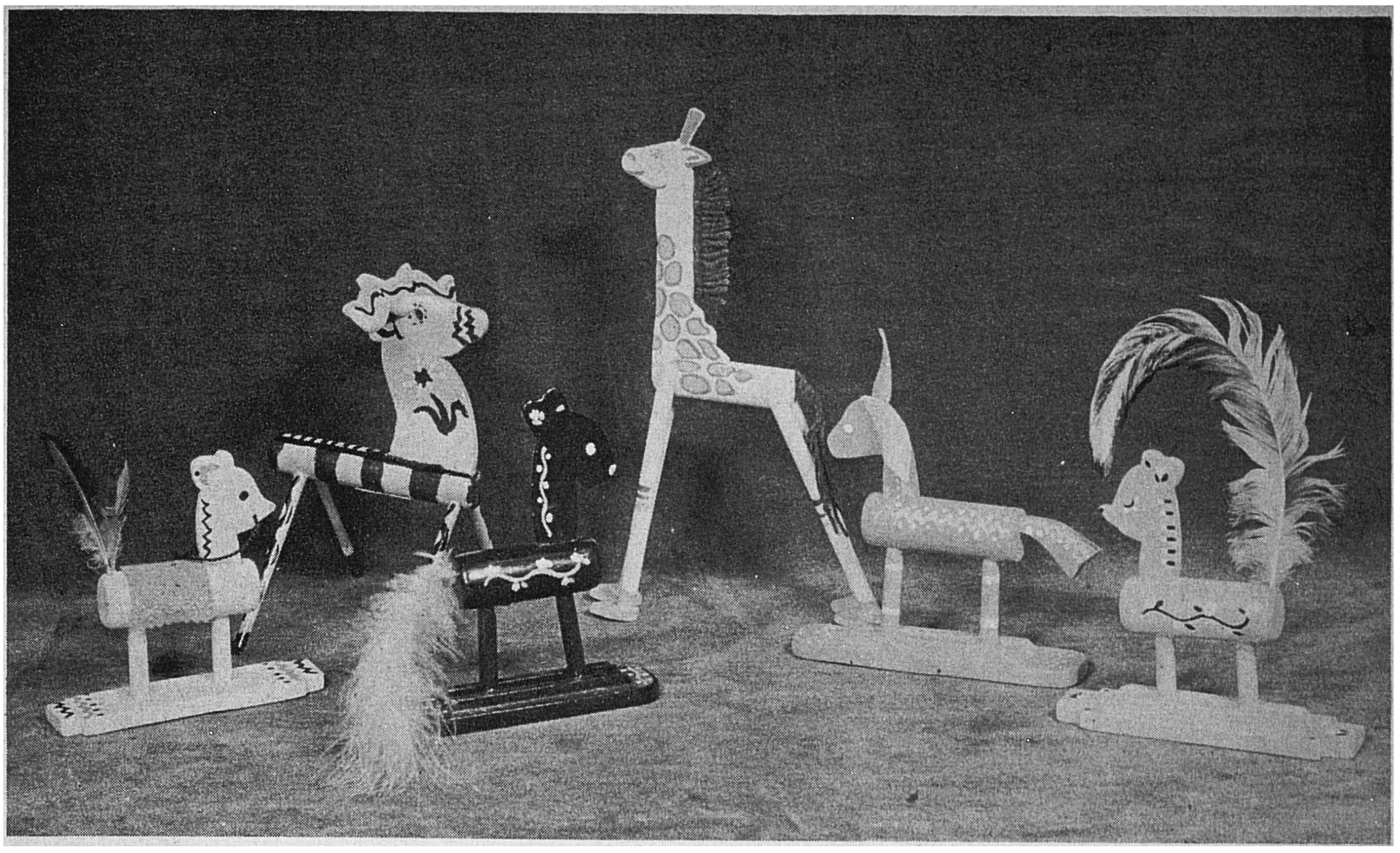
3. *Making black walnut buttons.* Saw a ⅛″ thick slice out of a black walnut. Place the nut in a vise while sawing. Remove the nut meats. Allow the slice of shell to dry thoroughly. Drill two 3/32″ holes close to the center. Rub the surfaces over No. 00 sandpaper until smooth. Wax the surfaces and polish.



4. *Making a nutshell belt.* Cut slices of black walnuts and finish as when making the buttons. Drill the two holes close to the outside edge of the shell. Lace with plastic cord or heavy cotton cord as shown in the illustration.



BROOMSTICK ANIMALS



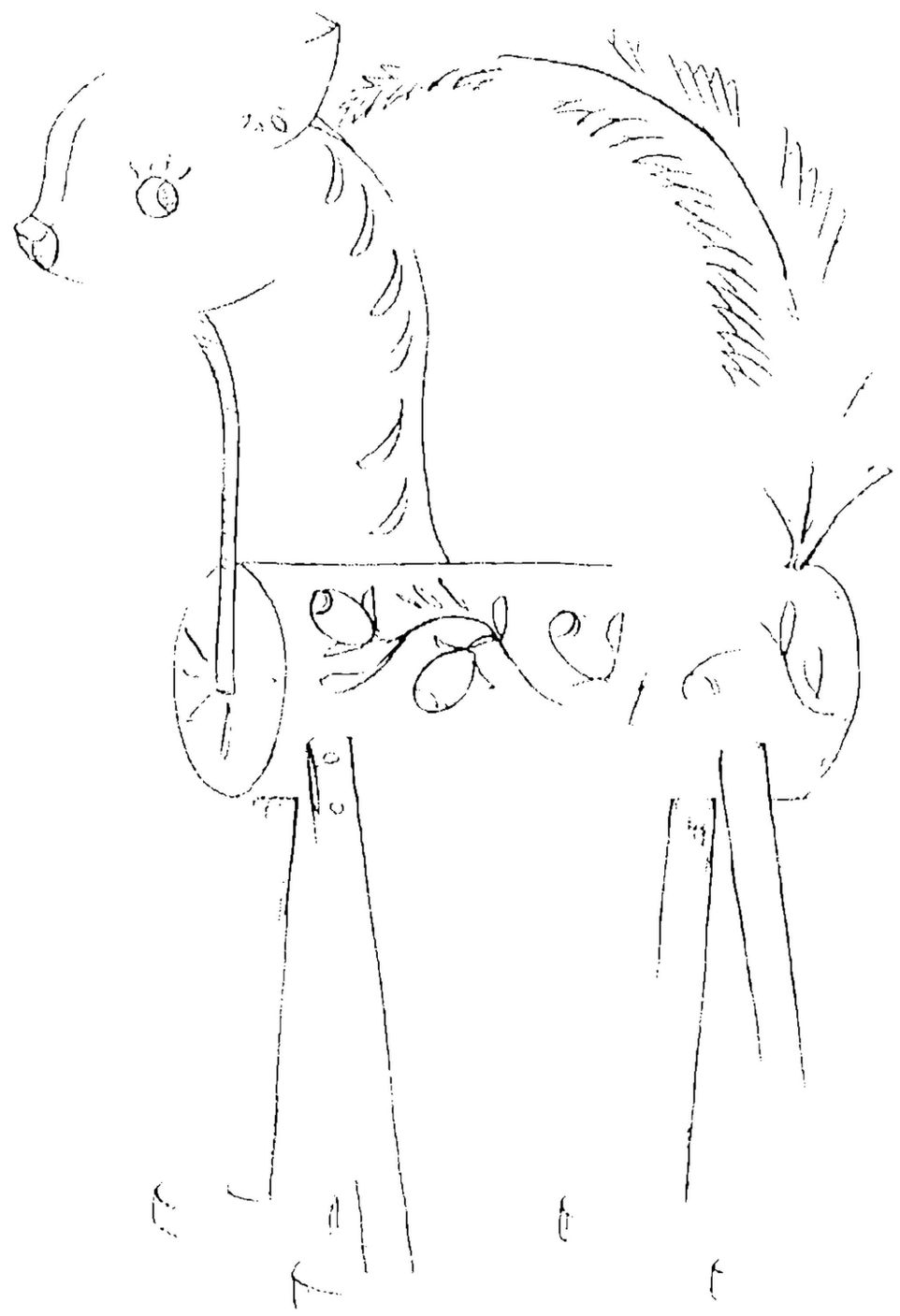
CREATE FANTASTIC ANIMALS with broomsticks and lollipop sticks, or use dowel rods. Bits of feathers, felt yarn, and leather add to the interest of these novelties. Decorate them with brilliant color and unique designs.

Materials Needed (to make one animal)

Broomstick, 4″ long
4 Lollipop sticks or meat skewers
1 pc. ¼″ x 2″ x 3″ White pine (or heavy cardboard)
1 Curved feather, 7″
Glue
Show card colors
Shellac
Sandpaper

Tools Needed

Miter box and saw or cabinet saw
Vise
Coping saw
V board
File
Twist drill equal to size of lollipop stick
3/32″ Twist drill
Hand drill

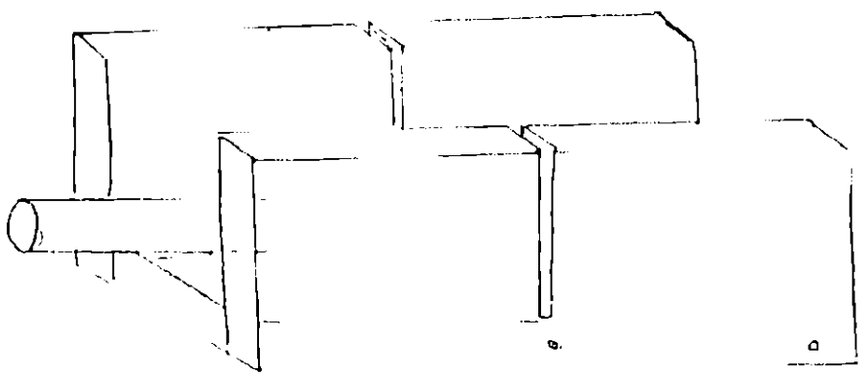


Skills Used

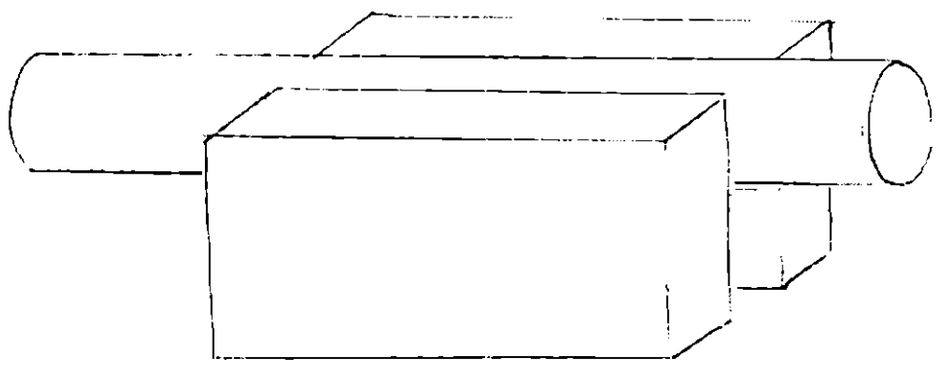
Sawing	Drilling
Filing	Gluing
Sandpapering	Shellacking

PROCEDURE

1. Saw four slices ¼″ thick off the broomstick for feet. Do this in the miter box. If you have no miter box put the piece of broomstick in a vise and saw off the four pieces. Saw four lollipop sticks off at 2½″.



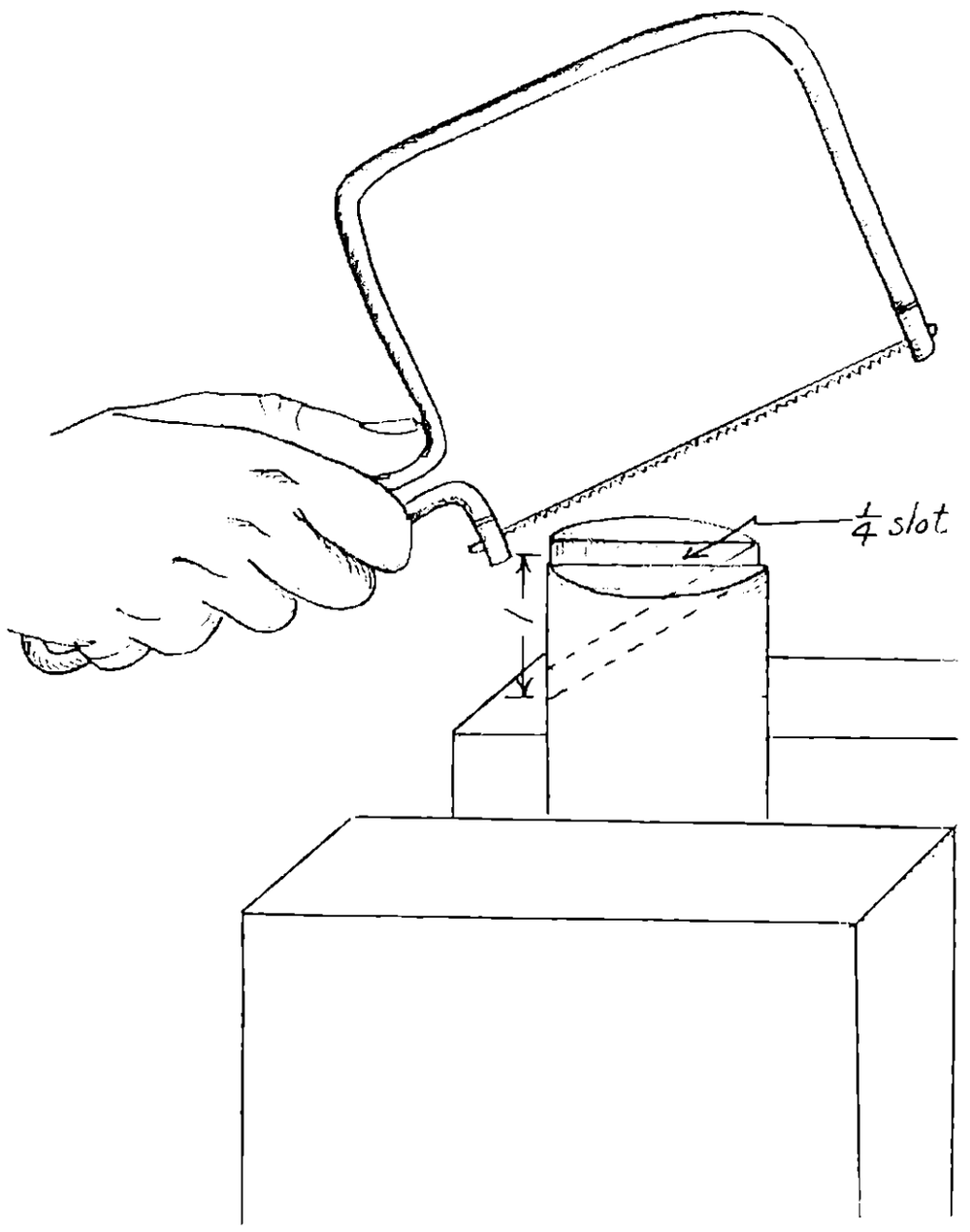
Broomstick in miter box ready to saw



Broomstick in vise ready to saw

2. Sandpaper the ends of all these pieces — the four legs, the four feet, and the body — by rubbing them over a piece of sandpaper.

3. Saw a ¼″ slot in one end of the broomstick for the head. Place the broomstick upright in the vise. Saw the slot so it extends across the end and down 1″ on the side. See illustration. If cardboard is used for the head instead of ¼″ wood, a single saw cut may provide a wide enough slot.



4. Drill a 3/32″ hole in the top of the other end of the dowel rod for the tail. Drill holes in the body and the feet for the legs. Drill at a slight angle so that the feet will spread a little, using a twist drill the same size as the lollipop sticks.
5. Draw the head and transfer the pattern to the ¼″ wood. Shape the neck so as to fit into the slot in the body. Use a coping saw to saw out the head, placing the wood over the V board. A cardboard head may be cut out with scissors.
6. Glue the legs into the feet, then into the body. Glue the head into the slot.
7. Paint with bright show card colors.
8. Finish with shellac.
9. Glue the tail feather in place.

USING VEGETABLES AND FRUITS



HOLIDAYS CREATE DEMANDS for unique table decorations and party favors. Children of all ages enjoy making something that can be used at the family dinner party.

Materials Needed

For the Deer

1 Small potato
4 Round toothpicks
3 Pipe cleaners
Brown construction paper
¼″ yd. Narrow ribbon
Show card paints

For Santa

1 Big red apple
6 Round toothpicks
1 Marshmallow
3 Cloves
2 Prunes
2 doz. Raisins
Red construction paper
Cotton batting
Paste

For the Turkey

1 Big flat potato
½ Thick-skinned orange
3 Small carrots
1 Slice of red apple (skin left on)
1 Onion with a ragged top
1 doz. Green beans
2 Cloves
1 doz. Toothpicks

Tools Needed

Paring knife
Scissors
An ice pick or nutpick

Skills Used

Cutting with scissors
Cutting with knife
Painting

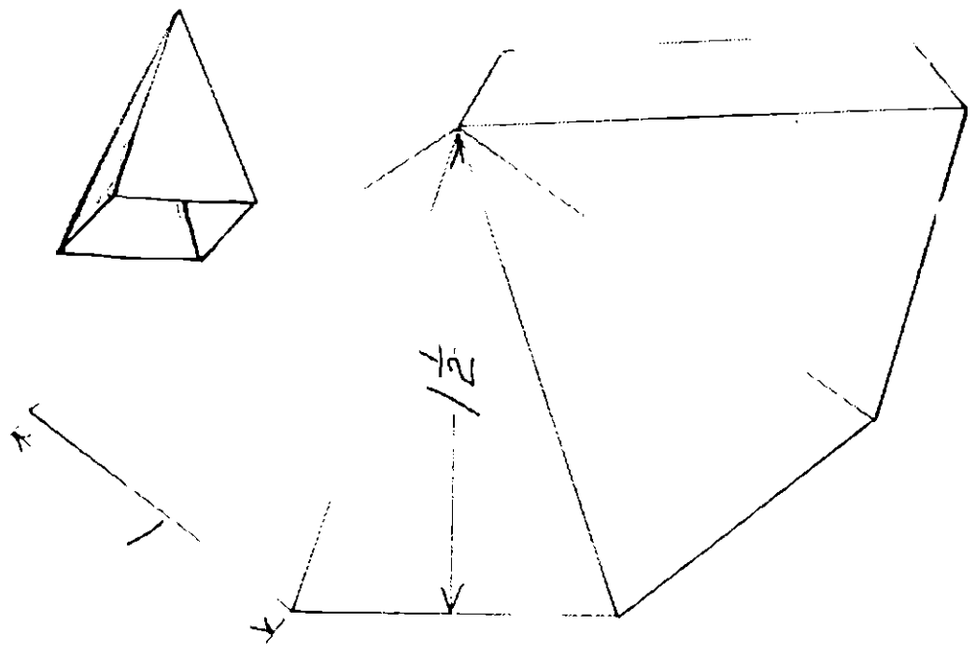
PROCEDURES

1. *Making the potato reindeer.* Scrub a very small potato until it is clean. Let it dry. Cut the head and tail out of brown construction paper. Allow at least ½″ to insert in the potato. Paint details on the paper head — eyes, nose, whiskers. Punch a small hole in front of the ears. Twist three pipe cleaners together in the center. Insert these through the hole in the head and arrange the prongs of the antlers. Cut off the ends if they are too long. Cut slits in both ends of the potato. Slide the head in one slit, the tail in the other. Push the ends of four round toothpicks into the body to make legs that spread slightly. Tie a red ribbon around the body.

For a centerpiece make eight reindeer and hitch them to a paper sleigh by running narrow green ribbons through the red bands.

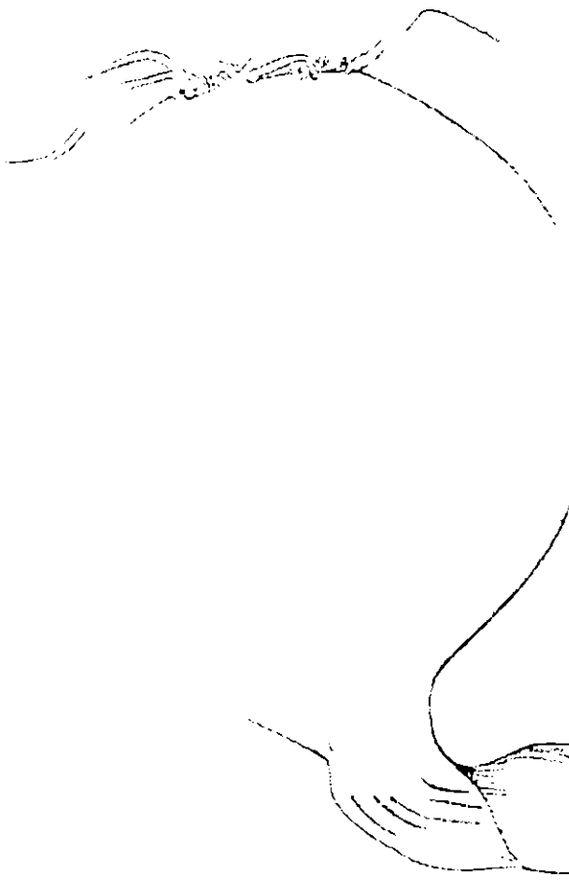


2. *Making the apple Santa Claus.* Choose a big, shiny red apple. Stick a toothpick in the top of it. Stick a marshmallow head on the toothpick. Stick the three cloves into the marshmallow to make the eyes and the mouth. Make a pointed red paper hat and trim it with a band and pompon of snowy white cotton batting. Also cut the beard and mustache of thin cotton. Paste in place. String a dozen raisins on each of two toothpicks for arms. Stick the arms in the apple. Run toothpicks through the prunes and on into the apple for feet. Cut a narrow white strip for a belt and paste it around the apple.



3. *Making a vegetable turkey.* Wash and dry the potato, carrots, and green beans. Cut the half orange in half once more to make two quarters. Remove the fruit of the orange, saving the skin. Cut 2″ off the small end of the carrots. Slit one of these down 1″ from the small end to make the open beak.

Fasten the onion head to the potato body with two toothpicks. Let the ragged top of the onion hang down the front to form the wattle. Cut a hole in the front of the onion head and insert the carrot beak in it. Make it fit tight. Cut a slot in the top of the head and insert the slice of apple with the red skin up to make the comb. Stick cloves in the onion for eyes. Fasten the orange skins to the sides with toothpicks to make the wings. With an ice pick or nutpick, poke holes in the tail end of the potato and insert the ends of the green beans. Spread them out like a fan. Fasten the carrot feet to the potato with toothpicks.



WIRE DOLLS



No other doll or figure illustrated in this book is as useful as this one. It can be bent in any position desired, then straightened and re-bent again. When making sand tables, dioramas, or other miniature scenes this wire figure is the most suitable one to make. It is inexpensive and easily made. Children in the fifth and sixth grades will enjoy making and using these figures. Stovepipe wire comes in fifty-foot rolls and sells for a few cents in local hardware stores.

Materials Needed

Stovepipe wire 24″ long
Cotton batting
White cotton sewing thread
An old nylon stocking or piece of knit rayon underwear
Bits of hair-colored yarn
Show card paints

Tools Needed

Side-cutting pliers
Scissors
Needle

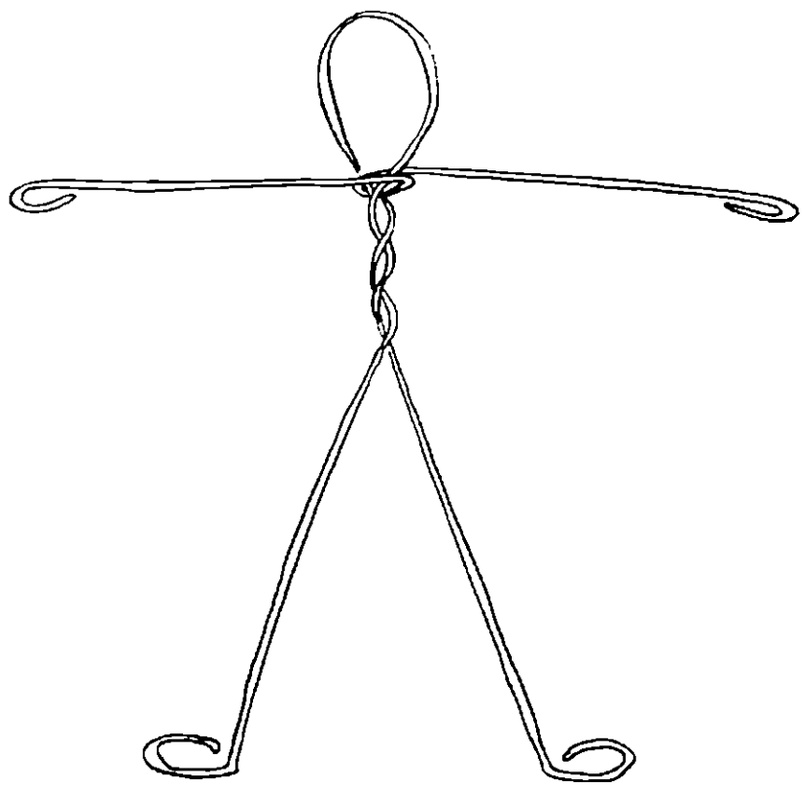
Skills Used

Cutting and twisting wire
Sewing

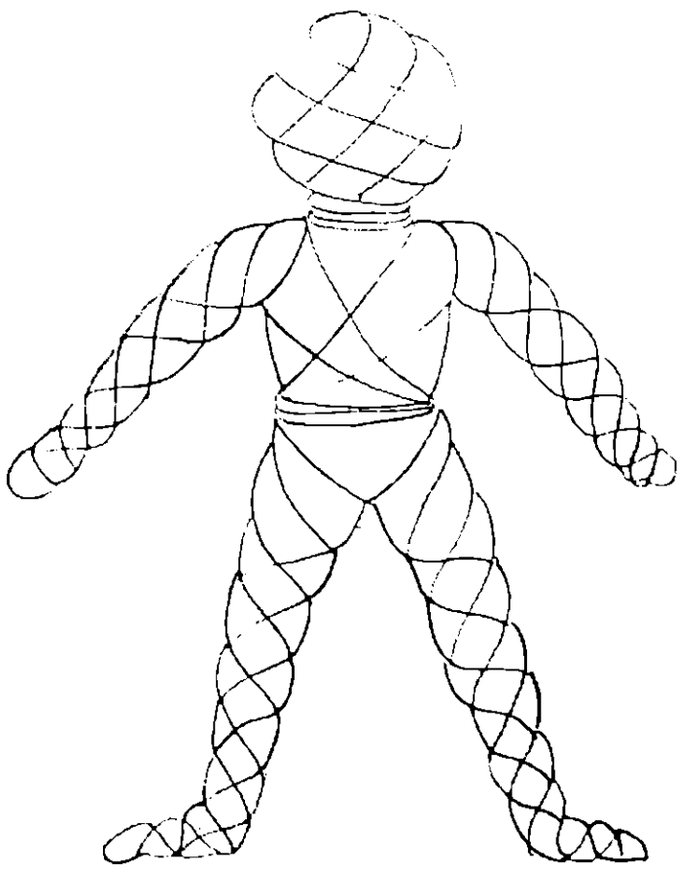
PROCEDURE

1. Cut one piece of wire 16″ long and one 8″ long, using the side-cutting pliers.
2. Bend the long piece of wire in half. Allow a 1″ loop for the head and then twist 2″ of the wire together for the body. Spread the legs apart. Bend up ¾″ at each end for feet. See first drawing on next page.
3. Wrap the 8″ piece once around the neck, letting half extend at each side for arms. Bend back ½″ at each end to make loops for the hands.

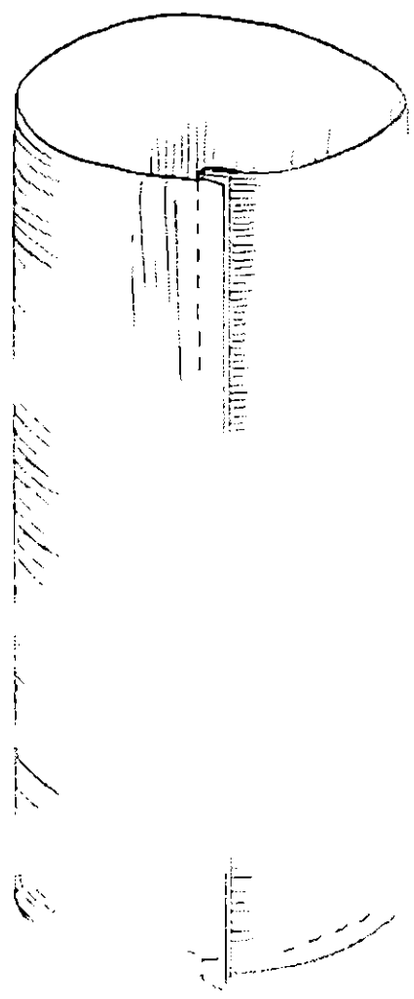
4. With a piece of thread, tie the arms to the body just below the neck. Criss-cross the thread several times. This prevents the arms from slipping down on the body.



5. Wrap the head with cotton until it is about the size of a small walnut. Wrap thread around the neck to hold the cotton head on.
6. Wrap cotton around the arms and fasten it by wrapping thread around from one hand to the other. Wrap the legs in the same way.
7. Wrap the body, padding it well and keeping in mind the character to be represented. Keep the legs separated far up the body. Wrap the thread around the waistline several times. Pull it tight and tie.

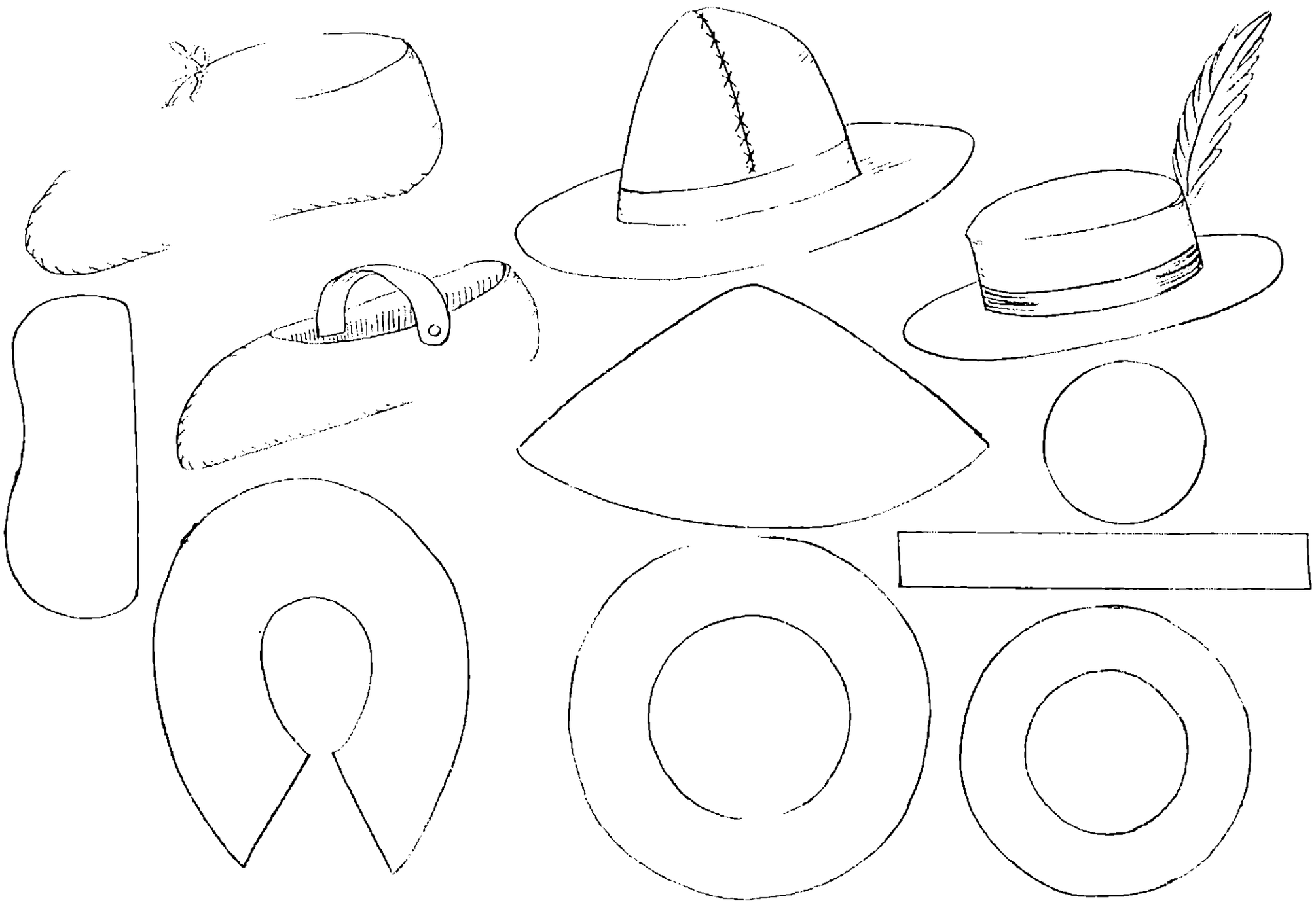


8. The wire forms the skeleton; the cotton makes the flesh. The skin is made by covering the cotton with a flesh-colored nylon stocking or knit rayon underwear. Cut pieces long enough and wide enough to cover each leg and arm. Sew together with small stitches to make tubes. See drawing. Turn right side out and pull these tubes up over the arms and legs. Sew ends of tubes to the body of the doll. Make a larger tube for the head and pull it well down over the neck. Tie around the neck.



9. Cut 6″ strands of yarn and sew these to the head with a part down the center. Braid and tie with tiny ribbons. If making a boy doll, sew tiny loops of yarn all over the head and then clip them short.





10. Paint on the face with show card colors. Use fairly thick paint, wiping the brush almost dry to prevent the colors from running.
11. Dress the figure in any costume desired. Socks or stockings may be made out of the cuffs of children's old socks. Shoes and hats are easily made of scraps of felt.

SUGGESTIONS FOR FURTHER READING

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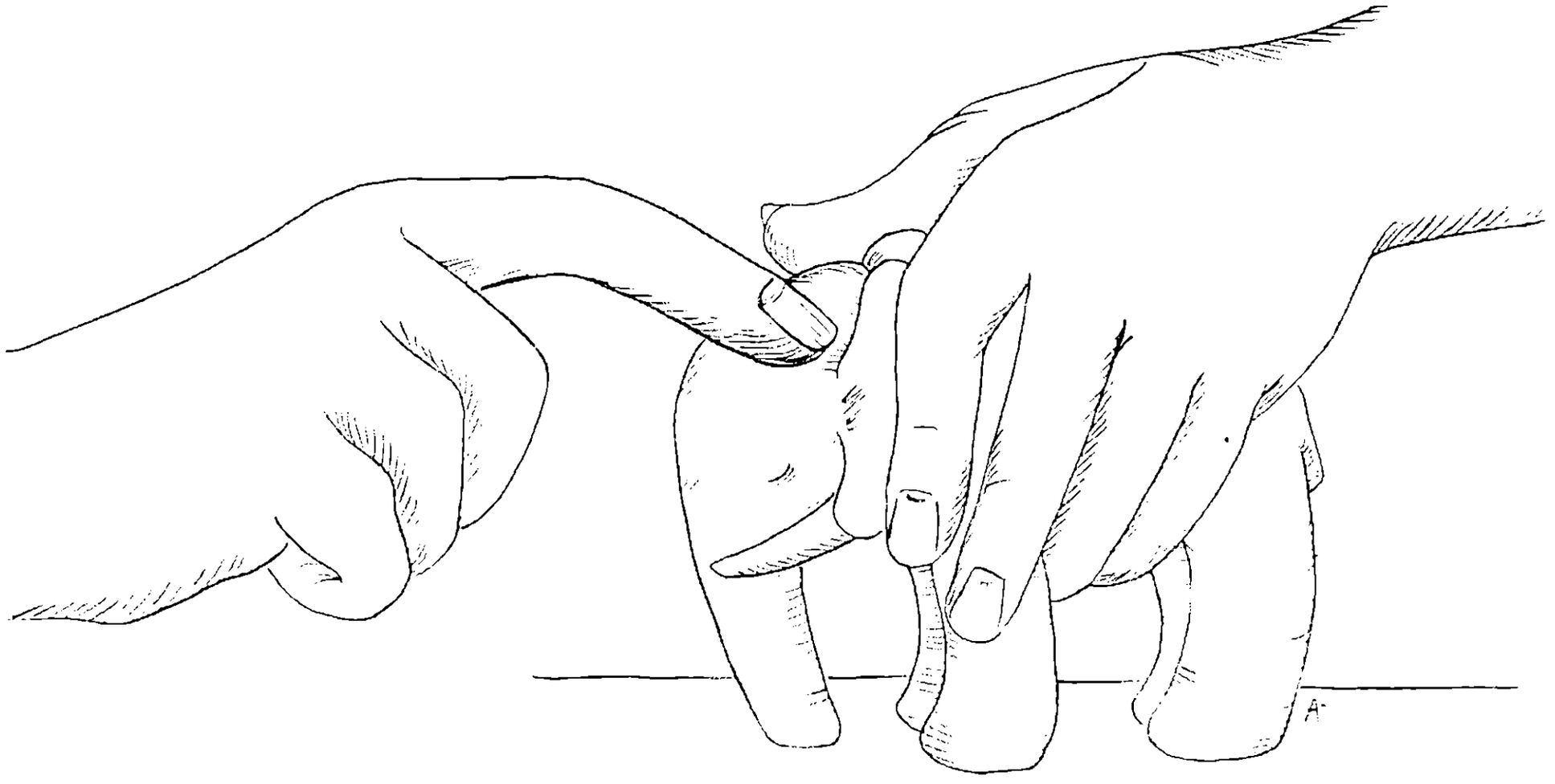
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CHAPTER

Ceramic Crafts



Clay as a Craft Material

Clay provides a pliable material that can be used to create three-dimensional projects. Since clay may be manipulated with the fingers to produce an object "in the round" having length, width, and thickness, in addition to being plastic, it holds a unique place in craft materials.

On the elementary level few tools and little equipment are necessary. A non-absorbent working surface is the only requirement aside from the clay itself for making many projects. A piece of linoleum or sheet metal about eighteen inches square provides an excellent surface for clay modeling. A marble slab is also good. Simplest of all, perhaps, is a piece of waxed paper.

Since very few elementary schools have kilns in which to fire clay, directions are given for finishing articles without firing. Unfired clay lacks permanency and is not waterproof. These factors limit the use of clay in schools where kilns are not available. However, the lack of a kiln need not prohibit the use of clay or deprive the child of the joy of expressing himself in this medium. There are some fairly satisfactory substitutes for glazing that will be described in the following pages.

The modeling of animals and figurines is most popular with young children. As individual units or as a part of a group project these clay models fill a definite need.

Kinds of Clay

A good grade of moist buff modeling clay will prove most satisfactory for general use. This is well suited for modeling and casting. It becomes white in color when fired.

Another practical type of clay for elementary work is Mexican pottery clay, a

self-hardening clay. This is purchased in powder form and mixed with water to acquire the proper consistency. This clay need not be fired. When it is dry it is dark red and very hard. It is not waterproof.

Clay found in the vicinity of the school may also be used. However, the preparation takes a great deal of time and effort. After collecting it, the clay should be broken into small pieces and then completely dried. The dry clay is pounded into a fine powder and then sifted through a fine mesh screen. This sifted powder is then mixed with enough water to make the clay the right consistency for modeling.

Storing Clay

Store clay in an airtight crock or tin can. Keep it covered tightly. A moist sponge or rag may be kept in the can. If buying ready-mixed clay, order it at the time it is to be used instead of storing it for a long time.

When working on a piece of pottery or a figurine, it is necessary to keep the clay moist until the modeling or forming is finished. Small pieces may be stored in airtight tins. Larger ones may be covered with a wet cloth and a dry one draped over that to help keep the moisture in.

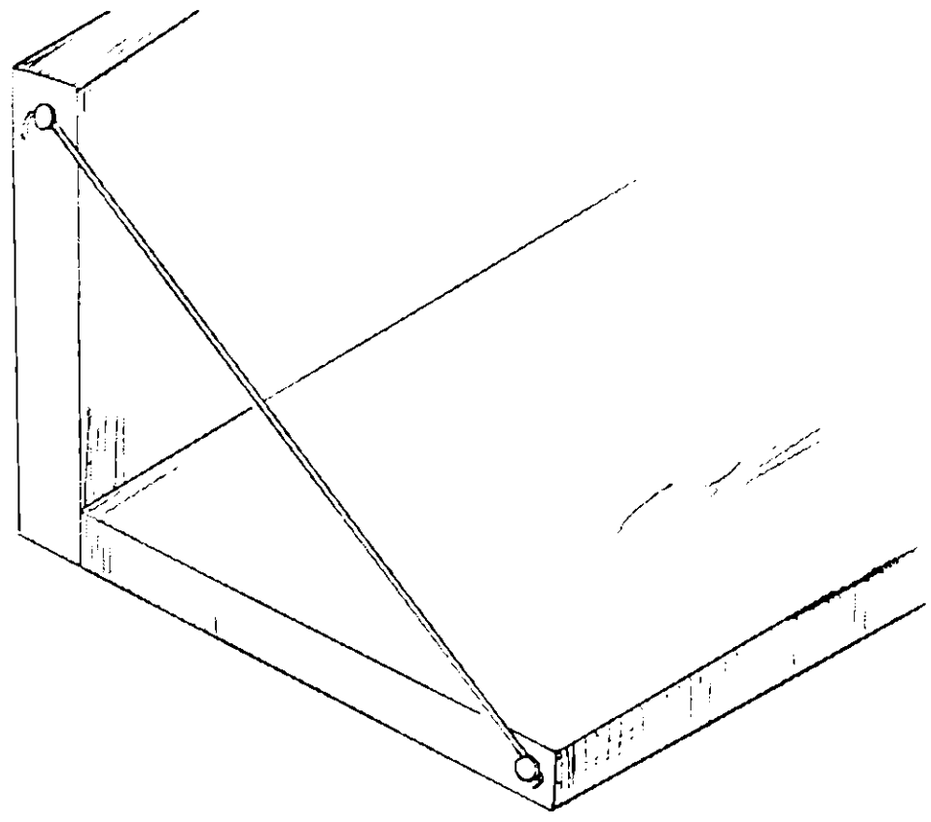
Finished projects must be dried slowly to prevent cracking. Cover the finished clay work with a wet cloth. After the cloth dries leave it draped over the object to slow down the drying process. Never set moist clay objects in the sun or near the heat to hasten the hardening process. This will cause cracks to develop that are difficult to mend.

Preparing Clay for Modeling

Children will be saved considerable disappointment if the clay they are to work with is of the proper consistency. It should be plastic enough to knead easily without sticking to the hands. If it is too wet, let it stand uncovered. If it is too dry, sprinkle it with water and knead it. For most modeling, the clay should be soft enough so that a coil ½" in diameter can be bent double without cracking.

To remove air holes and lumps the clay should be wedged. This is done as follows:

1. Work the clay into a ball.
2. Cut the clay into pieces (wedges) on a wire that is stretched taut from the back of the workbench to the front edge.



3. Press the pieces together and knead into a ball.
4. Repeat cutting and kneading the clay until it is uniformly smooth.

Fastening Clay Pieces Together

In making articles from clay, it is often necessary to make part of the article first and then fasten the parts together. Two common methods are used to do this. The simplest procedure is to knead the clay pieces together, using a wooden modeling tool or a lollipop stick. The pieces are pushed into each other alternately at spaces of about one quarter of an inch. The joint should be smoothed off with the

fingers. Joining clay pieces is sometimes called "welding."

The other method of fastening clay pieces together is known as "slip welding." Slip is a mixture of clay and water about as thick as heavy cream. It is used as a glue. Both pieces of clay must be moist when joined with slip. If the pieces are dry, the joint will be very poor.

A combination of kneading and slip welding is recommended when large pieces are to be welded.

Applying Finish to Clay Pieces

The ideal way to finish all clay work is to fire it before and after glazing. This is possible if a pottery kiln is available. The kiln is an oven or furnace which heats the clay work evenly throughout. In some communities commercial potteries will fire the children's work for them at a minimum cost. Fired pottery is more durable and permanent than pottery which has not been fired. The glaze adds beauty, color, and luster to the clay.

However, there are other methods of finishing clay work if a kiln is not available. Show card colors may be used when a variety of colors and considerable detail are desired as in the painting of figurines. Enamels may be used to imitate glaze.

Finishing with Show Card Colors

Clay work to be decorated with show card colors should be thoroughly dried and hardened before painting is started. A soft pencil may be used to draw the design on the clay before painting it.

A fine brush is best for painting with show card colors. The colors should be fairly thick to prevent their running when painting is done on curved and vertical surfaces. Do not paint one color next to another while the first color is still wet. Show card colors are opaque; therefore, one color may be painted over another. Allow the base color to dry before applying detail over it. For example, when painting a face, apply a coat of flesh-colored paint to the entire surface. Let it dry. Paint the mouth, eyes, nose, and other details over the first coat of paint.

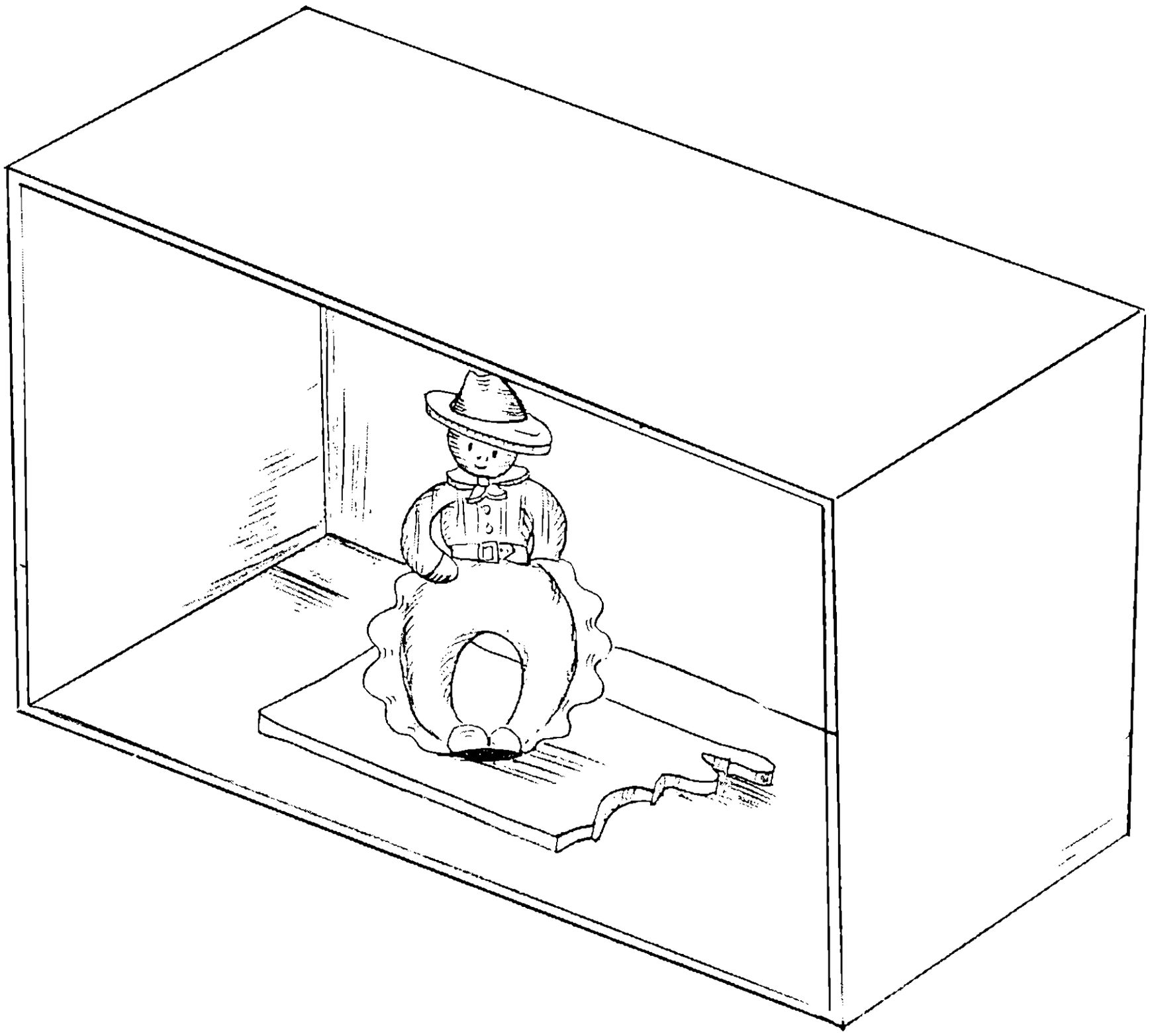
To prevent the colors from chalking off, and to provide a shiny finish, shellac may be applied over the colors. The colors should be allowed to dry at least twenty-four hours before the piece is shellacked. Moisture from the paint will have seeped into the outer surface of the clay. This moisture will cause cracking of the paint and shellac if the shellac is applied before the object is thoroughly dry.

Shellac is best applied as a spray. A small insect spray gun is very satisfactory for this purpose. Fill the gun with a mixture of three parts of shellac to one part of alcohol. Place the object on a piece of scrap wood. Set it in a large cardboard box open on the front but closed on the bottom, top, and three sides. This box will hold flying spray within its area, and will protect walls, furniture, and clothing.

Spray one side of the figure with just enough shellac to cover the surface. If too much shellac is sprayed on, it will run and disturb the color underneath. Turn the piece of scrap wood, thereby turning the figure, and spray all sides. Set aside to dry. When the object is thoroughly dry, apply a second coat of shellac.

After *each use* the spray gun should be cleaned immediately. Shellac dries quickly and will clog the spray gun if it is not cleaned thoroughly. To clean the gun, pour the left-over shellac mixture into a jar, fill the gun with clean alcohol, and spray the alcohol through the tube until no trace of shellac gum remains.

Clay pieces finished by this method will be colorful and have a high luster. However, they will be fragile, and they must be handled carefully.



Place object in cardboard box, as above, so shellac spray will be confined to area of box.

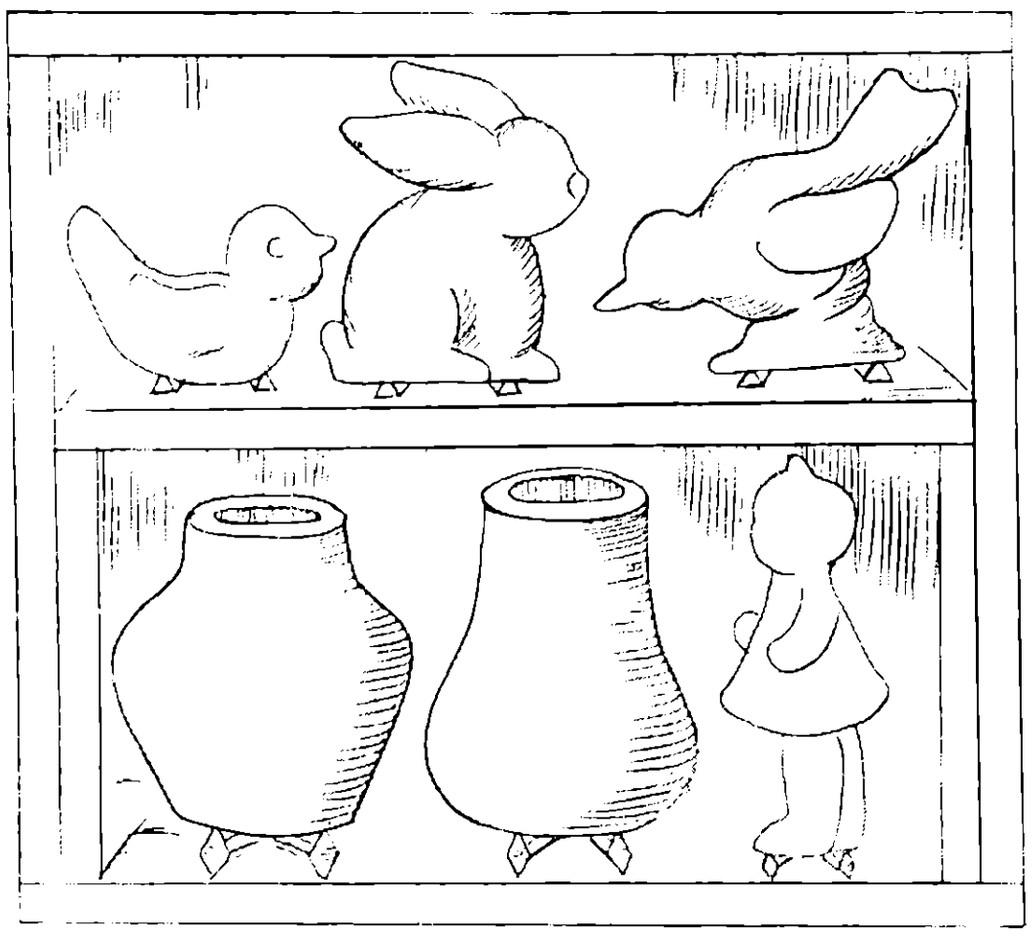
Finishing with Enamels

As in finishing with show card colors, clay work must be thoroughly dry and hard before enamel is applied. Quick-drying enamels are recommended, and best results will be obtained if a ¼″ sable brush is used.

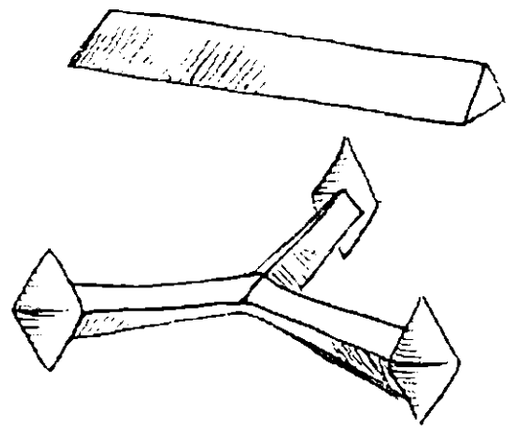
Have a piece of scrap wood or metal handy to set the painted work on. If the underside of the object is to be painted, as would be the case when painting an animal figure, hold it upside down in your hand and paint the underside first. Spread the enamel out smooth, and avoid using too much. Then set the object on the wood or metal and paint the rest. The entire object should be covered with this coat of enamel. Allow approximately twenty-four hours for drying, and then apply a second all-over coat of the same color of enamel.

Use fine brushes and other colors of enamel to paint details. Enamels are opaque, and one color may be applied over the other. Animals are effective when given two coats of enamel and details are omitted. The finished effect is quite similar to that of glaze.

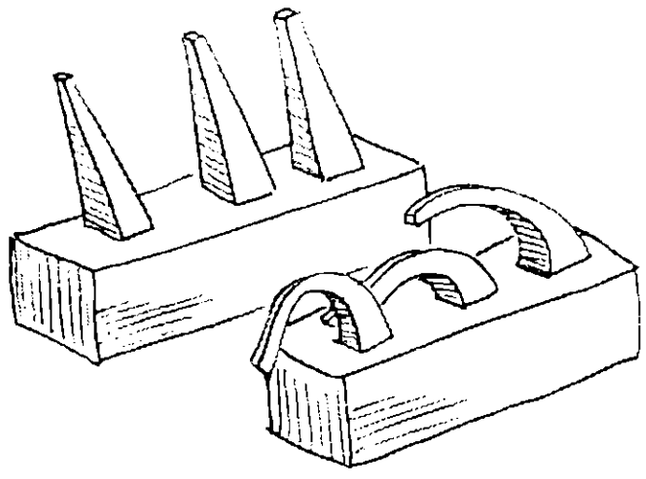
Enamels may be thinned with turpentine if they become too thick to flow easily. Turpentine is also used to clean brushes used for enameling. Brushes should be thoroughly cleaned so as not to become hard.



Kiln



Stilts



Pyrometric cones

Finishing with Glaze

Clay work must be thoroughly dry and hard before it is fired.

Stack the kiln for the first firing, known as the bisque firing. In this firing the clay is made more durable and permanent. Cover the floor of the kiln with powdered flint. If the kiln has a shelf, put the props in place. Put the large pieces of clay work in next, filling in with smaller pieces. Examine each piece to be sure it is dry. Add the shelf and stack more pieces on it. Small clay pieces may be set inside larger ones. Place pyrometric cones in small wads of clay and place these in the kiln where they can be seen through the kiln window. These cones should be purchased with the clay. They are so made as to melt or bend at the same temperature needed to fire the clay. Bend the cones slightly to the left or to the right.

After the kiln is stacked, it is lighted. Electric kilns are controlled with switches. Follow the directions of the manufacturer of the kiln. When the kiln becomes red hot, watch the cones. When the cones bend over so that the tips touch the wads of clay, turn off the heat. Do not open the kiln door until the kiln is cool. Sudden change in temperature will cause the clay to crack. After this first firing, the clay is in the bisque or biscuit stage.

Glaze is actually a thin coating of glass caused by the melting of powdered minerals and other material which have been coated over the bisque ware. For use by school children, glazes should be purchased already mixed in powder form. Water is added to the powder until the glaze is the consistency of thick cream or thick show card colors. In industry the glaze is sprayed on the object or the object is dipped into a bath of glaze. Neither of these methods is practical in the elementary schoolroom or shop. The child should brush a fairly heavy coat of glaze on the object. This should be done with great care. If too much glaze is used, it will run and drip on other objects or on the kiln floor. If too little glaze is used, the clay will show through when fired.

After glaze is applied, the articles are

Suggested Grade Placement of Ceramic Skills

GRADES 1 and 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Forming clay balls Modeling clay animals Painting with show card colors Shellacking with brush	Wedging clay Making coils Welding coils Forming bowls Making thin slabs Fastening clay together with slip Modeling clay Shellacking with spray gun	Rolling clay Cutting shapes with knives Carving clay Forming handles Fastening handles Enameling clay	Rolling slabs (set thickness) Cutting slabs Joining slabs Glazing	Making frames for molds Making plaster molds Using plaster molds Mixing plaster Mixing slip Casting with slip

again stacked in the kiln in preparation for firing. In this firing, the glaze is melted and fused to the clay. Cover the floor and shelf of the kiln with a mixture of equal parts of powdered flint and fire clay mixed with water to the consistency of thick cream. This will prevent the glaze that drips off the pieces from sticking to the kiln. When stacking the kiln be sure that pieces do not touch each other. This time one *cannot* set one piece inside the other.

The heat required for the glaze firing is less than that required for the bisque firing. When buying glazes be sure to find out the melting point or firing point from the manufacturer. Use cones or a temperature reading. Again, allow the kiln to cool before opening.

Glazed work will be glossy and waterproof. It is the ideal finish for all ceramic pieces, but schools without kilns should not fail to do some clay work. The other finishes mentioned will give satisfactory results for the time being. The objects may lack the permanency of fired objects, but there is much to be learned and enjoyed in working with clay even when the final step of firing must be omitted.

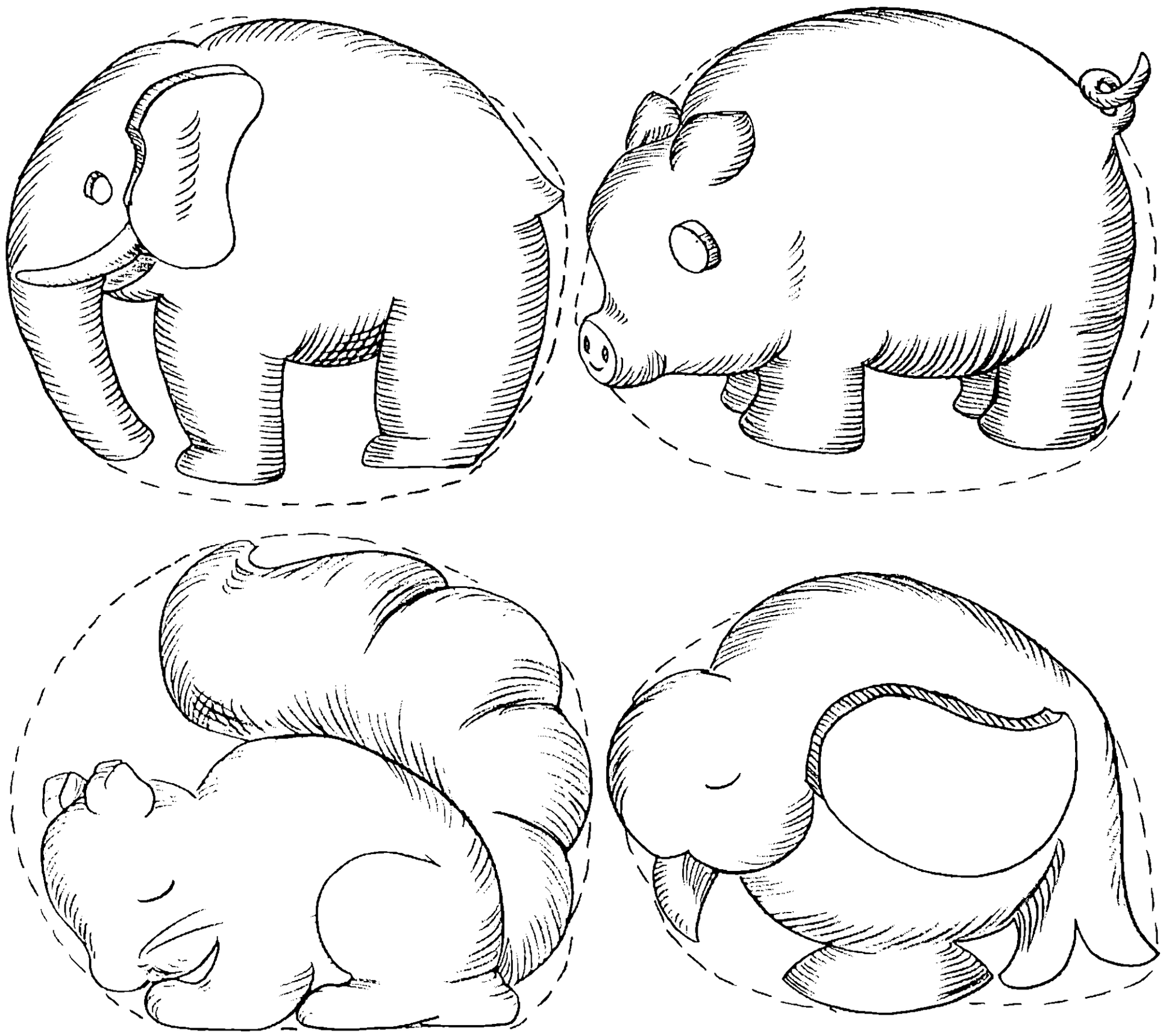
Grade Placement of Ceramic Skills and Projects

On the basis of experience with school children, the authors have found that clay work can be done with great success by most children. As in all craftwork, however, the teacher should be aware that certain projects and certain processes are likely to result in failure — or unsatisfactory work, at least — if the children attempt to do work that is beyond their ability. While the grade placements in the accompanying charts are by no means infallible, it is hoped that the suggestions will be helpful to teachers.

Suggested Grade Placement of Individual Ceramic Projects

GRADES 1 and 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Modeling animals	Coil bowls Clay people	Leaf trays	Slab pottery	Plaster plaques Cast bowls

MODELING CLAY ANIMALS



THIS IS A simple method for modeling an animal out of a solid ball of clay. Since all parts are pulled out of the one piece, there is less danger of cracking than when pieces are made separately and put together later.

Avoid thin, projecting parts such as long, slim legs, fragile antlers, thin wings, or protruding tails. These break easily. Omit unnecessary details, working for the general form and position of the animal.

Materials Needed

Moist modeling clay

Tools Needed

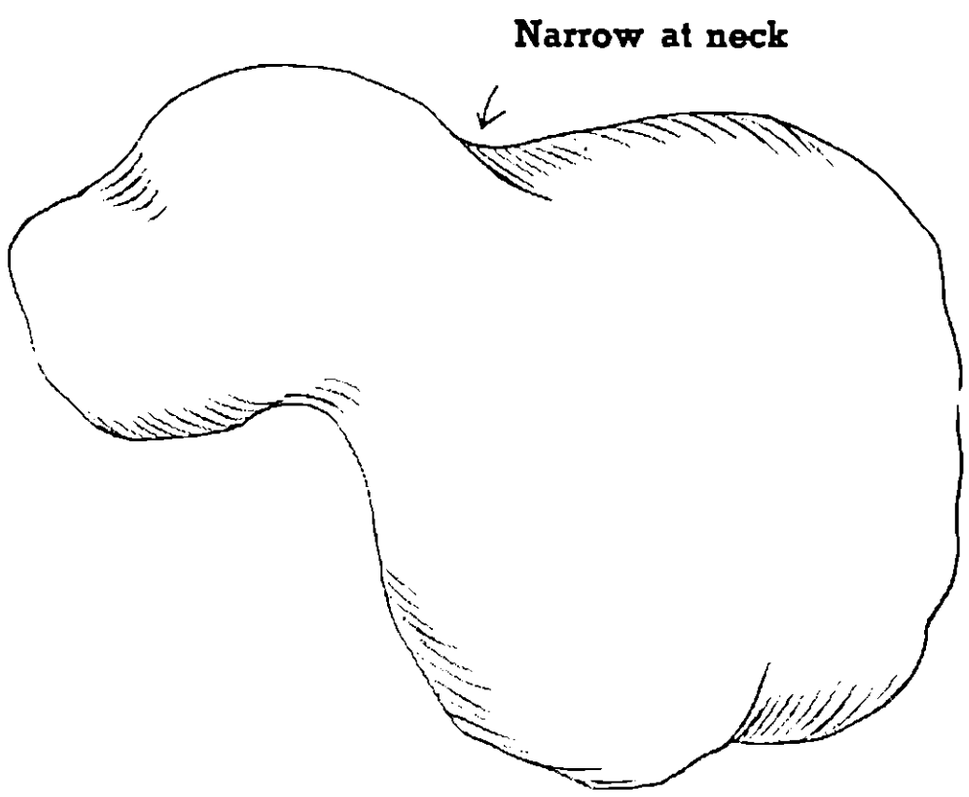
None

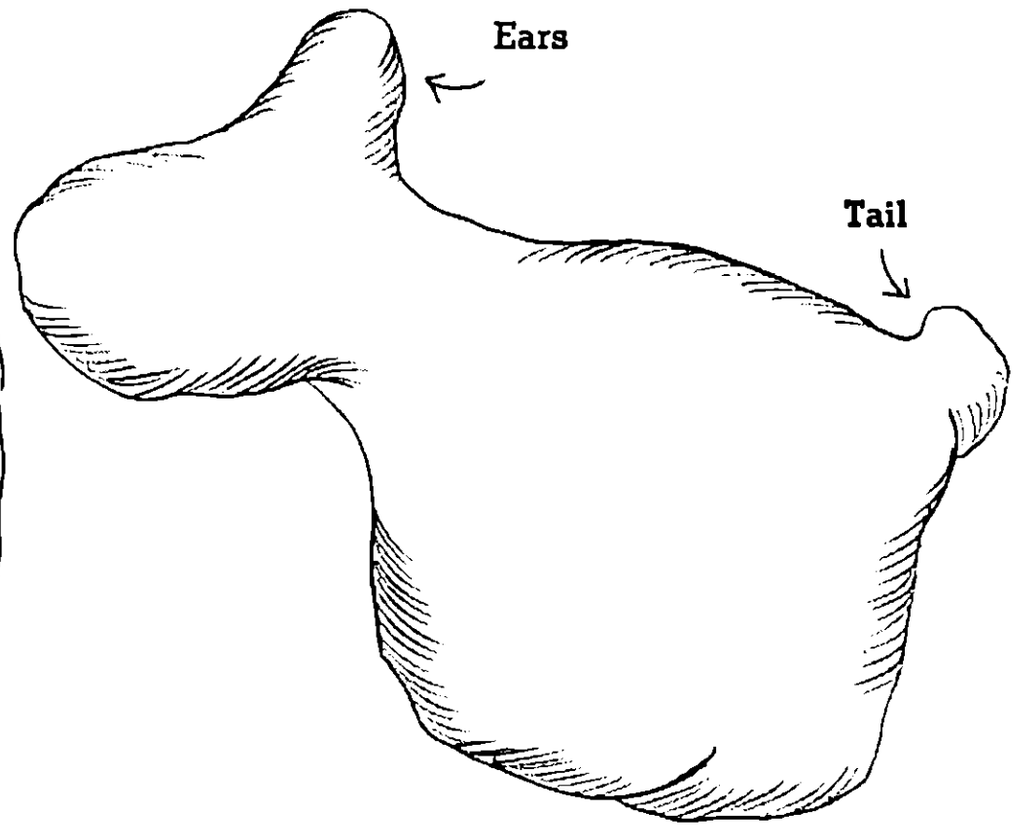
Skills Used

Wedging
Forming a ball

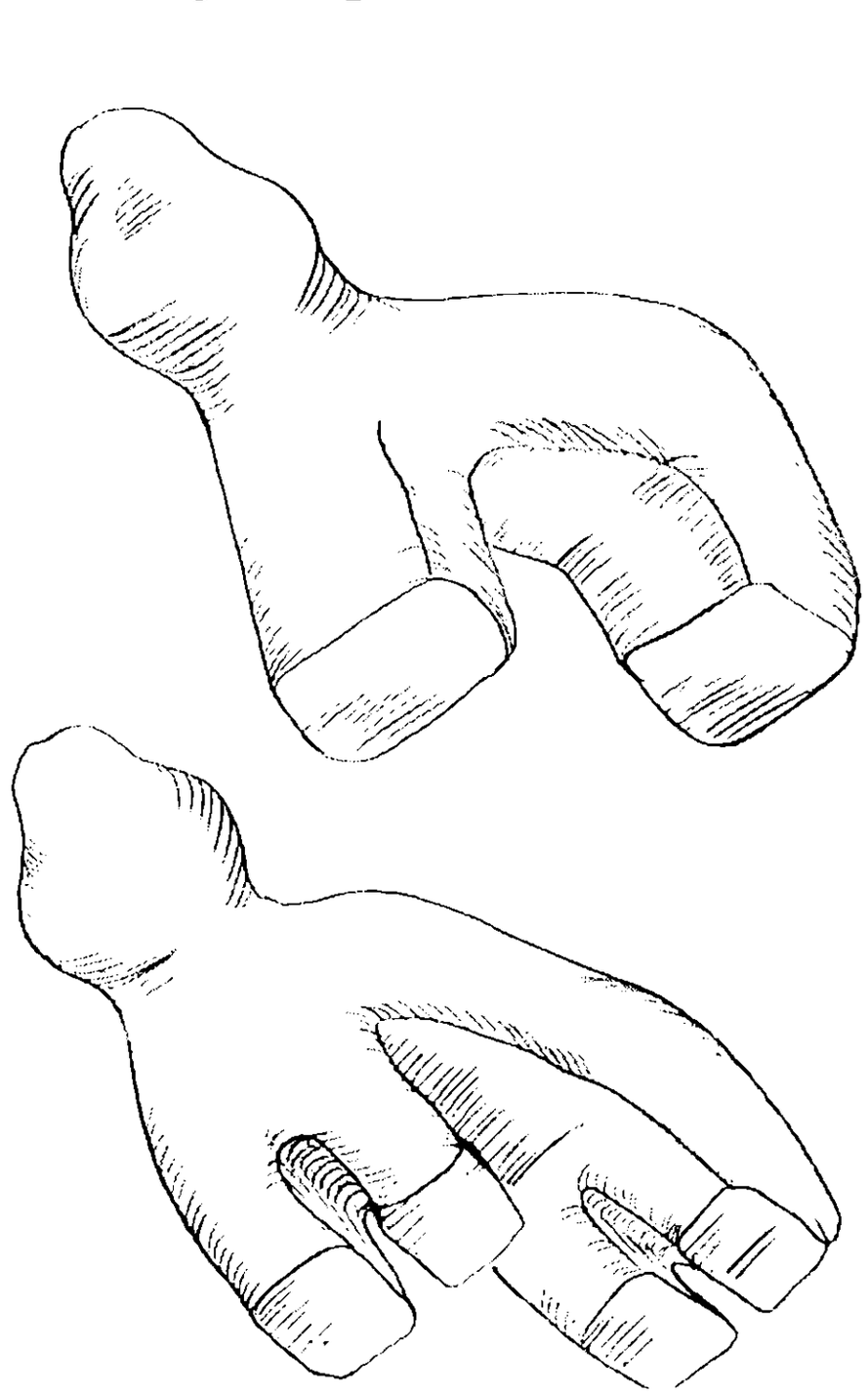
PROCEDURE

1. Wedge the clay thoroughly and form it into a ball.
2. Form the neck and head by pulling out part of the ball and squeezing to make a narrow neck and round head.
3. Pull out clay at the top of the head to form a ridge for the ears. Pull out a small, thick chunk to form a tail.

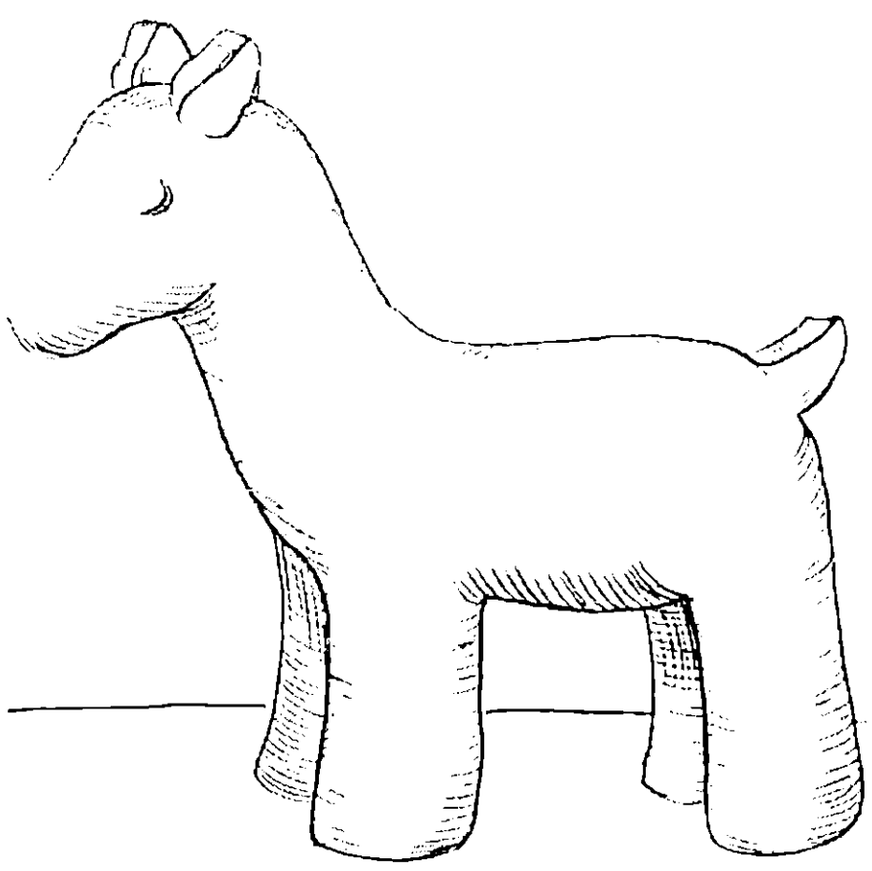




4. Turn the animal upside down in the hand. Do not squeeze out of shape by holding it too tightly. Divide the clay and pull out one chunk for the front legs and another chunk for the back legs.
5. Separate the front and back legs to make four legs. Keep them short and thick.

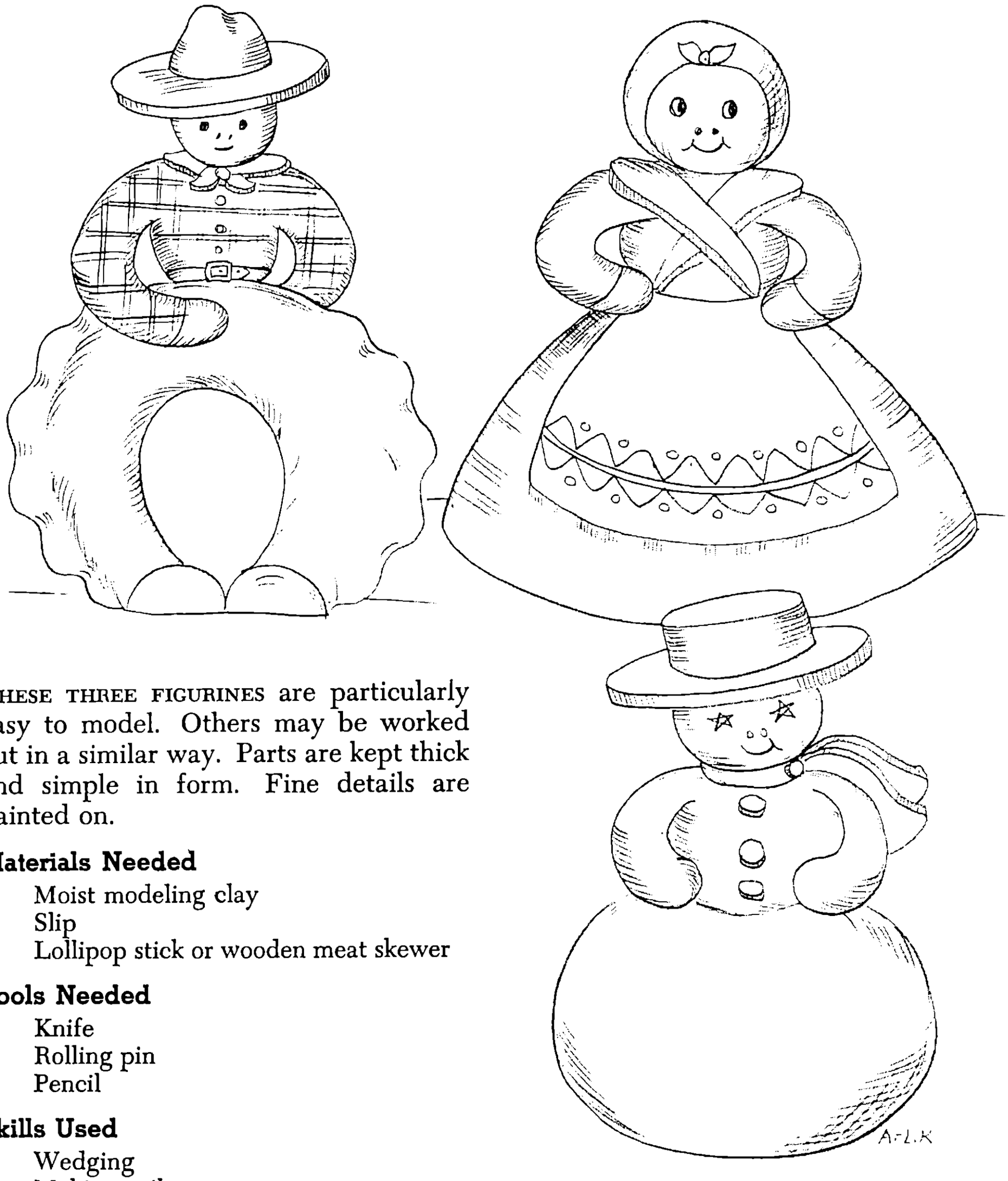


6. Turn the animal right side up. Add finishing details, forming the nose, eyes, and cheeks, rounding the haunches, and smoothing the surface.



7. Dry slowly. Cover the finished work with a moist cloth to prevent cracks. Clay pieces may be kept moist from day to day by putting them in a covered tin can.
8. Fire and glaze the animal if possible. If firing facilities are not available, use the show card color or enamel finish suggested on pages 138 and 139.

MODELING CLAY PEOPLE



THESE THREE FIGURINES are particularly easy to model. Others may be worked out in a similar way. Parts are kept thick and simple in form. Fine details are painted on.

Materials Needed

Moist modeling clay
Slip
Lollipop stick or wooden meat skewer

Tools Needed

Knife
Rolling pin
Pencil

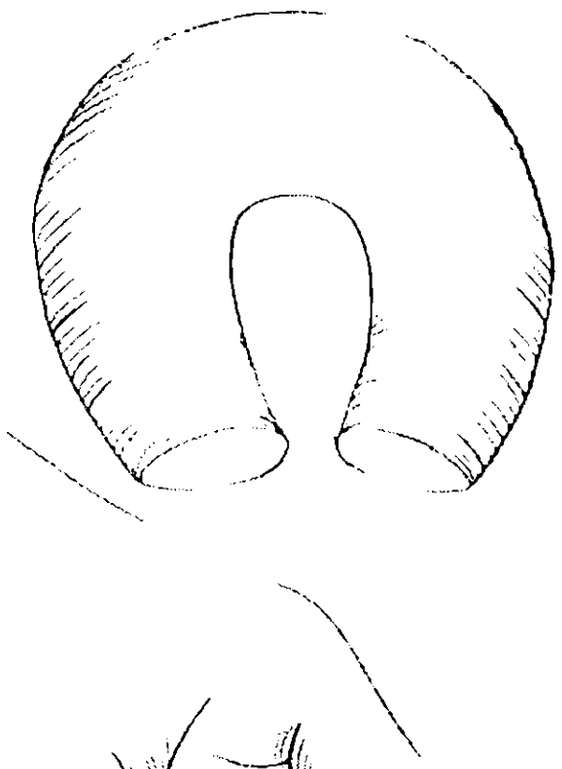
Skills Used

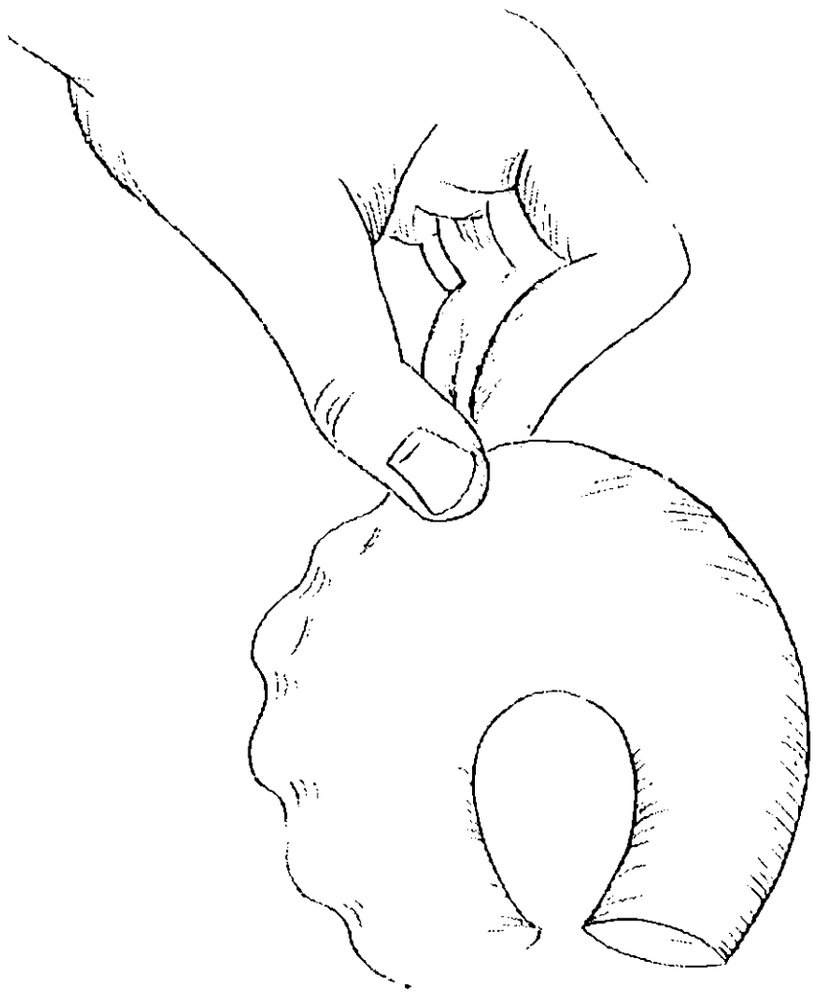
Wedging
Making coils
Making slabs
Cutting slabs to shape
Making balls
Fastening clay together with slip

PROCEDURES

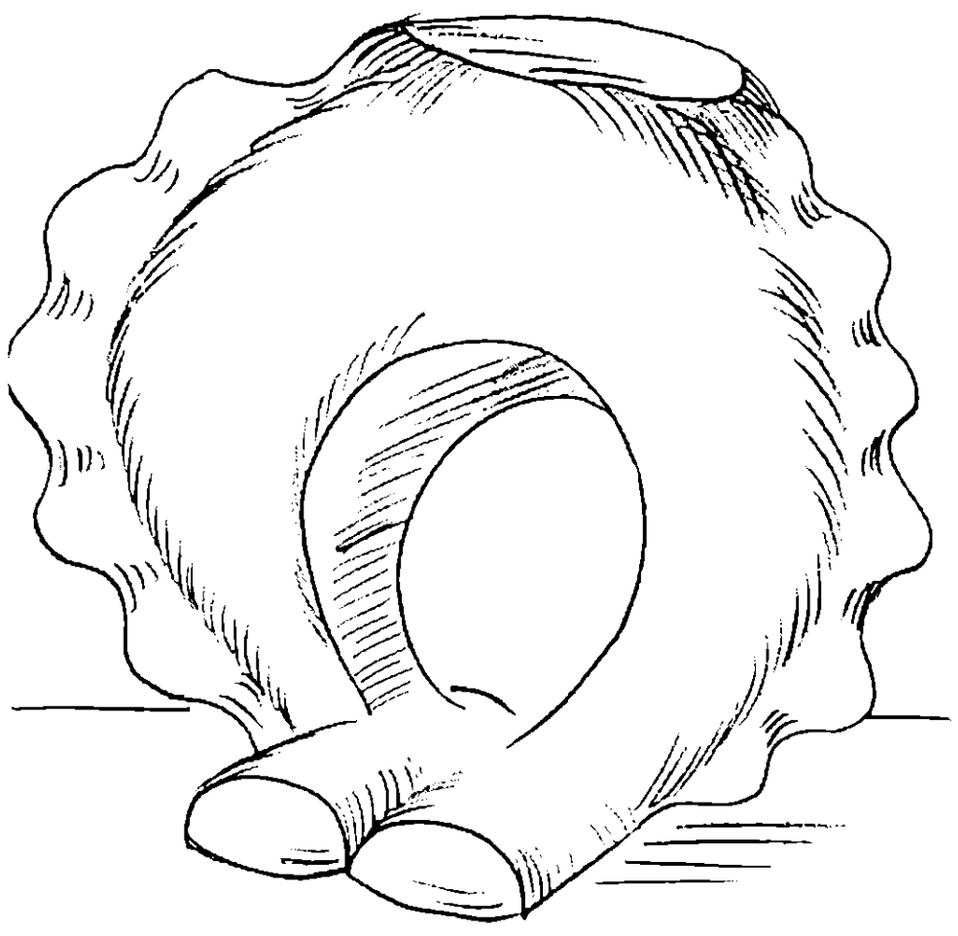
A Cowboy

1. Wedge the clay and roll it into a coil about 1″ thick and 6″ long.
2. Bend in a closed U-shape to make the bowlegged cowboy's trousers. Smooth out any cracks by filling with slip and rubbing with a moistened finger tip. Pinch along the outer edge to make the scalloped trim on the chaps. Do this in the same way you would pinch the crusts together on a pie. Keep the edge thick.

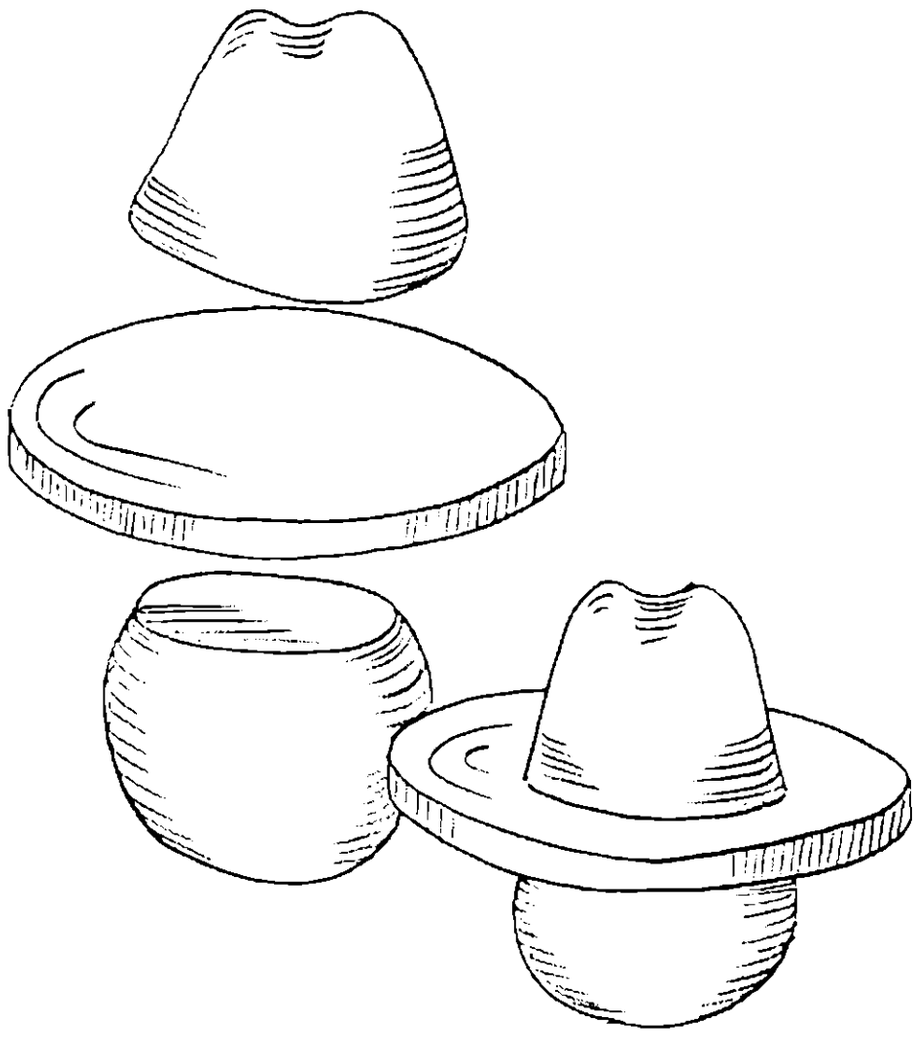




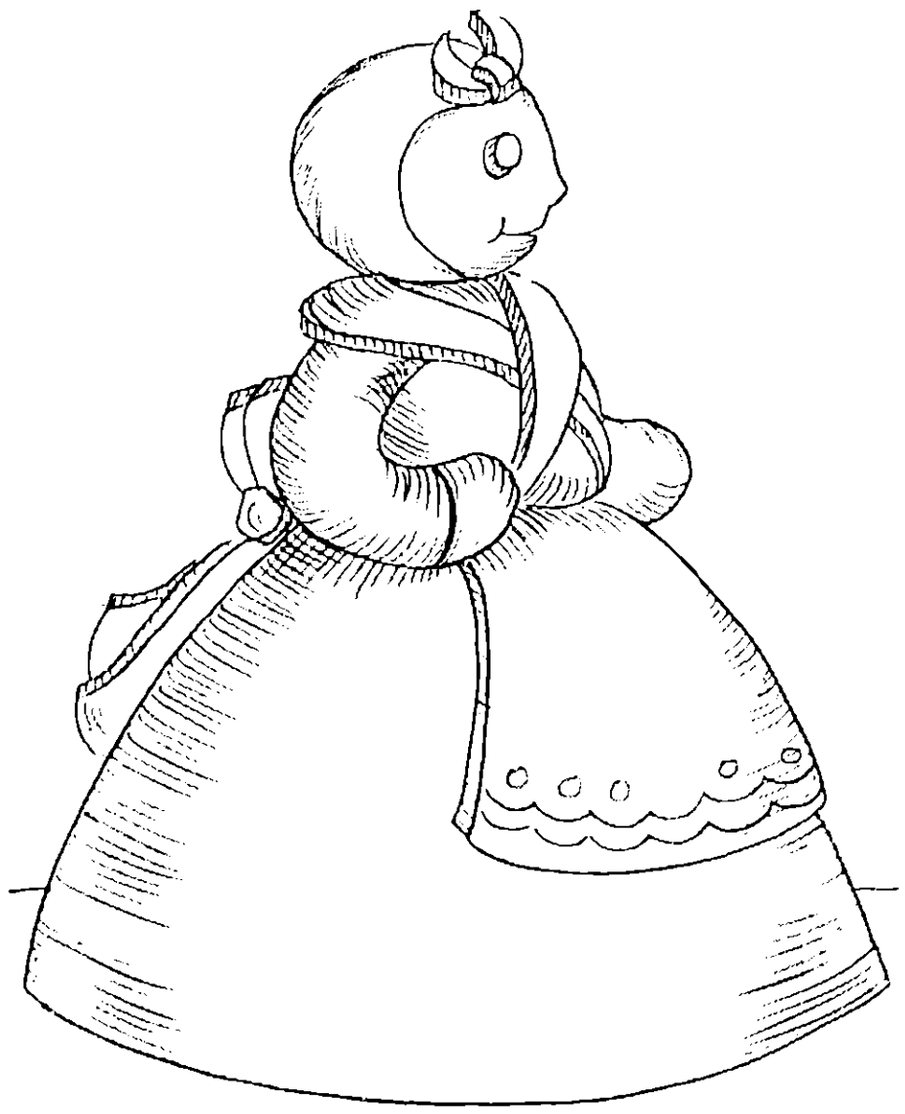
3. Make two big feet. Fasten the trouser legs to the feet by using the slip as a glue. Work the joint tightly together.



4. Roll out a ball for the body. Use slip to fasten the legs to the body.
5. Roll a smaller ball for the head. Cut off a slice at the top to make it flat for the hat. Fasten the head to the body with slip. Work the clay securely together.
6. Roll out a piece of clay 3⁄16″ thick. Cut the circular hat brim out of this piece. Roll a small ball and shape the top of it to make the crown of the ten-gallon hat. Slice off the bottom to make a flat surface. Fasten the brim to the head with slip. Fasten the crown to the brim with slip.

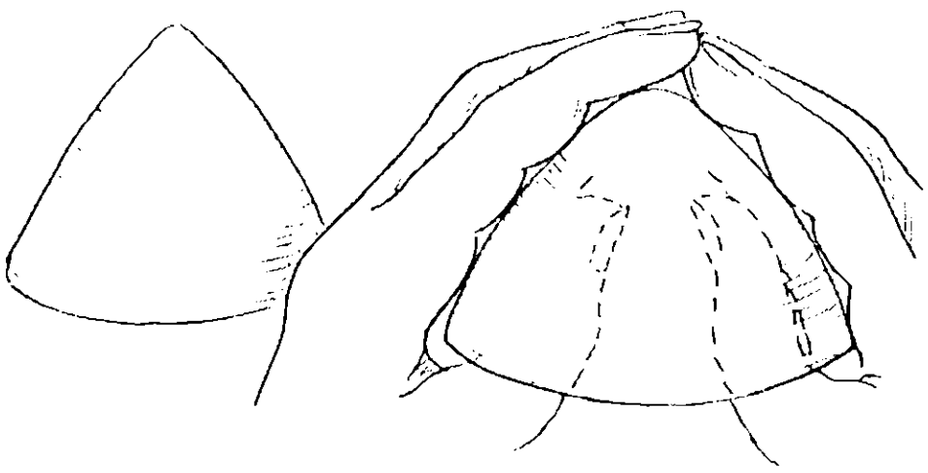


7. Roll out two ½″ coils for the arms. Work clay into body when fastening arms to shoulders. Bend coils so arms rest against the body. This lessens the danger of breaking.
8. Add details. A very thin slab may be rolled out and cut in a triangle to make the kerchief around the neck. Fasten this in place with slip. The knot may be made of a very small coil. Use the point of the wooden stick to mark a belt and hat band.
9. Smooth carefully with moist finger tips.
10. Dry slowly. Keep covered with a moist cloth, then with a dry one.
11. Finish with show card colors and shellac.

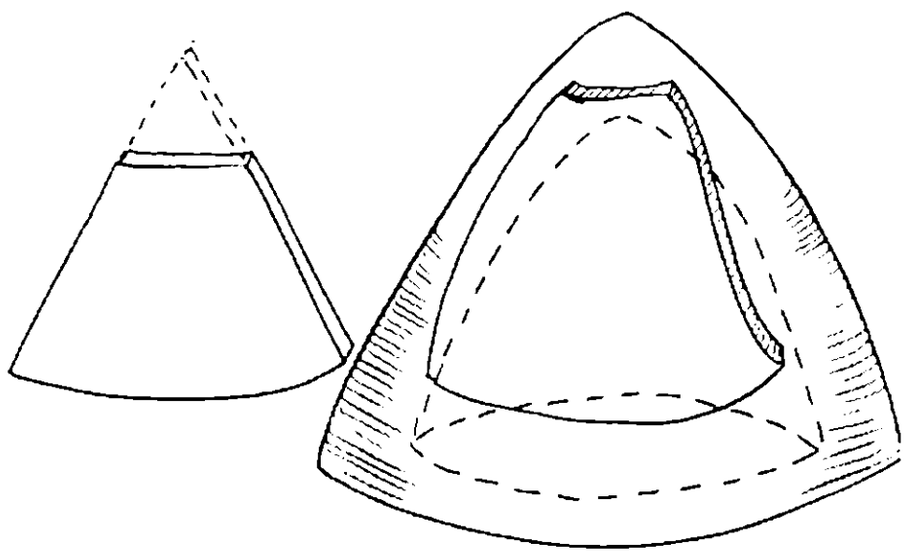


Aunt Jemima

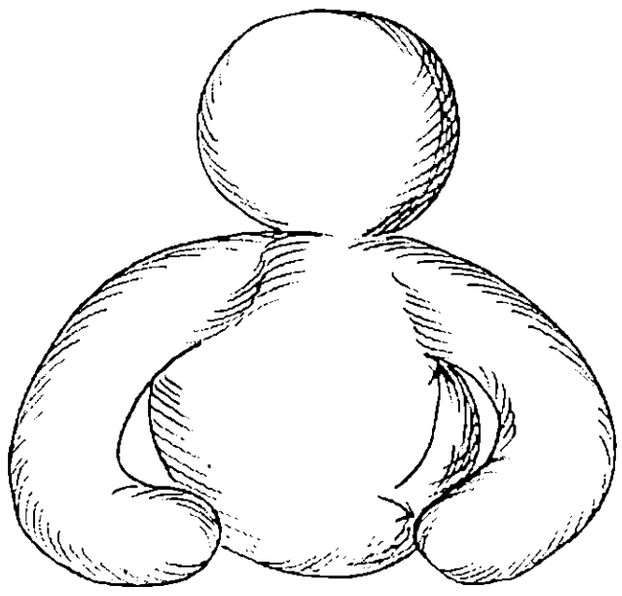
1. Wedge the clay.
2. Form a large solid cone for the skirt. Use the thumbs to push up inside the cone to make it hollow. Keep the walls ½″ thick.



3. Roll out a very thin slab of clay. Cut out a triangle for an apron. Cut off the top point. Fasten to the skirt with slip. Let one corner curl up.

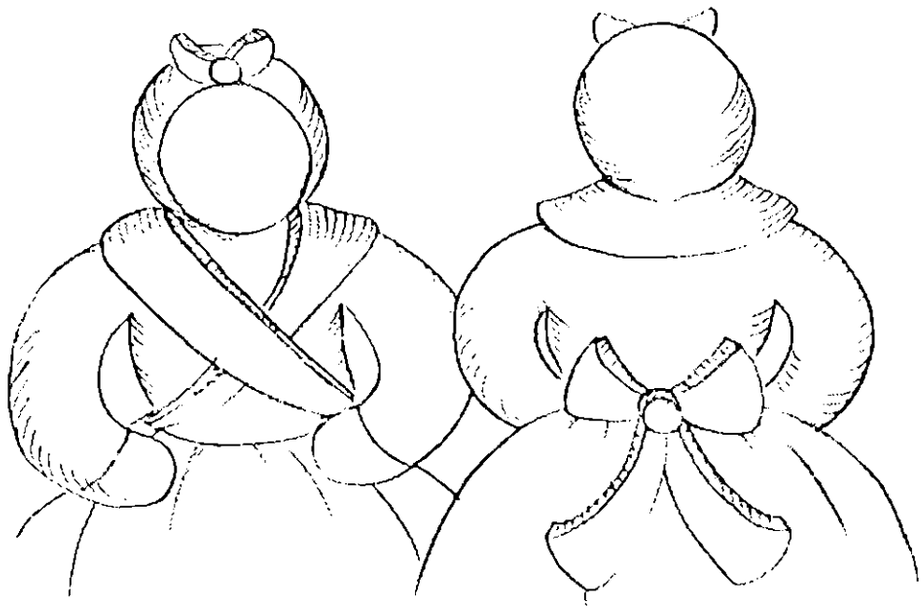


4. Roll a ball for the body. Slice off the top of the cone to make a flat surface for the body. Fasten the body to the skirt with slip.
5. Roll a smaller ball for the head. Fasten it securely to the body with slip.
6. Roll out ½″ coils for the arms. Fasten securely at the shoulders. Bend so that the hands will rest on the hips.

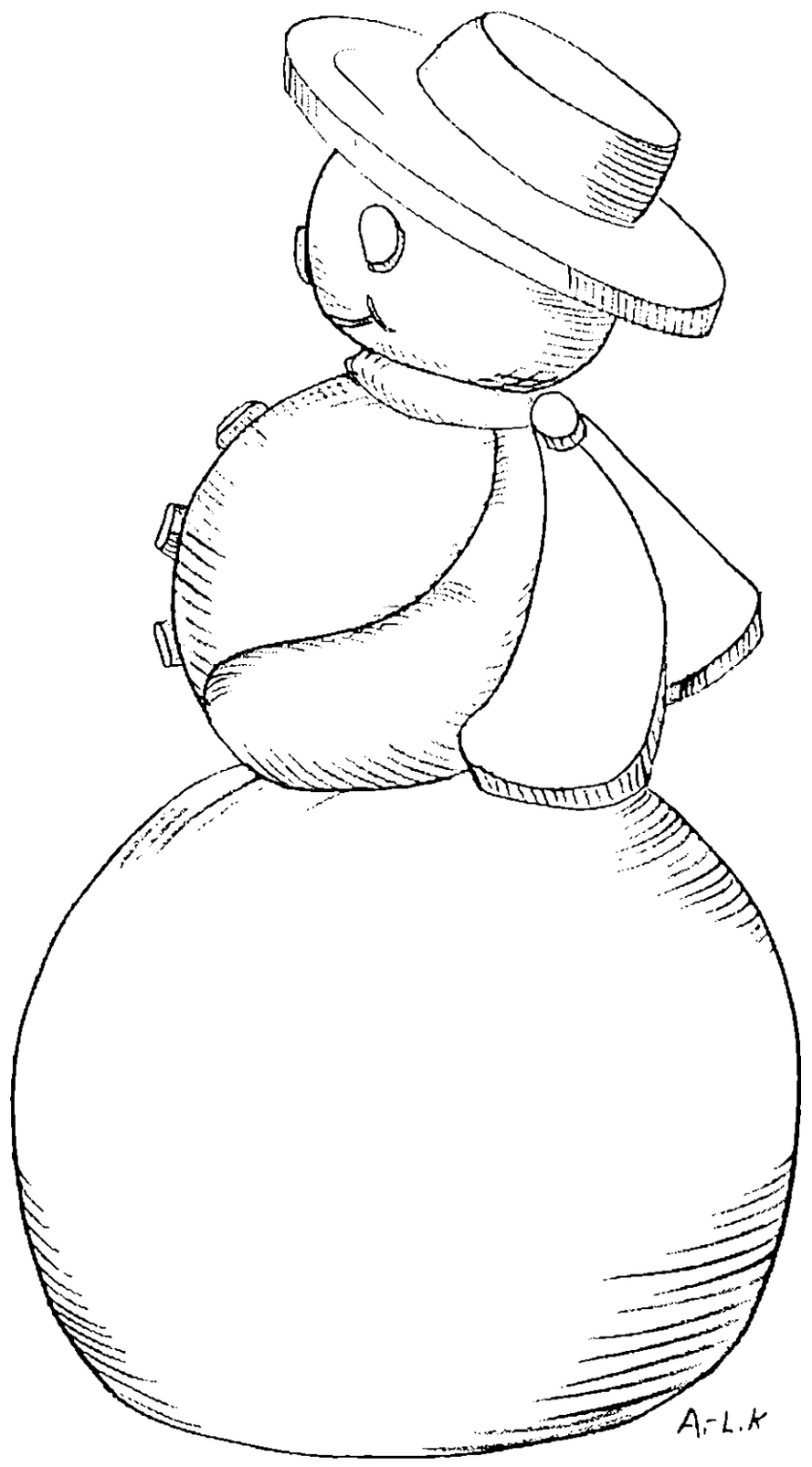


Fasten arms securely at both ends.

7. Add details. Roll out a very thin slab, about ⅛″ thick. Cut out a bow for the back of the apron and long narrow triangles for the crossed collar. Fasten on with slip. Make the knot on the front of the head from two very small coils. Mark the gathers in the skirt, the cuffs, and other details with a pointed wooden stick. Smooth with moistened finger tips.

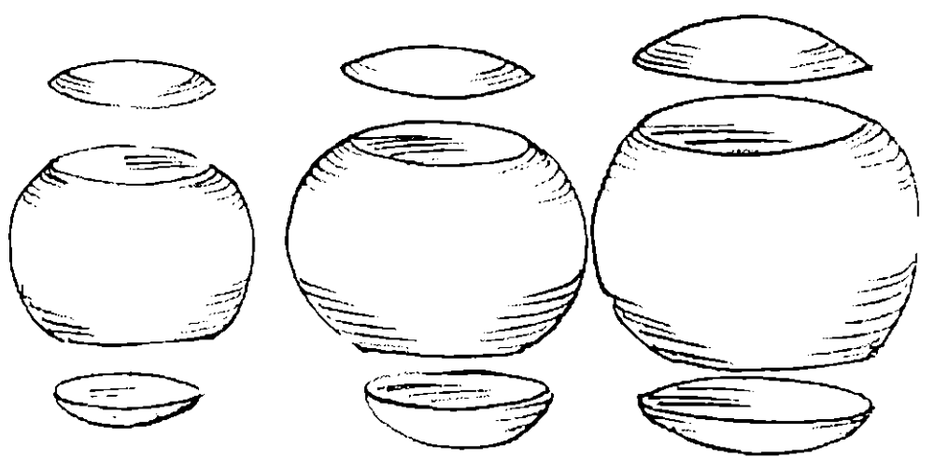


8. Dry slowly. Keep covered with a wet cloth, then with a dry cloth.
9. Paint with show card colors and finish with two coats of shellac.



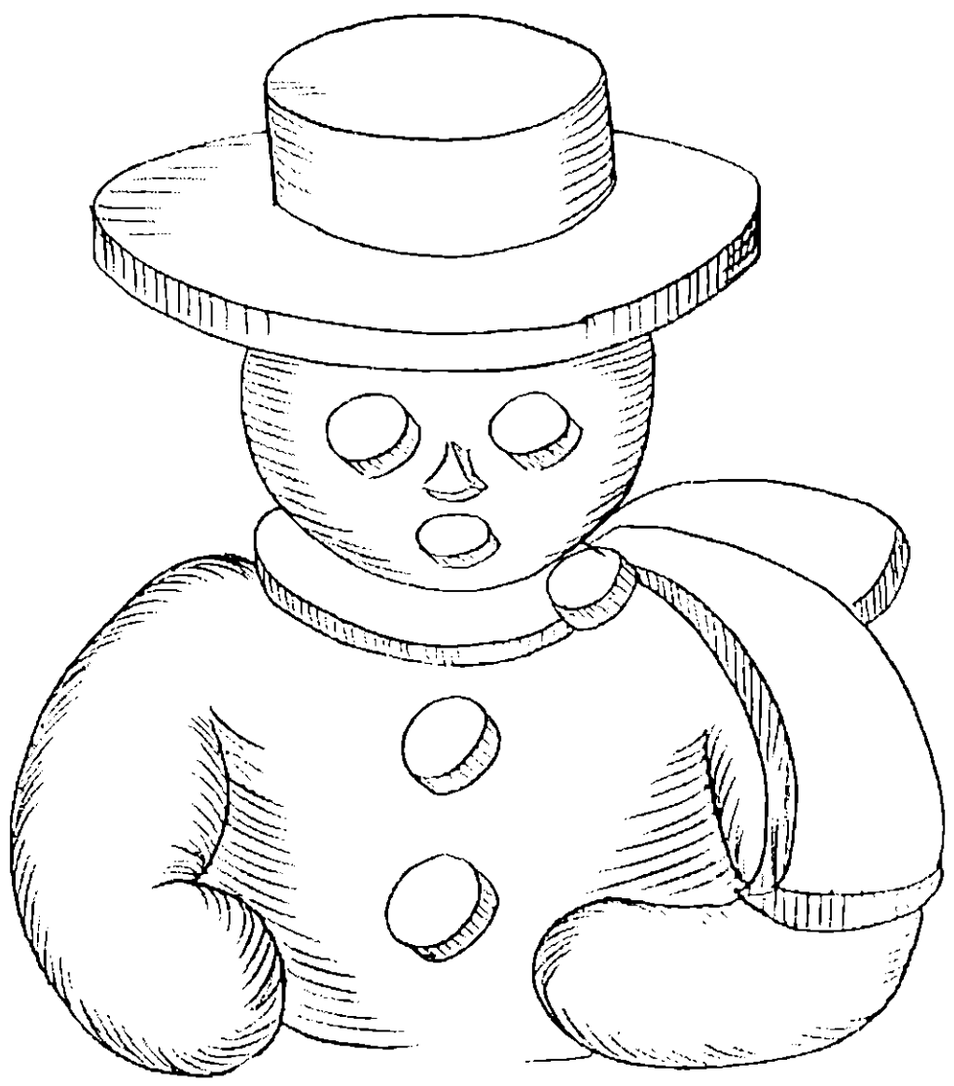
A Snowman

1. Wedge the clay.
2. Make three balls of clay, a large one for the body, a middle-size one for the body, and a smaller one for the head.
3. Cut a thin slice off the top and bottom of each ball. Rough up these flat surfaces with a knife. Use slip to fasten one ball on top of the other.



Snowman is made from three balls of clay.

4. Roll out coils for the arms. Fasten the coils securely to the shoulders. Bend the arms so that the hands rest on the hips and the arms lie close to the body.
5. Roll out a thin slab of clay. Cut out a circle for the hat brim. Fasten it to the top of the head with slip. Cut two small triangles of clay from the same slab. Use these for scarf ends and fasten them to the neck and arm and back with slip.
6. Roll a short, thick coil. Cut off a slice for the crown of the high silk hat. Rough up one flat surface with the knife. Use slip to fasten it to the hat brim.
7. Roll tiny bits of clay between the fingers to make little balls. Use the eraser end of a pencil to poke eyes, mouth, and buttons into the clay snowman. Fill the holes with slip and press the little balls into the slip-filled holes. Roll a small coil and wrap it around the neck for a scarf.



8. Smooth the entire figure with moistened finger tips.
9. Let the snowman dry slowly. Cover with a moist cloth. When the cloth dries, leave it draped over the snowman until the figurine is thoroughly dry.
10. Finish with show card colors and two coats of shellac.

MAKING AN INDIAN BOWL



THE AMERICAN INDIANS are skilled potters. From them we have learned the coil method of building a bowl or vase. This is the simplest method of making pottery. The potter's hands are his tools.

Materials Needed

Moist modeling clay

Tools Needed

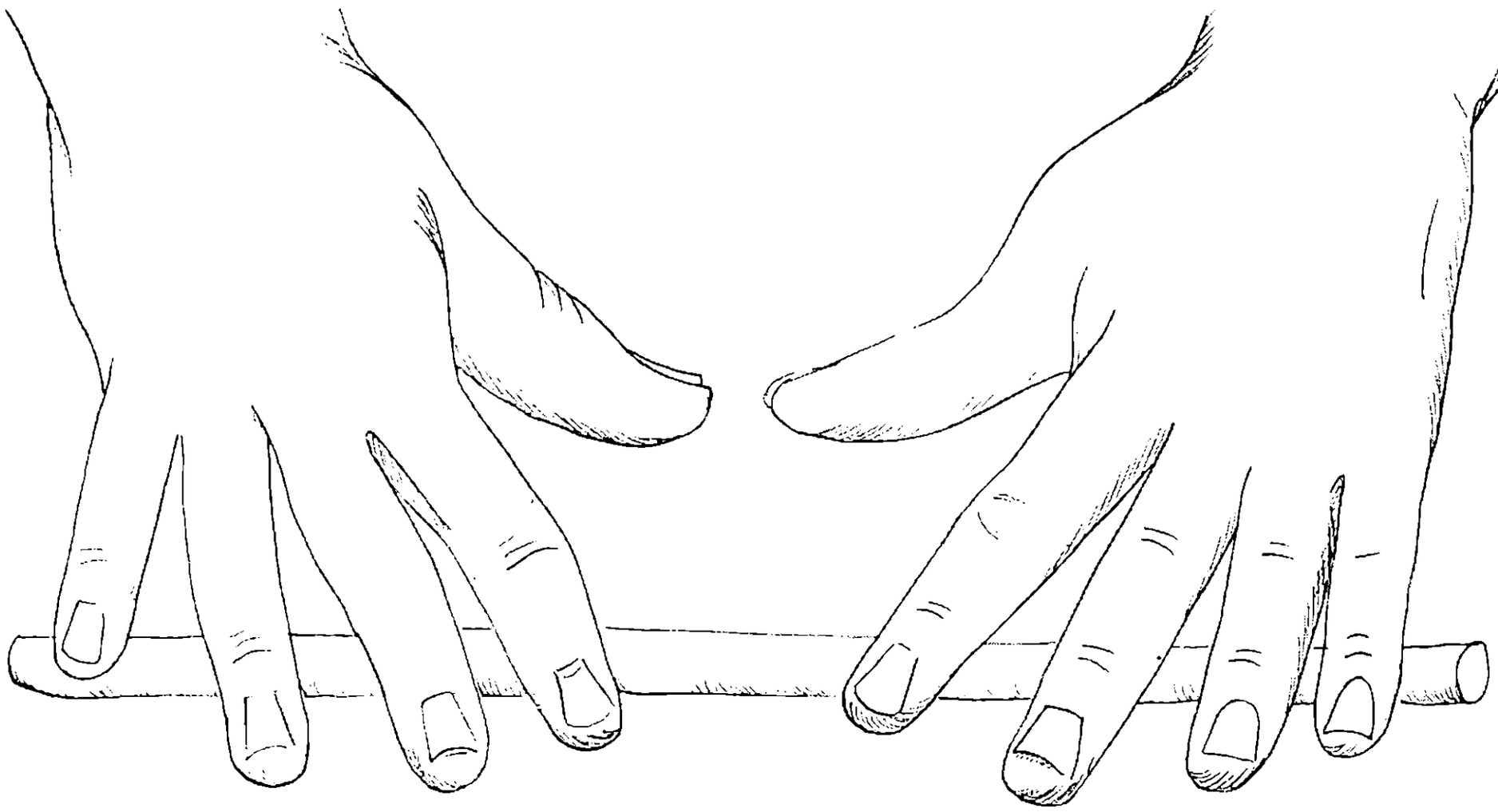
None

Skills Used

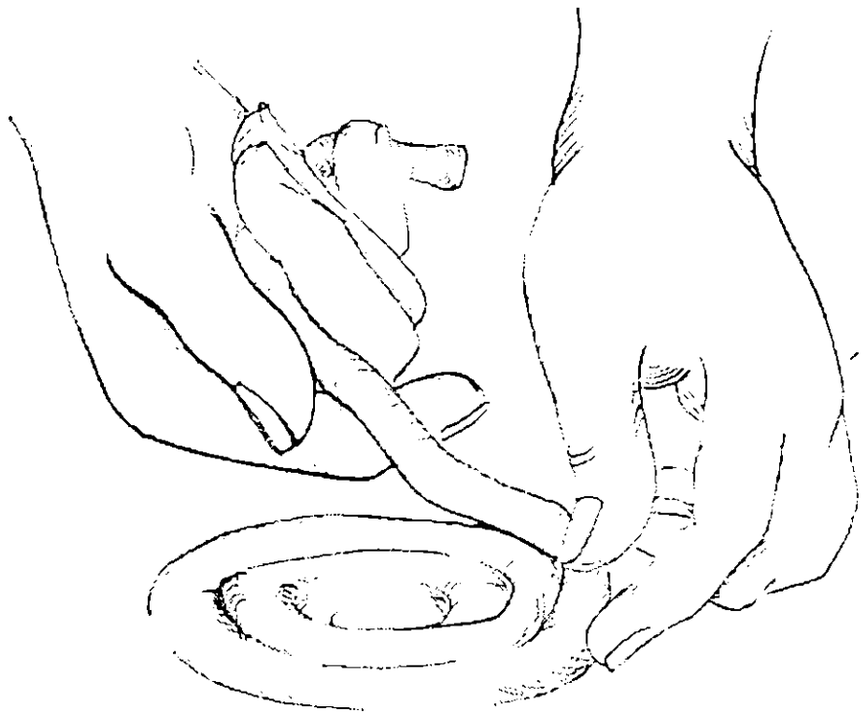
Wedging clay
Making coils
Welding coils
Forming a bowl

PROCEDURE

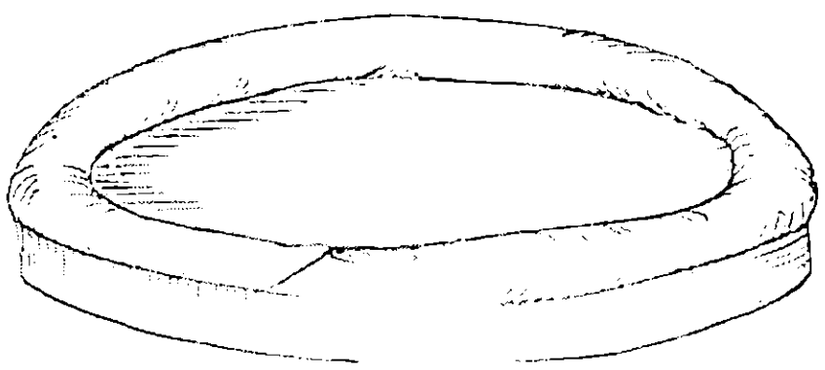
1. Wedge the clay thoroughly.
2. Make a coil of clay. To make a coil, break off a piece of clay about the size of an egg. Working on a nonabsorbent surface (linoleum, metal, marble, waxed paper), roll the piece of clay with the hands in the position shown. Roll the clay lightly under the hands, spreading the fingers far apart to cover as much of the coil as possible. Roll the coil out until it is about ⅜″ thick. Keep it uniform in size and as round as possible.



3. Cut a circle of cardboard the size of the base. Build the base on this circle. Start the coil in the center and wind it round and round itself until it is as large as needed. Cut off the extra clay. Smooth the top surface of the base. Turn the base over and smooth the bottom. Discard the cardboard circle.

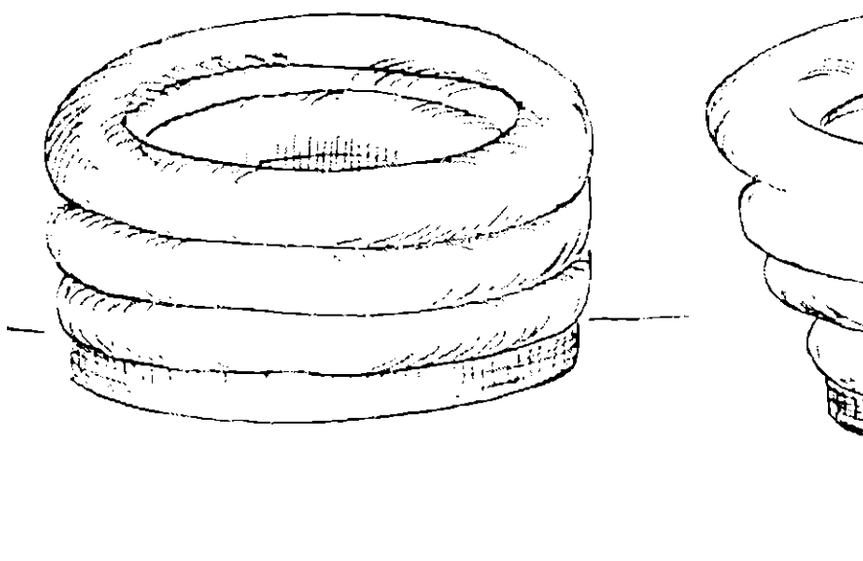


Coiling the base

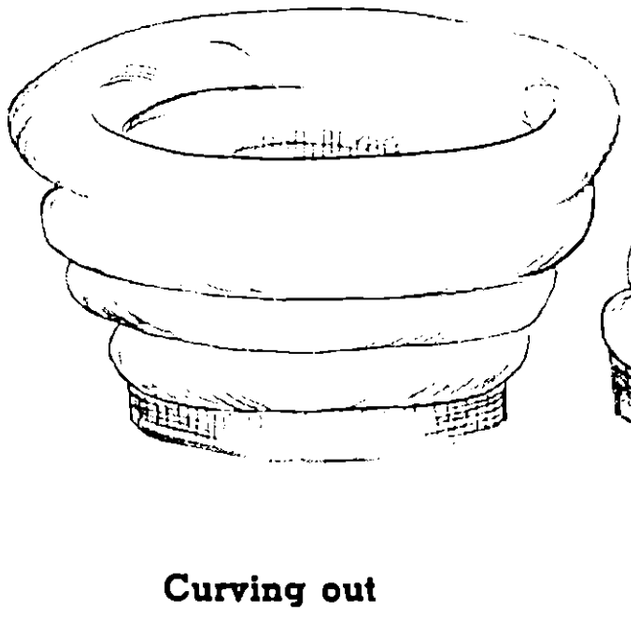


First coil of wall on base

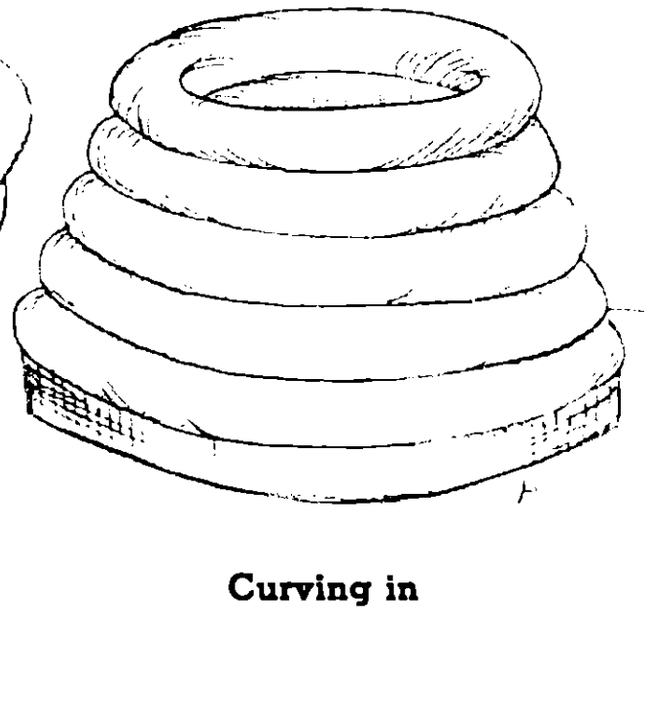
4. Build the walls. Make another coil. Cut off one end on a slant. Place the coil on top of the outer edge of the base. Bring it around and cut the other end of the coil off on a slant to fit against the first slanted cut. Add two or three more coils, making each joint in a different place.
5. After three or four rows the coils should be smoothed and fastened together. Holding one hand inside the bowl, use the forefinger of the other hand to smooth the coils. Work the clay from one coil up into the clay of another coil. Likewise, work the clay down into the coil below. When the first few coils are smooth add two or three more, repeating the smoothing process. To build straight walls, place each coil directly over the one below. To make the walls curve outward, place each coil on the outer edge of the one below. To make the walls curve in, place each coil on the inner edge of the coil below. Build with care. Unless each coil is strongly joined with the one below, there will be cracks or cave-ins.
6. Let the clay dry slowly. Keep covered with a wet cloth or with wet paper towels for the first day.
7. When the bowl is dry enough to handle, turn it upside down and hollow out the center of the base, leaving a rim around the edge. This makes the bowl stand straight and helps to prevent the bowl from drying out of shape.
8. Let the bowl become bone dry. Finish in one of the methods described on pages 138–141.



Straight walls

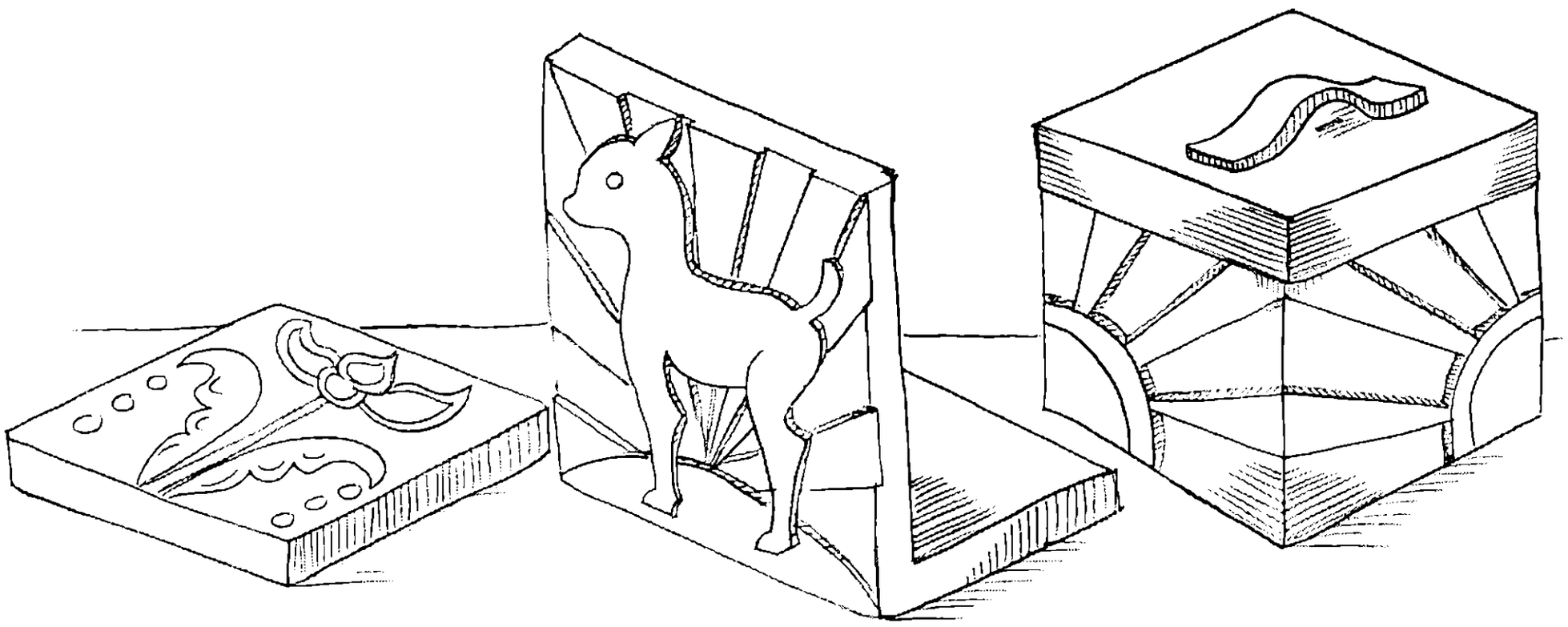


Curving out



Curving in

CERAMIC PIECES MADE OF SLABS



THESE CERAMIC PIECES are made of flat slabs of clay. Rolling out the clay is an easy operation. Welding the seams thoroughly is the most difficult step in making pottery in this way.

Materials Needed

Moist modeling clay
1 pc. ¼″ Plywood, 7″ x 10″
2 strips Wood, ⅜″ x ⅜″ x 10″
Slip
⅝″ No. 19 Brads
Glue

Tools Needed

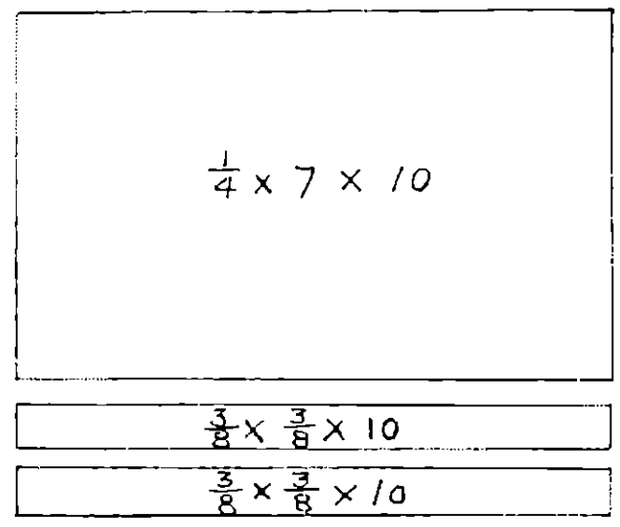
Rolling pin, round bottle, or heavy dowel rod
Knife — paring knife or sloyd knife
Hammer

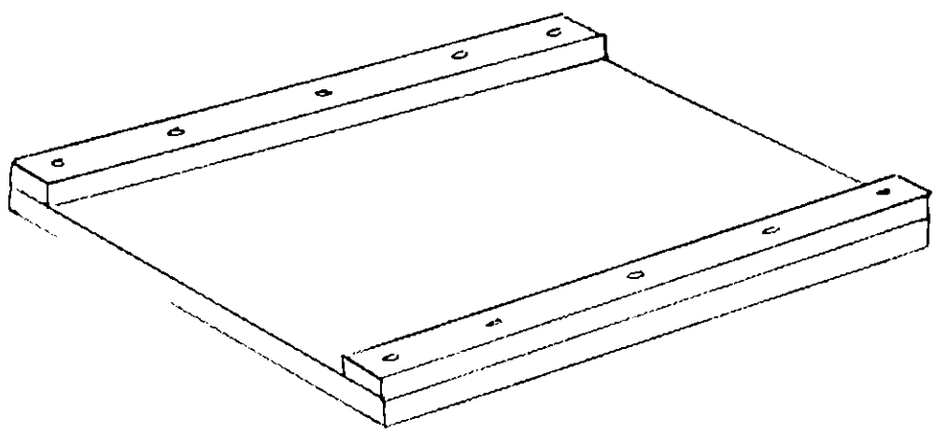
Skills Used

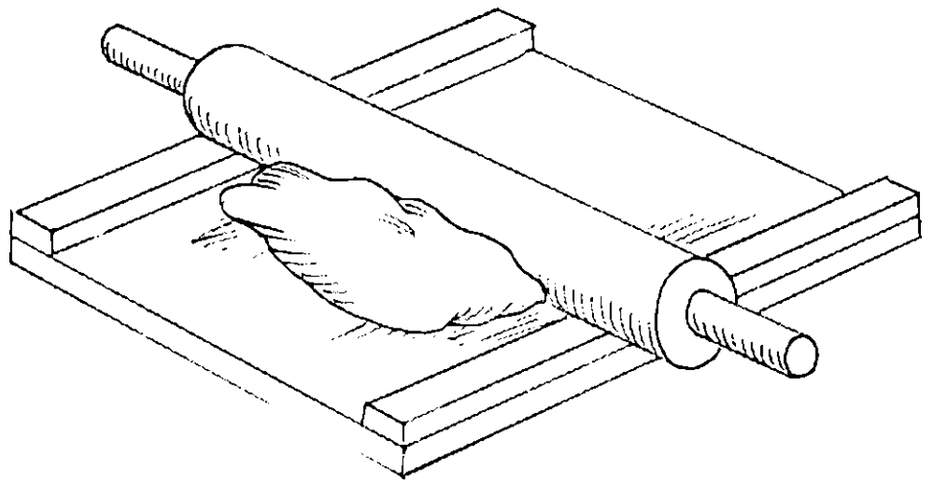
Nailing strips of wood to plywood
Wedging clay
Rolling clay into slabs
Cutting slabs
Joining slabs

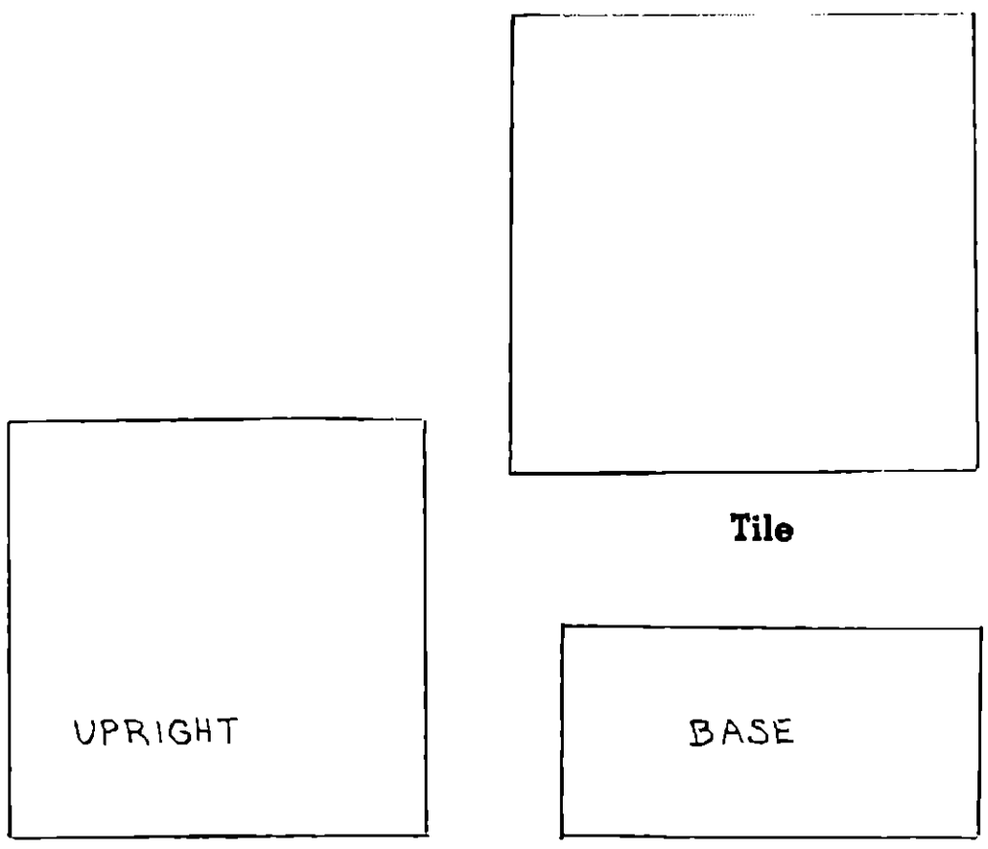
PROCEDURE

1. Make a slab frame. Nail and glue the two strips of wood along the top of the 10″ sides of the piece of plywood.
2. Wedge the clay.
3. Roll a slab. Take a ball of wedged clay and place it on the slab frame between the sticks. Roll the clay out with a rolling pin, leveling the clay down to the height of the sticks. Keep the rolling pin up on the strips on both sides of the frame.



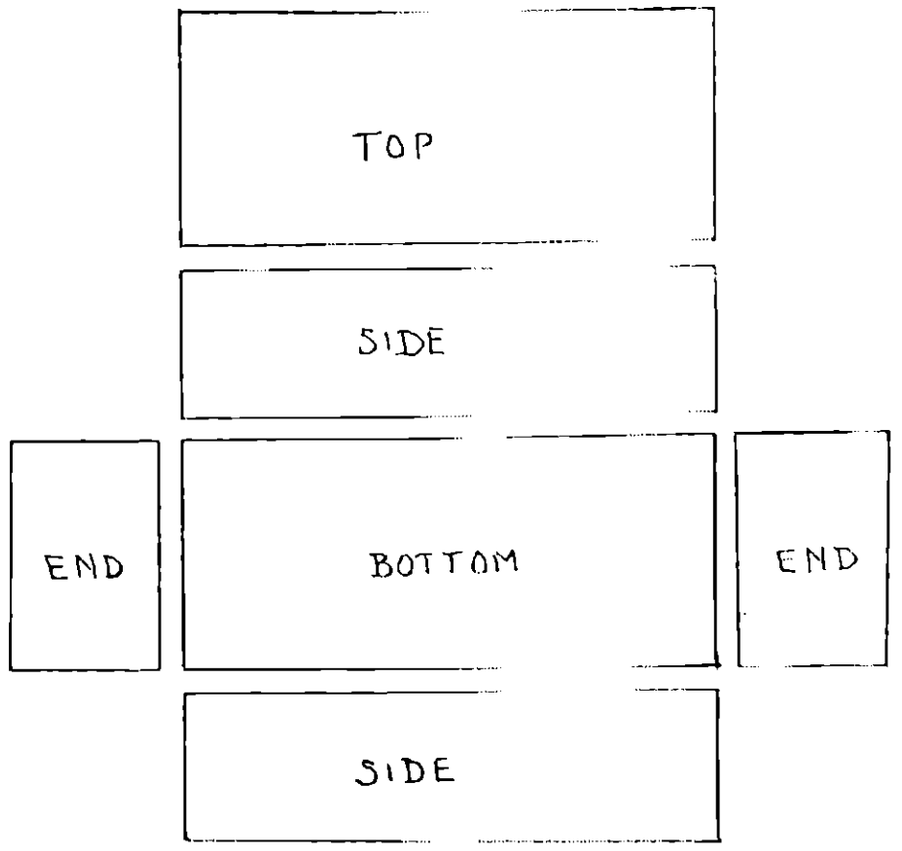






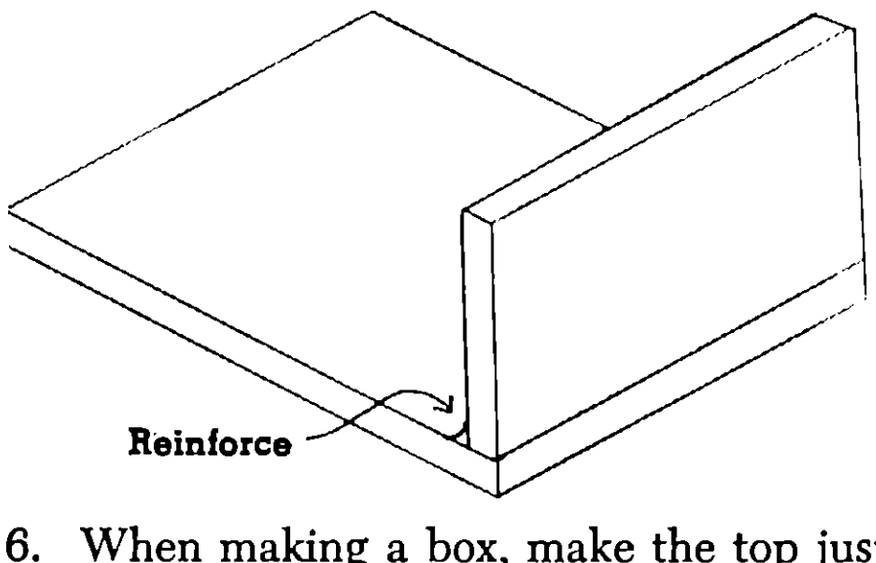
Book end

Tile

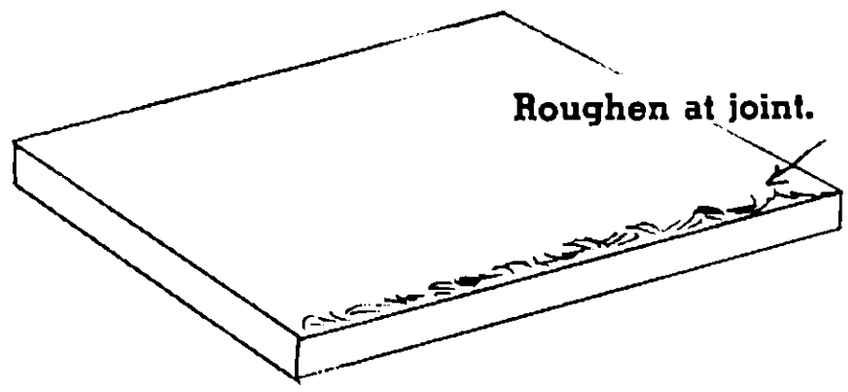


Box

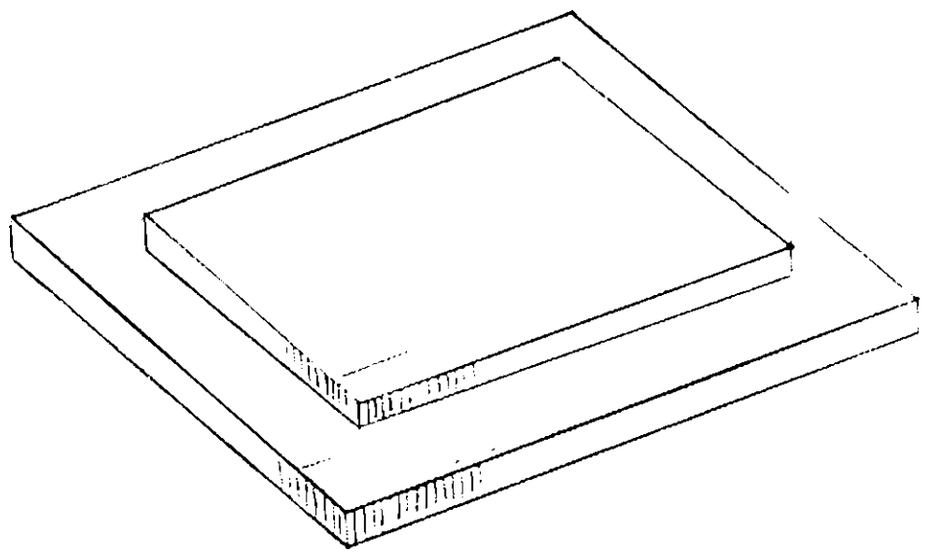
4. Cut out the slab. Children will do best if they cut around a cardboard pattern. Place the cardboard pattern on the rolled-out clay and cut around it with a knife. One slab is needed for a tile — 5″ x 5″ or 6″ x 6″ are good sizes. Two slabs are needed for a book end — one 5″ x 5″ and one 3″ x 5″. Six slabs are needed for a box — two for the top and bottom, two for the ends, and two for the sides.
5. Join the slabs. One slab overlaps the edge of another. Roughen the edges that are to be joined by making little nicks in them with a knife. Put a coating of slip over the roughened edge. Place



6. When making a box, make the top just a little larger than the exact measurements. After the clay is dry, the top may then be sandpapered down to an exact fit. The box top should be undercut so that one part fits down into the box.

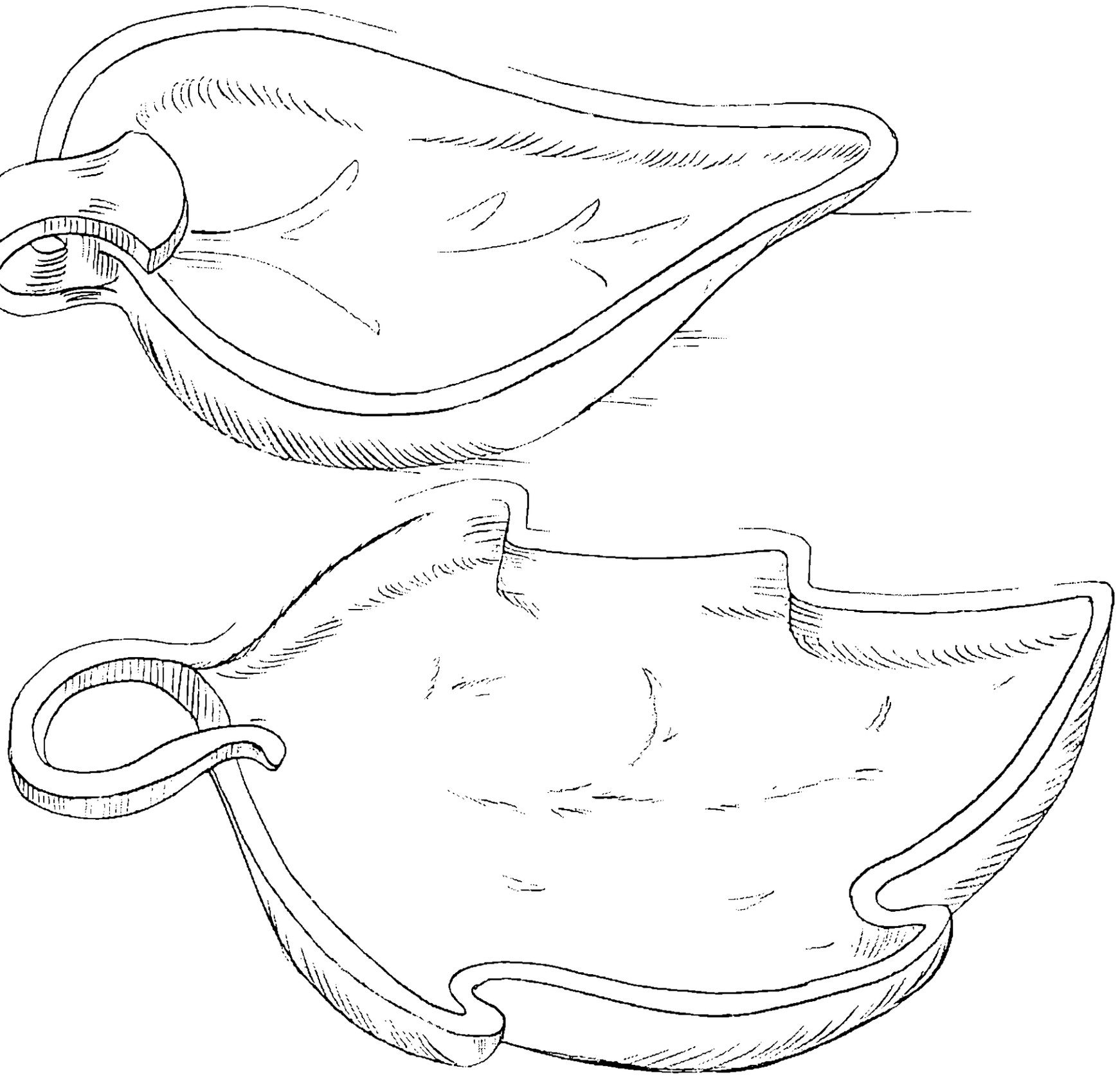


the side onto the base and weld the two pieces firmly together. To make the joint even stronger, roll out a very thin coil and place it along the inside of the joint, welding it firmly in place. These joints must be very carefully and strongly made or cracks will form as the clay dries.



7. Dry the finished pieces slowly.
8. Finish with one of the methods described on pages 138–141. Firing and glazing would be the most desirable method for these projects.

LEAF TRAYS



THIS PROJECT WILL delight the children, for they can make surprisingly fine leaf trays following this simple method. Basically, a slab is used, but there is some hand forming. These trays should be fired if made of the buff modeling clay. Those made of Mexican self-hardening clay may be enameled.

Materials Needed

Moist buff modeling clay or Mexican pottery clay
Large leaf from a tree — sycamore, catalpa, oak, maple, tulip
Fruit dish, sauce dish, or low soup dish approximately the size of the leaf

Tools Needed

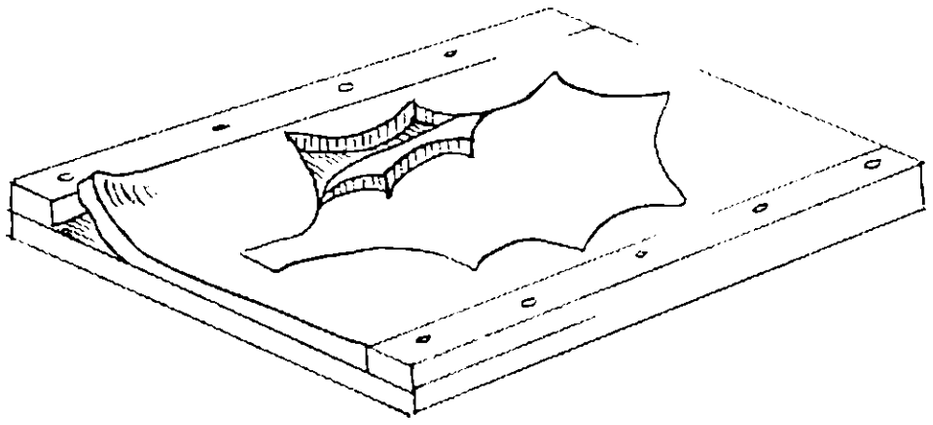
Rolling pin or thick dowel rod
Slab frame with ¼″ strips (see page 150)
Knife — sloyd or paring knife
Small wooden stick — lollipop stick or meat skewer

Skills Used

Rolling slab of clay
Cutting slab to form
Shaping clay
Carving clay

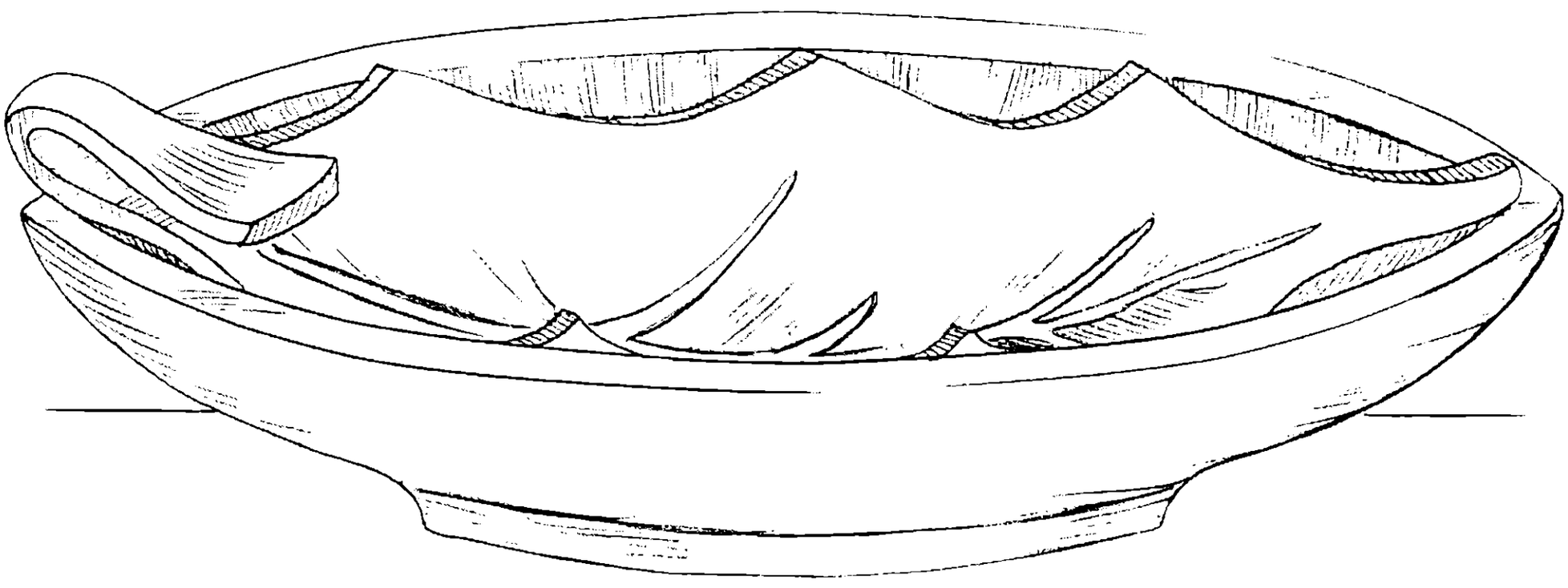
PROCEDURE

1. Wedge the clay thoroughly.
2. Roll out the clay. Place the ball of clay on the slab frame as described on page 150. (Use ¼″ sides on the slab frame for this project.) Roll out the clay with a rolling pin until it is smooth and the desired thickness.



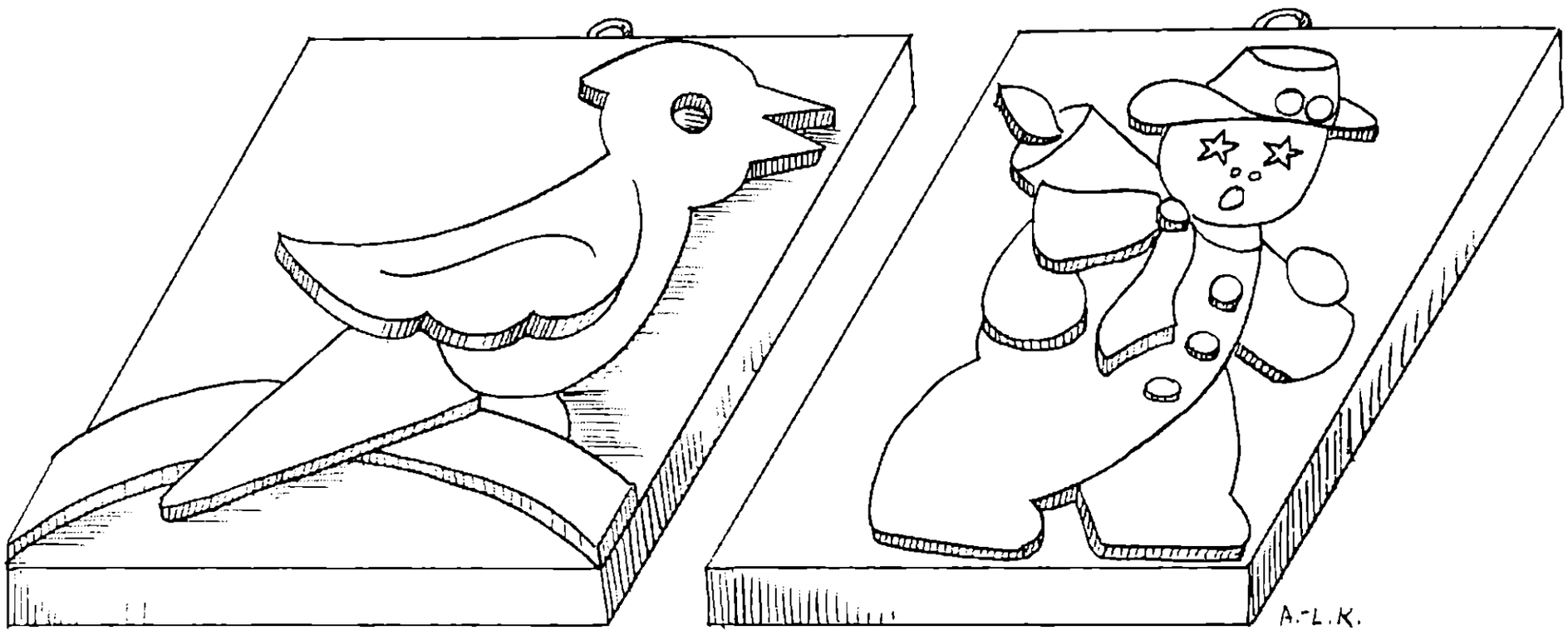
Cutting out the clay leaf

3. Cut out the leaf. Place the leaf on the slab of clay and cut around it with a knife. Cut the stem much wider than the actual leaf stem, making it at least ⅜″ wide. Remove the excess clay around the leaf.
4. Mold the leaf in a dish with turned up edges. Use a knife to loosen the clay leaf from the slab board. Run the knife in under the leaf, being careful not to cut into the clay. Place the clay leaf in the dish. Press it lightly against the bottom and sides of the dish. The clay leaf remains in this dish until dry.
5. While the clay is still moist, use a wooden lollipop stick or meat skewer to mark the veins in the leaf. Follow the veins in the original tree leaf. A shallow, wide cut for the vein is best. Deep, sharp cuts may cause the clay to crack as it dries.
6. Smooth the edges before the clay sets. Moisten the finger tips with water and lightly smooth all the edges of the leaf, rounding off any sharp corners or edges made by the knife. Avoid using more water than necessary.
7. Finish the stem. The stem may be curved around to make a handle. This must be done while the clay is still moist. The edges should be rounded. If cracks develop in the clay as the stem is bent, work slip into them until they are thoroughly closed. Make a little slip by mixing water with bits of the discarded clay. Rub water and clay together until the mixture is like thin mud. Rub this into the cracks.
8. Dry the leaf slowly to prevent cracking. Cover the dish with a wet cloth. Sprinkle the cloth with water when it dries out. Repeat this two or three times. Then leave the dry cloth over the dish as the clay continues to dry slowly.
9. Apply the finish. If you have a kiln, this is one project that should be fired. If no kiln is available, use the enamel finish suggested at the beginning of this chapter.



After the clay leaf has been placed in a shallow dish, it is pressed lightly against the sides and bottom of the dish. The clay leaf is left in the dish until it is dry.

PLASTER PLAQUES FROM PLASTER MOLDS



THIS PROCESS IS used when duplicate pieces are to be made. It is a good introduction to the plaster casting of bowls, cups, vases, or figurines.

Materials Needed

Moist modeling clay
Plaster of Paris
Large screw eye
4 pcs. Strip lumber (any kind), ¼″ x 2″ x 12″
Vaseline
Shellac
Sandpaper

Tools Needed

Rolling pin
Knife

Skills Used

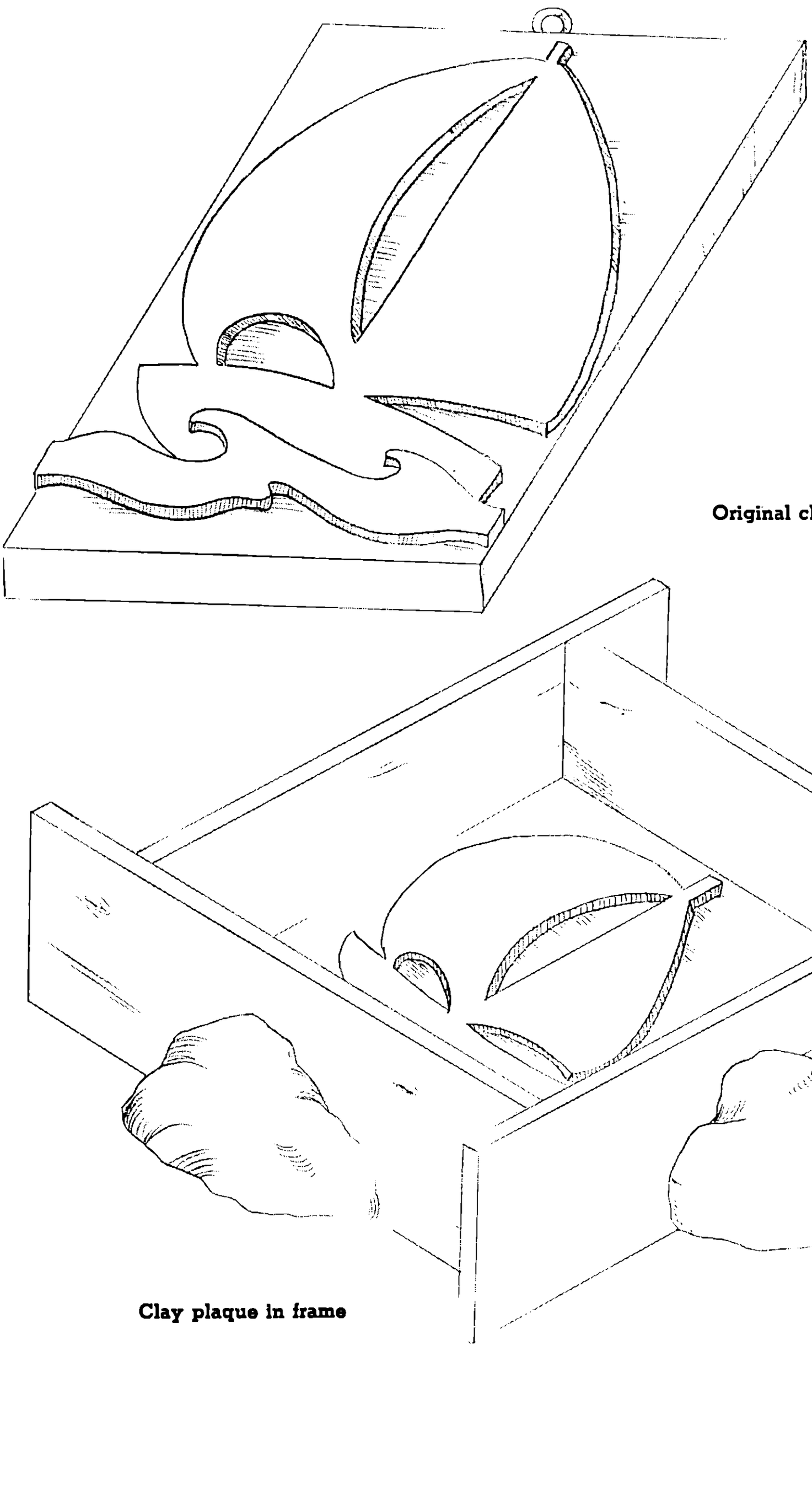
Rolling a slab
Carving clay in relief
Mixing plaster of Paris
Making a mold
Using a mold

PROCEDURE

1. Roll out a lump of clay until it is long enough and wide enough to cut out the size square or rectangle desired for the plaque. For beginners, make small plaques 4″ x 6″, 6″ x 6″, or 5″ x 5″. Keep the clay about ¾″ thick. Trim the rolled clay to size, and shape with a knife.
2. Draw a simple flower, animal, bird, boat, or fish design on the clay. This may be done with a pencil or pointed stick. Cut away the background, leaving the design raised. Cut to a depth of ¼″. Round off the edges with a moistened finger tip. Parts of the design may be raised by adding clay. Other parts may be carved a little lower.
3. With strips of wood, build a frame around the clay plaque. Place the clay on an old drawing board, a heavy piece of cardboard, linoleum, or oilcloth. Hold the strips of wood in place with lumps of clay or with four bricks.
4. Mix the plaster of Paris. Use two parts of the plaster of Paris to one part of water. Pour the soft plaster over the clay immediately. The plaster dries quickly; therefore it must be used at once. Let the plaster harden.
5. Remove from the frame and clean the clay away from the plaster mold. Wash the plaster mold clean. Let it dry overnight. Then give it a coat of shellac. Let the shellac dry.
6. Use the mold to make a tile. Frame the mold with the strips of wood as in step 3. The designed surface of the mold should be face up. Grease the mold with vaseline. This will prevent sticking. Mix another batch of plaster of Paris and pour it into the mold. Use enough plaster to make the plaque at

least ½″ thick. When the plaster is almost dry, remove the board at the top of the mold and insert a large screw eye in the center of the top. When the plaster is completely dry, remove the plaque from the rest of the mold.

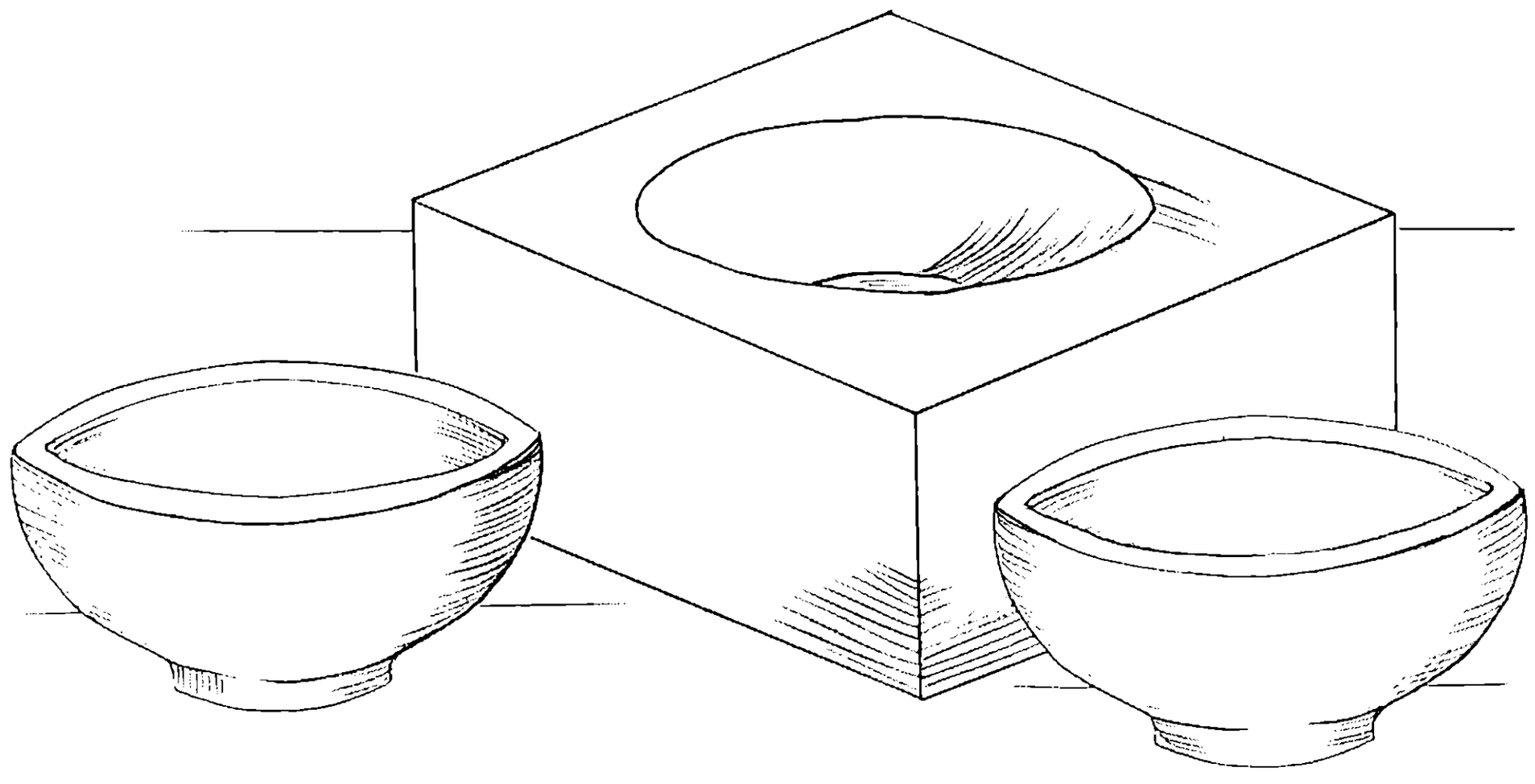
7. Finish the plaque. Slight imperfections may be sandpapered. Use show card colors to paint the plaque. Finish with two coats of shellac.



Original clay plaque

Clay plaque in frame

CASTING WITH SLIP



Original bowl **Plaster mold** **Bowl that was cast**

BOWLS, VASES, TUMBLERS, and simple figurines may be accurately copied in clay by making a plaster cast of the original piece and then using that cast as a mold. This is one method used in potteries today. To make a simple, one-piece mold, choose a bowl, the profile of which makes less than half a circle and has no undercuts. A small mixing bowl might be used.

Materials Needed

Small bowl — shaped as described above
4 pcs. Wood, ¼″ thick, 12″ long, and 1½″ wider than the bowl is high
4 Bricks or stones of that size
Plaster of Paris
Liquid soap
Slip
Small sponge

Tools Needed

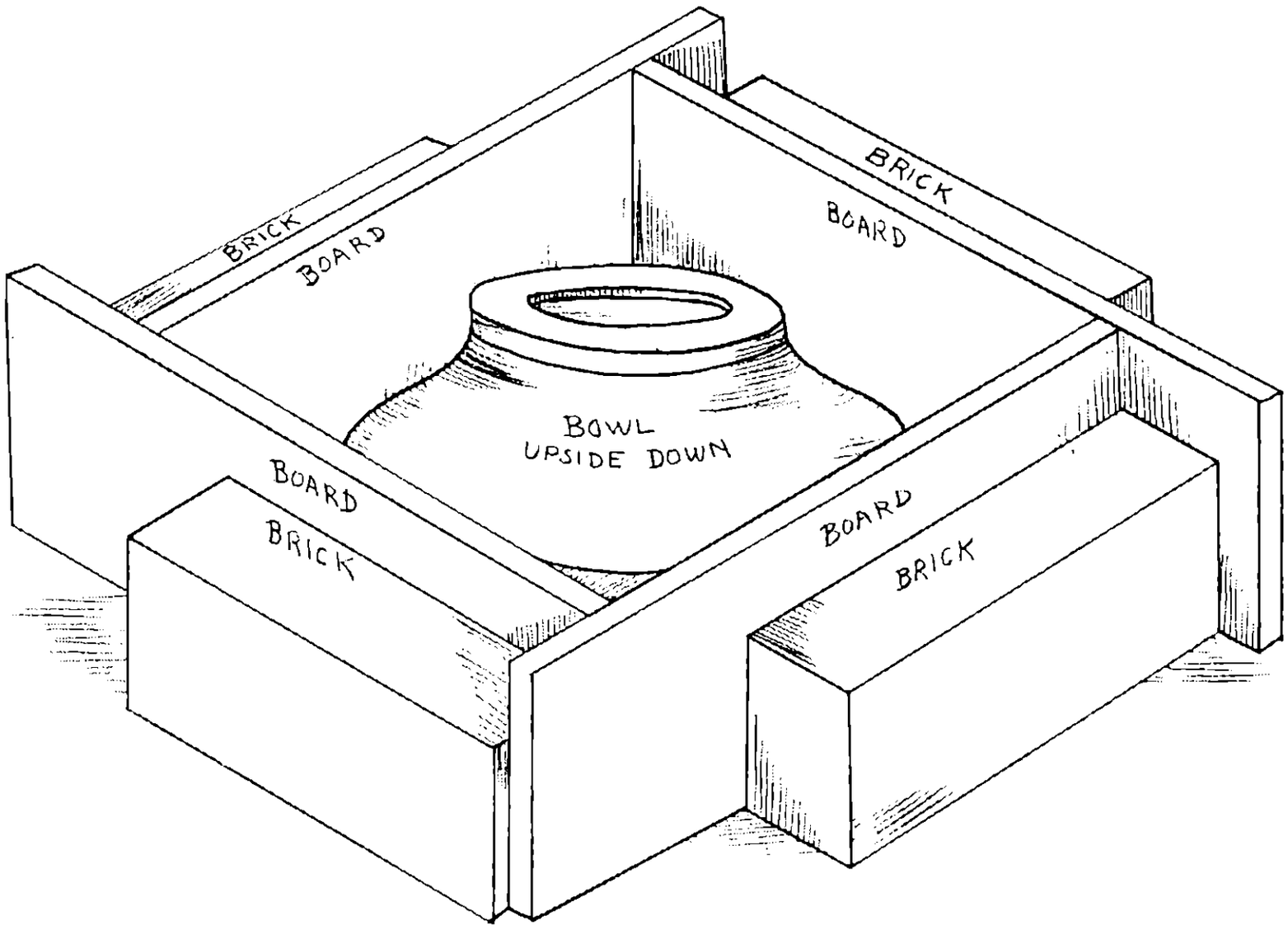
Knife

Skills Used

Making a mold
Forming a frame without joints
Casting a bowl with slip

PROCEDURE

1. Build a frame. Place the bowl upside down on an old piece of linoleum, congoleum, or heavy cardboard. Build the frame about 1½″ away from the sides of the bowl. Use the four bricks to hold the frame in place.
2. Brush liquid soap over the outside of the bowl, over the inside walls of the frame, and over the linoleum around the bowl top.
3. Mix two parts of plaster of Paris to one part of water. Pour this over the bowl, completely filling the frame and covering the bowl with at least an inch of plaster.
4. Remove the frame as soon as the plaster is set and before it is completely hard. Turn the plaster right side up and trim away any that is over the edge of the bowl. Remove the bowl. Let the plaster dry.
5. When the plaster is completely hard, any imperfections may be sandpapered.
6. Clay for casting is used in a slip state. Pour the slip into the mold. Pour the mold level full of slip. Since the dry



Setup for making plaster mold

plaster of Paris is porous it absorbs moisture and a coat of clay forms on the walls of the mold. Keep the mold full, adding more slip as it is needed. Watch the top edge of the wall being formed. When the walls are of the right thickness (approximately 3/16″) pour out the remaining slip. This process will take between five and ten minutes, depending on the dryness of the mold.

7. Let the mold stand until the clay is leather hard and has shrunk away from the sides of the mold (usually about three hours).
8. Remove the bowl from the mold. Trim the top edge with a sharp knife. Use a moist sponge to smooth the surfaces.
9. Dry the clay bowl slowly.
10. When the clay bowl is thoroughly dry, use very fine sandpaper (No. 000) to give it a final smoothness.
11. If possible, bowls should be fired. This makes them waterproof and durable. However, they may be finished with show card colors or enamels and used for decorative purposes. Directions for these three finishes are given at the beginning of the chapter.

SUGGESTIONS FOR FURTHER READING

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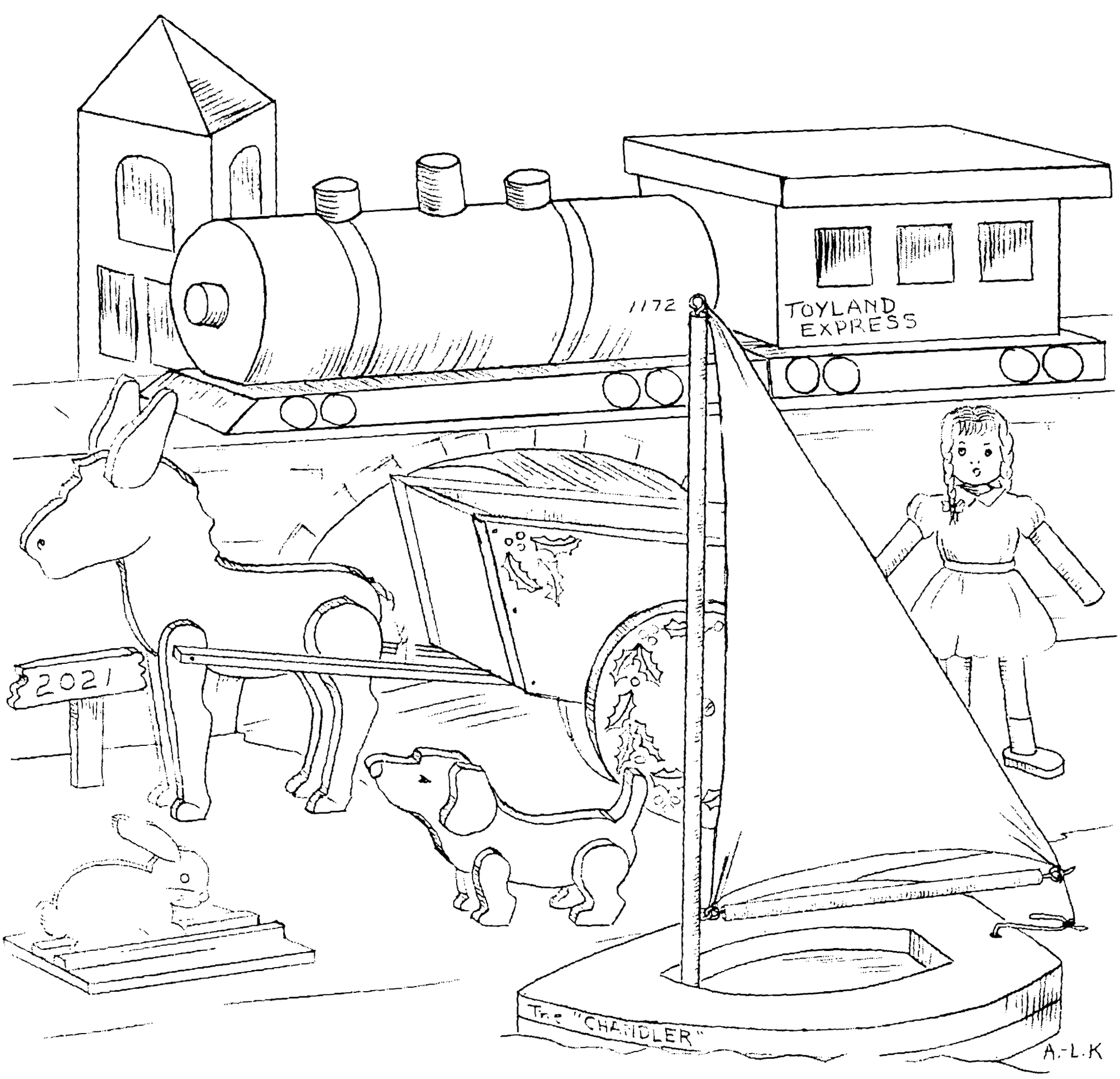
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CHAPTER 8

Woodcrafts



Wood as a Craft Material

Wood is the favorite craft material of most boys and girls. They are fascinated with the number of tools and tool processes involved in working with wood. The variety and choice of projects is almost unlimited. It is a material that lends itself to several types of finishes.

Wood and woodworking tools are accessible in most homes and schools. These facts make it the most popular of craft materials. Teachers and parents should keep this in mind.

Kinds of Wood Recommended

The following woods are recommended for use in the elementary grades: (1) basswood, (2) white pine, (3) yellow poplar, (4) red gum, (5) Philippine or Honduras mahogany, and (6) black walnut. These are soft enough to be cut with a coping saw if the boards are not too thick. Basswood, white pine, and yellow poplar are easily cut up to a thickness of ½″. For a well-rounded program in woodcrafts the teacher should have on hand a variety of woods in several thicknesses; ¼″, ⅜″, ½″, and a small quantity of ⅞″. The lumber should be surfaced (planed smooth) on two sides before the children begin to work with it. Well-seasoned lumber is easier for young craftsmen to handle. Wood that is straight grained and free from knots helps the child avoid many difficulties.

In some situations the teachers may wish to use lumber salvaged by pupils from orange crates, or cheese or apple boxes. While this practice may have a number of advantages, it should be recognized that such wood is of inferior quality. Pupils will usually experience difficulties and disappointments in trying to get good results from its use.

Ordering Lumber

School systems which have a central warehouse from which supplies and materials may be requisitioned by teachers should include wood as an item in their catalogues. When such facilities are not available, wood may be purchased directly from a local lumberyard. Wood cut to convenient sizes will facilitate storage in the school and will simplify the problem of distributing pieces of wood to the children.

When woodworking machinery is available in the secondary schools, it has been found economical to have industrial arts or vocational classes cut lumber to desired sizes for delivery to elementary schools. In some school systems a maintenance mechanic or school carpenter cuts the lumber.

Machinery should *not* be used *under any condition* by pupils or untrained teachers in elementary schools. The danger is obviously far too great.

When ordering lumber from a lumberyard, the following items must be taken into consideration: kind of wood, grade of lumber, size of pieces, and the amount desired.

Many grades of lumber are available, the very best being used for furniture and interior woodwork in houses, while the poorest grades are used for packing boxes and fruit crates. For beginning handcrafts use No. 1 or No. 2 K.D. (kiln dried) lumber. It is necessary to specify whether the lumber is to be planed or not. The symbol S2S means surface (plane) two sides. S4S means surface four sides.

The size of lumber or any piece of wood is always written with the thickness first, width second, and the length third. Therefore, ½″ x 8″ x 12′ would mean a board ½″ thick, 8″ wide, and 12′ long. The grain of the wood runs in the direction of the length.

The standard thicknesses of boards are ¼″, ⅜″, ½″, ⅞″, and 1¼″ Boards usually come in 6-, 8-, 10-, or 12-inch widths and in 12-, 14,- or 16-foot lengths.

In designating the amount of lumber desired, one of three ways may be used.

1. When several pieces the same size are needed, state in order the number of pieces, thickness, width, length, kind of wood, grade, and surfacing instructions. For example:
   50 pieces—⅜″ x 6″ x 24″ Poplar No. 1 or 2 K.D., S4S
2. When reasonably large quantities are needed for general use the amount may be specified in square feet. For example:
   100 sq. ft.—½″ Poplar No. 1 or 2 K.D., S2S, 8″ wide or wider
3. When strips of wood are needed cut to thickness and to width, but not to length, the amount may be specified in linear feet. For example:
   80 linear feet—½″ x 1½″ Poplar No. 1 or 2 K.D., S4S

The term board feet is used when ordering large quantities of lumber ⅞″ or more in thickness. A board foot is the equivalent of a piece of wood 1″ thick, 12″ wide, and 12″ long. The price of lumber bought in large amounts is stated in dollars per 1,000 board feet.

The following amounts of lumber are suggested for starting a handcraft program designed to accommodate several classes of thirty-six or forty pupils which meet two forty-five minute periods per week.

100 pieces	3/16″ x 6″ x 24″ Poplar or Basswood No. 1 or 2 K.D., S2S
100 sq. ft.	¼″ Poplar No. 1 or 2 K.D., S2S, 8″ wide or wider
100 sq. ft.	⅜″ Poplar No. 1 or 2 K.D., S2S, 8″ wide or wider
100 sq. ft.	½″ Poplar No. 1 or 2 K.D., S2S, 8″ wide or wider
50 sq. ft.	¼″ Red Gum No. 1 or 2 K.D., S2S, 8″ wide or wider
50 sq. ft.	⅜″ Red Gum No. 1 or 2 K.D., S2S, 8″ wide or wider
50 sq. ft.	½″ Red Gum No. 1 or 2 K.D., S2S, 8″ wide or wider
50 sq. ft.	⅜″ Walnut No. 1 or 2 K.D., S2S, 8″ wide or wider

The boards and strips should be cut to convenient lengths — about 4 feet. On page 32 is described a convenient rack for storing lumber.

Wood Strips

The projects in this book make use of various sizes of strip lumber. Most commonly used are the following:

¼″ x ¼″	— for strips on toy bases, fastening horses to carts
¼″ x ½″	— for legs of applied parts toys — reindeer, horses, dogs
¼″ x 1½″	— for toy bases, sides of boxes or wagons, bases of train cars
¼″ x 2″	— for tops, boxes, carts, bases for toys
⅜″ x 1″	— for legs of Dancing Dan, for cabins on boats
½″ x 4″	— for boats, bottoms of wagons
½″ x 6″	— for book ends, bottom of sewing birds, tea tiles
1¼″ x 1¼″	— for cars on train and upright posts of lamps

As you design new projects you will find more uses for strip lumber. Having it cut to size saves time, energy, and lumber. Two smooth edges give the child a good start on a well-finished project.

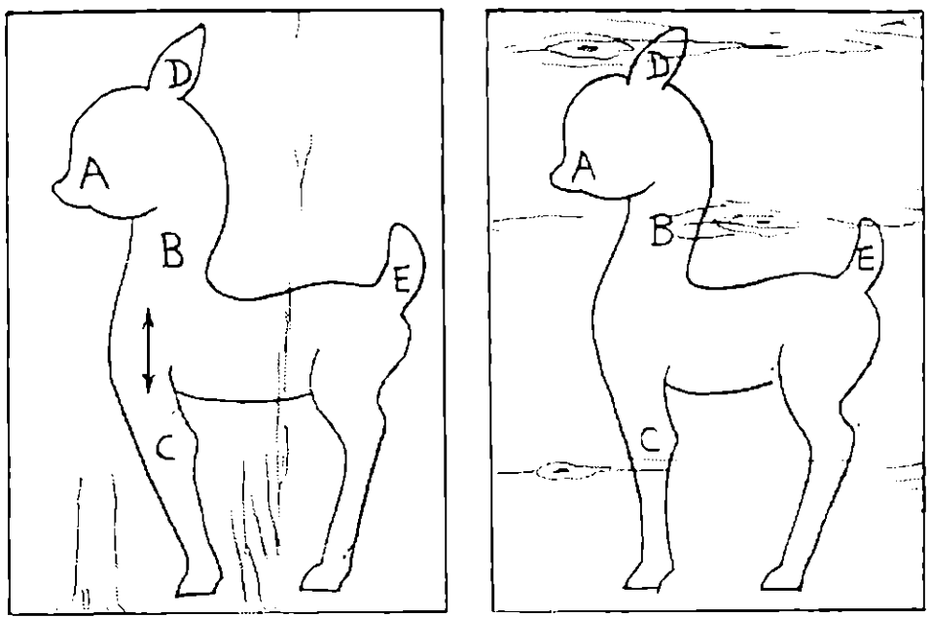
Plywood

Plywood is not suitable for coping saw work since the thin layers split off very easily. Plywood is suitable, however, for such articles as nursery rhyme pictures, photo album covers, and bottoms of serving trays. For a slight additional cost pieces may be cut to size at a lumber yard. Plywood is recommended for articles requiring surfaces that would easily warp if made from regular boards. It is also recommended for articles where a clear finish is applied, taking advantage of the beautiful woods available.

Wood Grain

When using wood, special attention must be given to the grain. Children will recognize the grain by the line design in a piece of wood. Using the grain properly will add beauty and strength to the

finished project. Since wood splits easily with the grain, the project must be laid out so that the grain will strengthen any weak or fragile parts.



Using the grain the right and wrong ways

In an article such as the little animal illustrated at the left above, the ear, tail, neck, and legs will all be stronger because of the way in which the grain has been used. The only danger of splitting will be at points *A* and *B*. Those two parts are wider and therefore stronger than the legs, ear, or tail. Had the pattern been placed the other way on the board, the danger spots would be *A*, *B*, *C*, *D*, and *E*.

As a reminder, the best direction for the grain of the wood is indicated by an arrow on the project drawings in this book.

When making such projects as shelves, benches, book ends, or boxes, the pupil should choose pieces of lumber that have interesting grain patterns. This is especially true if the wood is to have a natural finish with the grain showing through the stain, wax, or shellac.

Tools for Woodcrafts

Children are fascinated with woodworking hand tools. They obtain a surprising degree of skill in using them. The idea that children should be given toy tools, or miniature tools, because they are safer or easier to use than standard tools is not sound. Full-sized tools of the best quality will prove to be much more satisfactory. Knives, saws, drills, and planes must be sharp if the child is to do good work. Also, sharp tools are safer to use than dull ones, which will not respond to the action demanded of them. Dull tools slip and injure the worker far more often than sharp tools.

Suggested List of Woodworking Tools

Numbers suggested are for groups of ten pupils. If two groups of ten are to work at the same time the quantity of starred items should be doubled.

- *10 Coping saw frames (recommend all-steel frame)
- * 1 gross 6″ Loop-end coping saw blades (15 teeth per inch)
- *10 V boards (See page 163)
- *10 C clamps, 3″ opening
- *10 6″ ½ Round cabinet wood files (bastard cut)
- * 1 ¼″ Rattail wood file (bastard cut)
- * 2 File cards
- *10 12″ Rulers
- *10 Vises, 6″ jaw (carpenter's vise with wood-covered jaw; cheaper choice—3″ jaw machinist's vise)
- 1 Miter box saw
- 1 Hand drill (to hold twist drills up to ¼″ size)
- * 1 each 3⁄16″ and ¼″ Twist drills
- * 2 each 1⁄16″, 3⁄32″, ⅛″ Twist drills
- 1 Bench duster for each bench
- 2 Cabinet saws, 12″
- 2 Hammers, 7 oz.
- 1 Medium-size screw driver
- 1 Small-size screw driver
- 1 Brace
- 1 each ¼″, ⅜″, ½″, and ⅞″ Auger bits
- 1 9″ Smooth plane
- * 1 Countersink (rosebud)
- 5 Sloyd knives, 2½″ blades
- 1 pair 8″ Tin snips
- 1 Carpenter's steel square
- * 5 6″ Try squares
- 1 pair Wire-cutting pliers
- 8 Wood handscrews, 10″
- 1 Yardstick

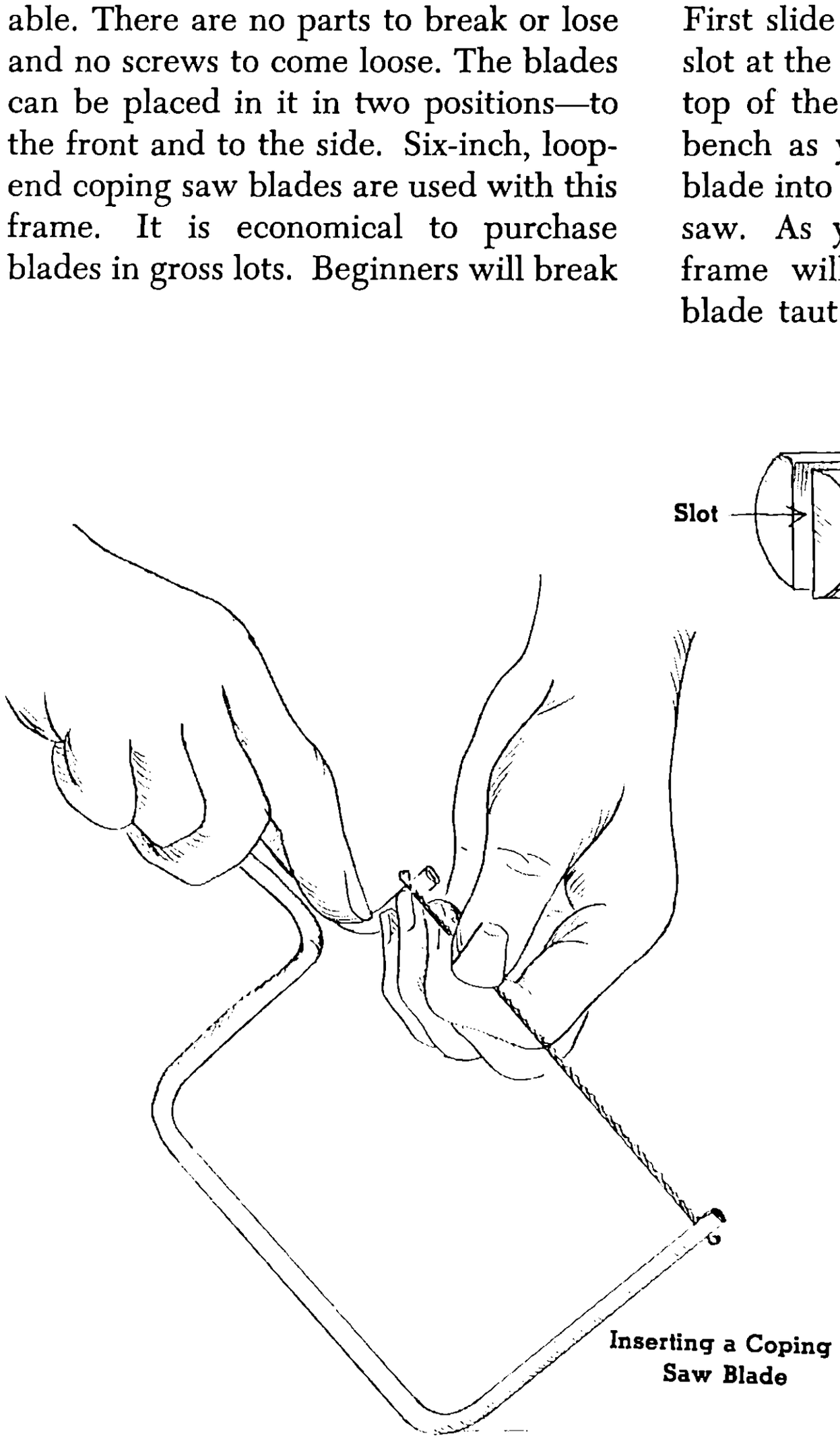
THE USE OF WOODWORKING TOOLS AND EQUIPMENT

NOTE — *See page 44 for chart suggesting grade placement of various woodcraft skills.*

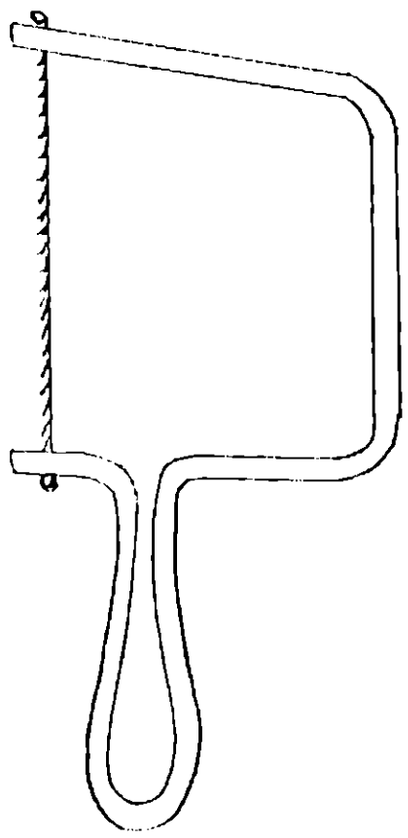
Using the Coping Saw

The coping saw is one of the fundamental tools for hand woodwork for children. One made of a single piece of steel, formed into the proper shape, is the cheapest to buy and the most durable. There are no parts to break or lose and no screws to come loose. The blades can be placed in it in two positions—to the front and to the side. Six-inch, loop-end coping saw blades are used with this frame. It is economical to purchase blades in gross lots. Beginners will break several blades, but breakage is surprisingly reduced when children are asked to drop a couple of pennies in a box for each new blade they need.

Blades should be put in the frame with the teeth pointing toward the handle. First slide one end of the blade into the slot at the top of the saw. Then force the top of the saw frame against the workbench as you slip the other end of the blade into the slot near the handle of the saw. As you release the pressure, the frame will spring back and hold the blade taut.

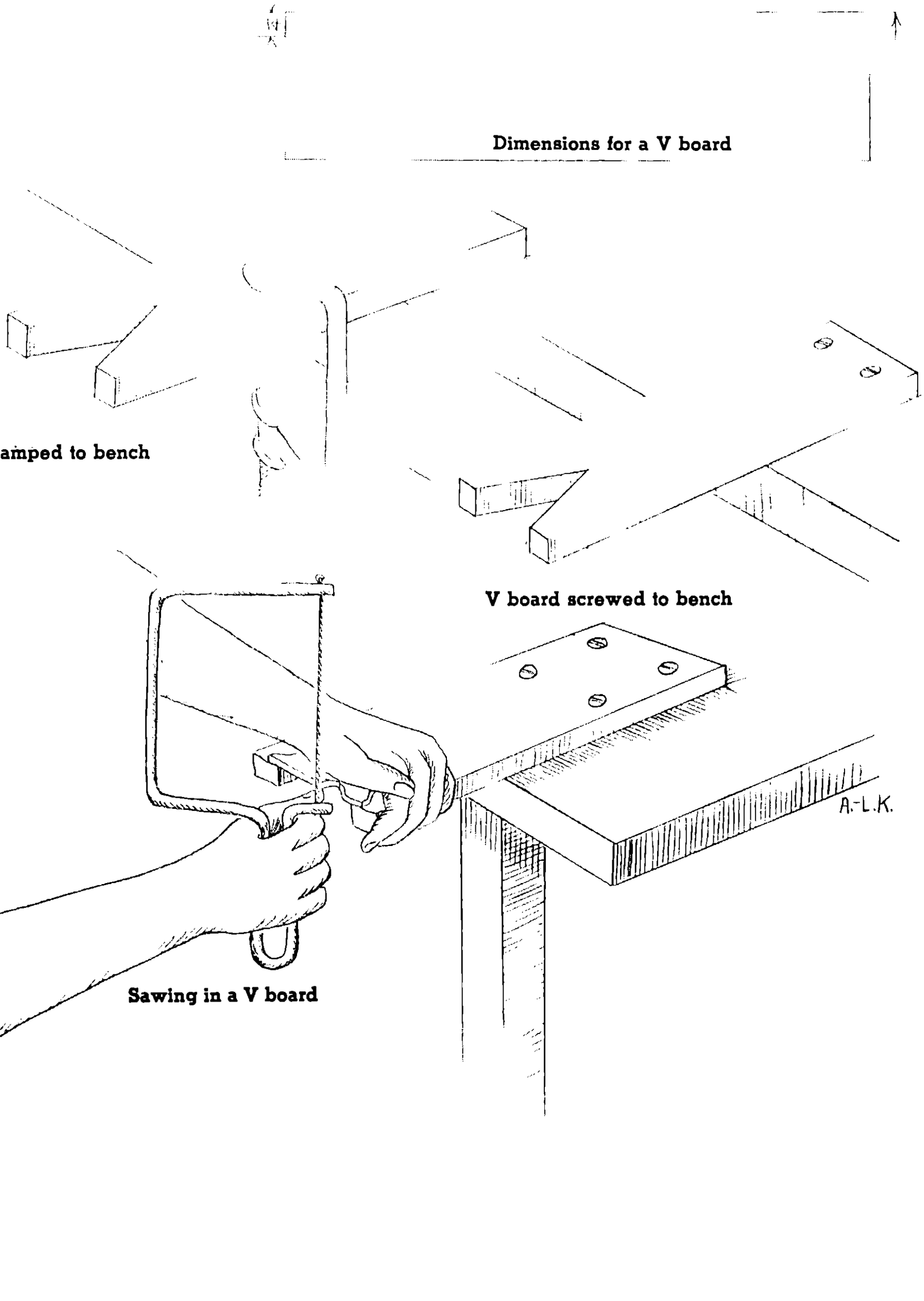


Inserting a Coping Saw Blade



The V board is used as a steady rest to hold work when sawing with the coping saw. It also prevents the pupil from sawing into the bench top. Satisfactory V boards can be made by the children or by the teacher, using ½″ maple stock. The following size is suggested: ½″ x 3″ x 12″ with a V cut 2½″ wide and 3″ deep.

All the sawing is done inside the V-shaped cut. The coping saw should be held vertically as shown. Do not tip it forward, backward, or to the side. When cutting a corner, work the saw up and down in place until it will turn without forcing and then go on. Sawing is done just outside the pencil line. This leaves a narrow margin for smoothing the edge.

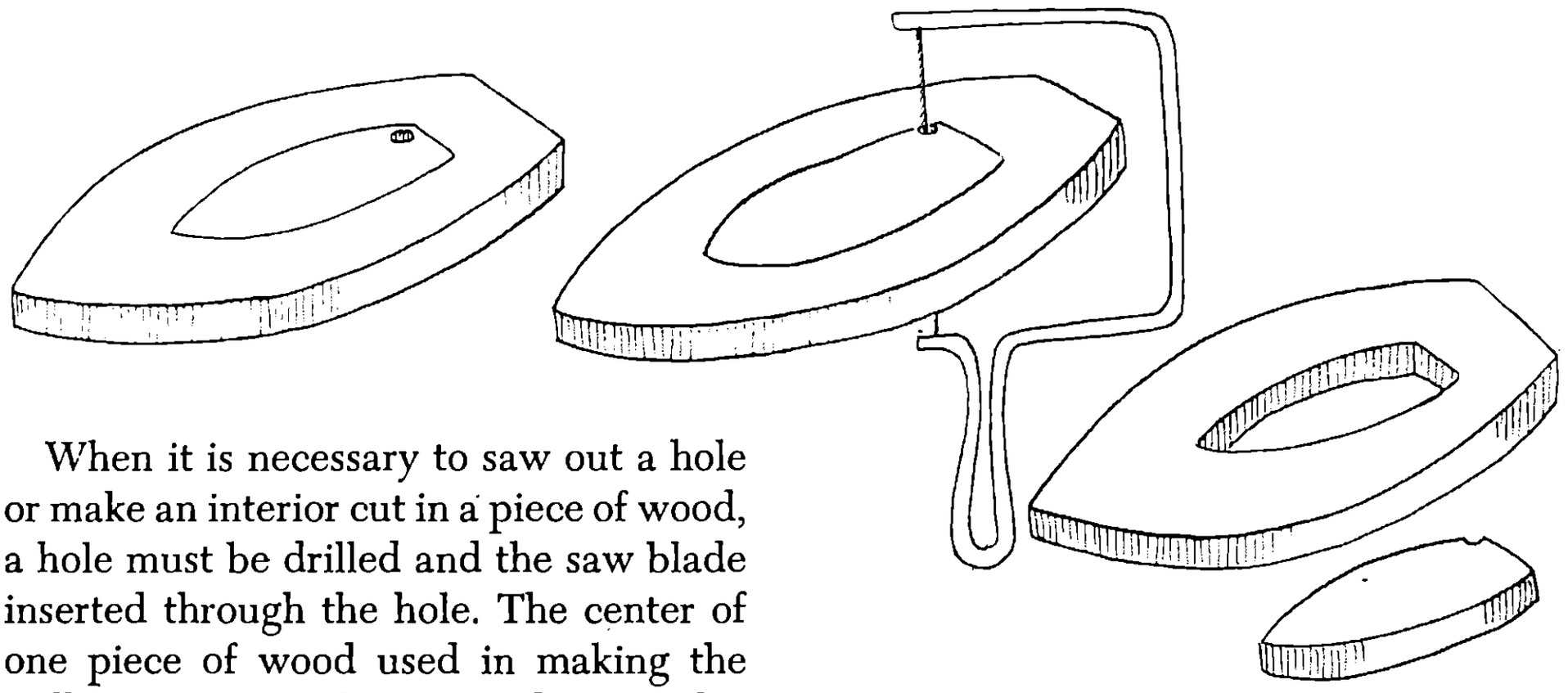


Dimensions for a V board

V board clamped to bench

V board screwed to bench

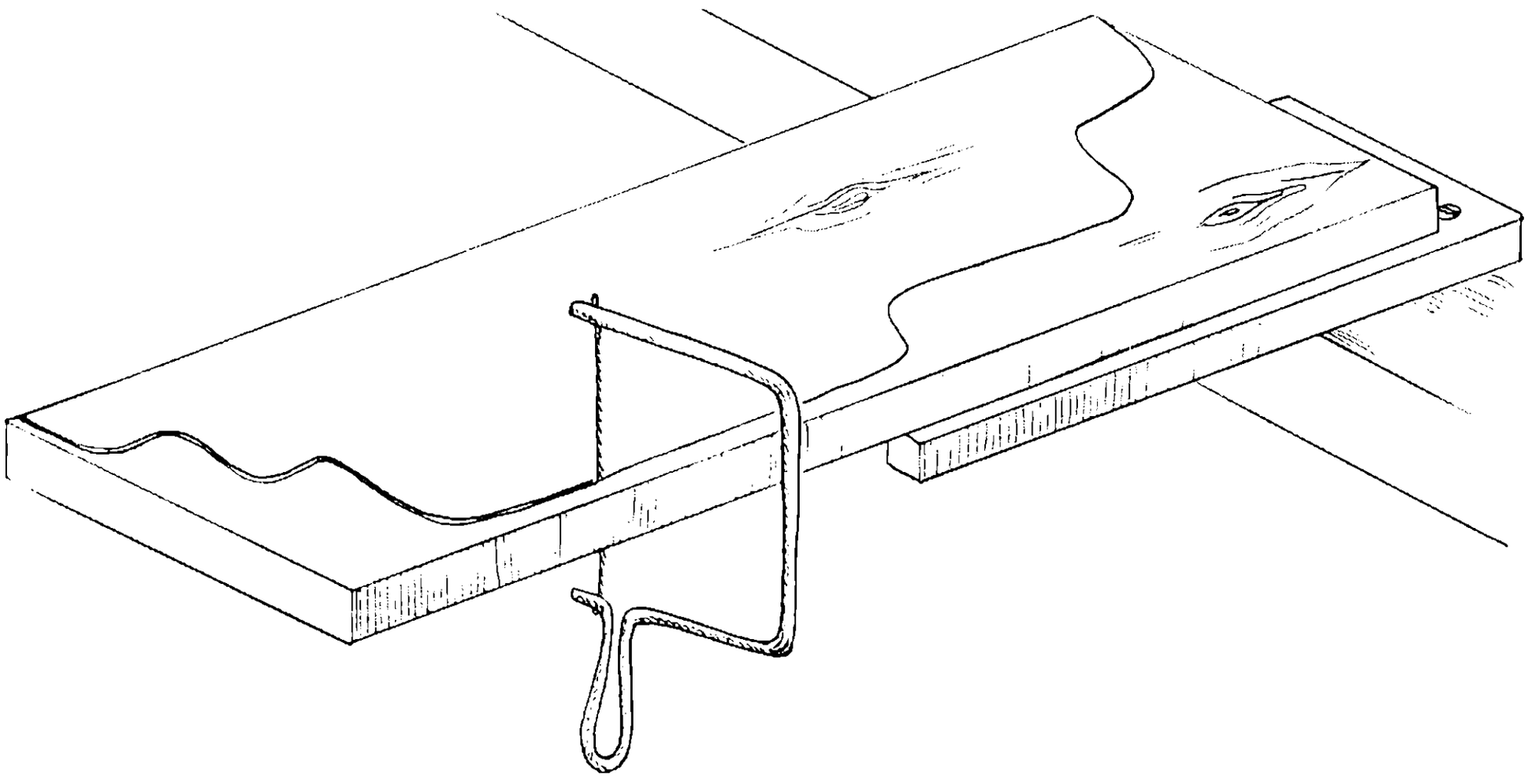
Sawing in a V board



Sawing out a hole

When it is necessary to saw out a hole or make an interior cut in a piece of wood, a hole must be drilled and the saw blade inserted through the hole. The center of one piece of wood used in making the sailboat on page 193 is sawed out in this way. First, the space to be sawed out is marked off with a pencil. Second, a $\frac{1}{8}$″ or $\frac{3}{16}$″ drill is used to make a hole inside the pencil line. Next, the blade is loosened from the slot near the handle of the saw. The blade is then inserted through the hole in the boat and fastened back in the slot of the saw frame. The sawing procedure is the same as when sawing the outside form except that the sawing is done just *inside* the pencil line to allow for filing and sanding to the line.

Children should also know how to use the coping saw when the blade is placed on the side of the frame. When sawing out the shape of the side piece of a long wall shelf, for example, it is necessary to use the saw in this way. The blade is removed from the front slots and placed in the side slots. This enables the worker to saw the entire length of the pattern without having the frame of the saw interfere with the work.



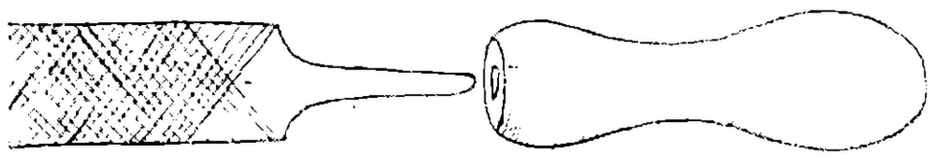
Sawing along edge of a long board

Smoothing Sawed Edges

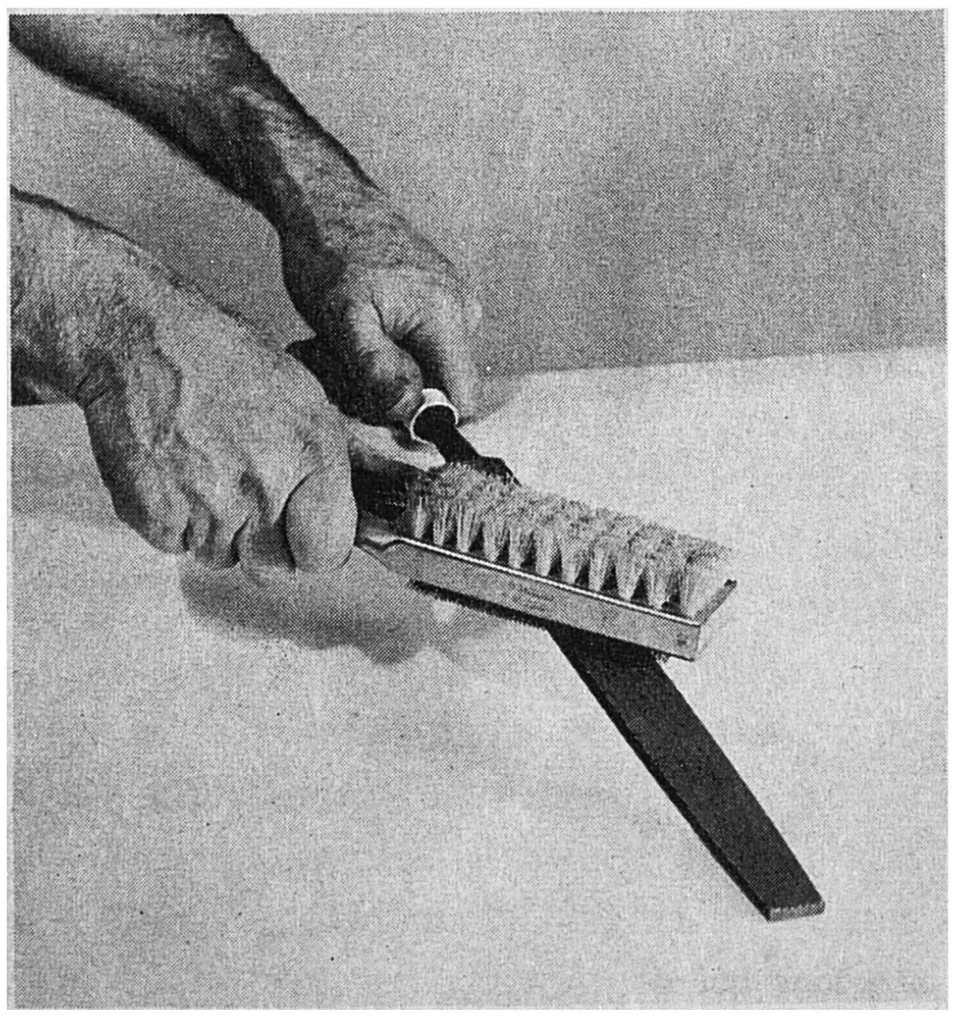
After the object is cut to shape with the coping saw, the edges are filed to remove any roughness left by the coping saw and to smooth the edges down to the drawn line of the pattern. A half-round cabinet

wood file (bastard cut), 6″ or 8″ in length, is most commonly used. This file has one flat surface and one half-round surface.

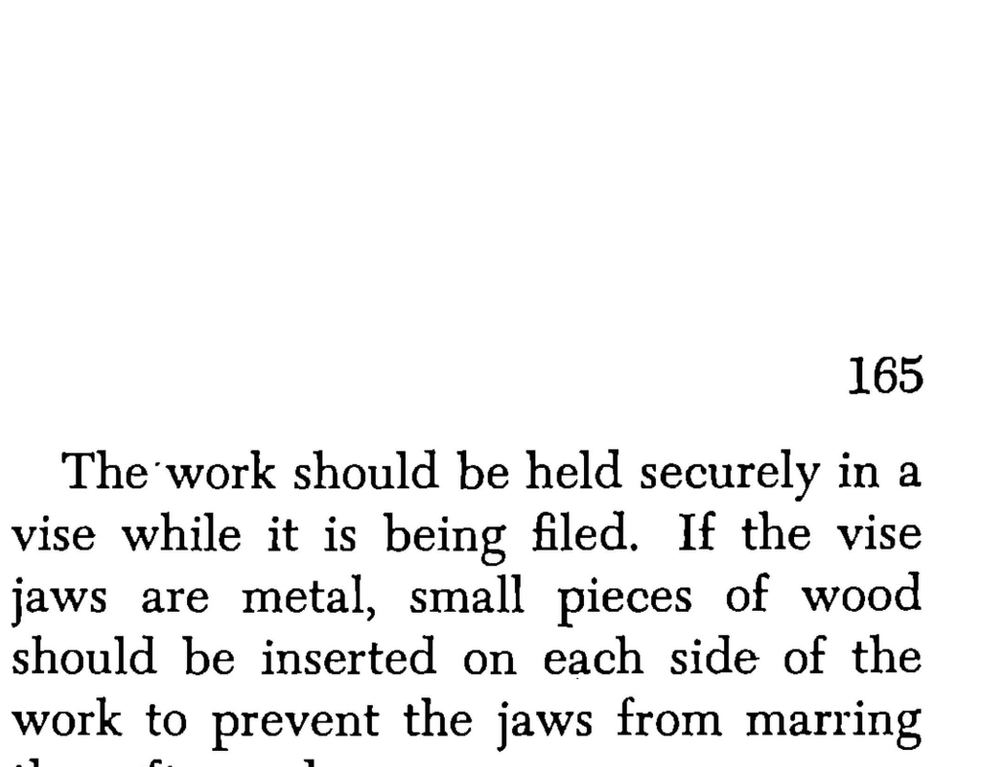
Before using a new file it should be equipped with a tight-fitting handle. It is dangerous to use a file without a handle as the end of the tang may be quite sharp.



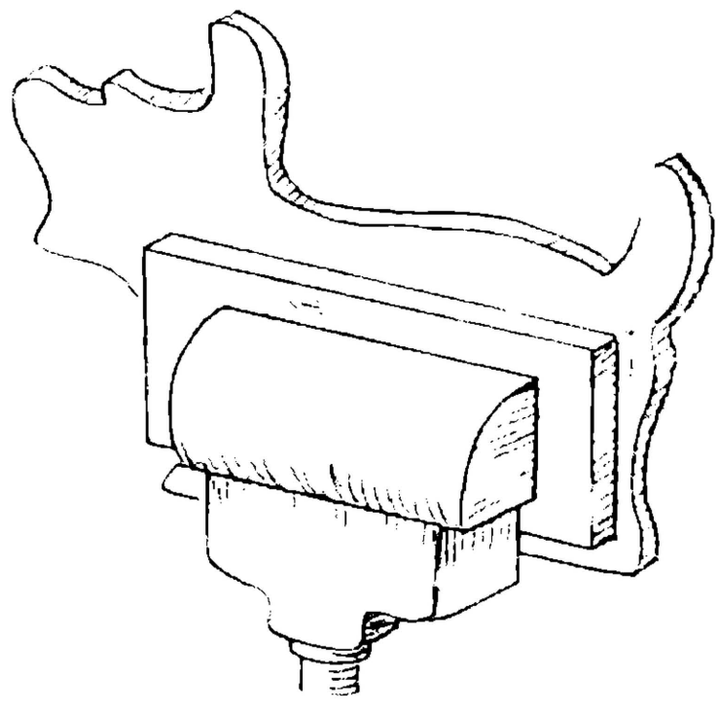
Files should be cleaned with a file card, a flat wire brush designed for this purpose. The file card is drawn across the file in the same direction as the cuts or grooves in the file.



The work should be held securely in a vise while it is being filed. If the vise jaws are metal, small pieces of wood should be inserted on each side of the work to prevent the jaws from marring the soft wood.



The file is held with two hands. With a firm but light stroke, the file is pushed across the edge of the wood. Do not drag the file back toward you. Raise it after the completed stroke and again, starting at the tip of the file, push the file away from you.



The rounded part of the file is used when filing concave curves. The flat edge is used on convex curves. Edges should be kept square with sharp corners. Test the edges with the try square.

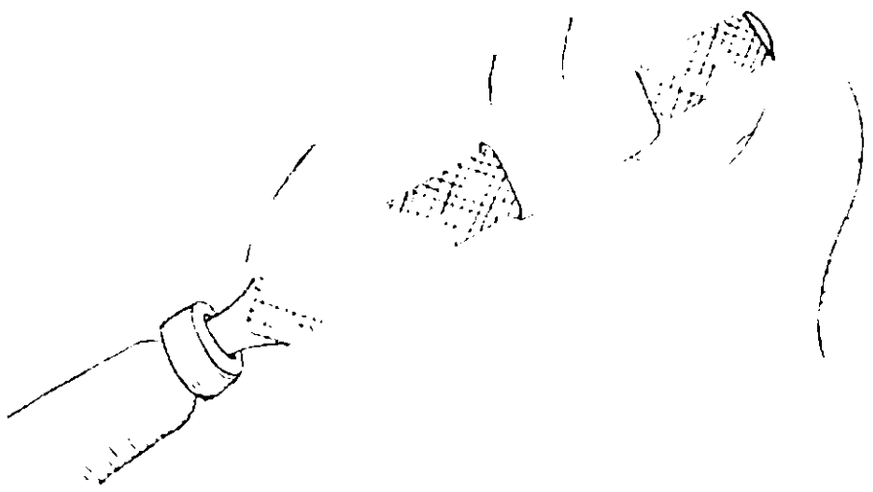
Sandpapering

Sandpapering is the final smoothing process, and children love it. It brings out much of the beauty of the wood and removes many of the inaccuracies of workmanship.

Sandpaper can be purchased in various degrees of coarseness and fineness ranging from No. 0000, which is very fine, to No. 4, which is very coarse. Buying sandpaper in reams decreases the cost per sheet. Tearing the sheets into small pieces will help avoid waste. To tear a sheet of sandpaper, place it on a workbench with the smooth side up. Lay a saw on the sheet as a guide for tearing it. Worn-out sandpaper should be saved for rubbing down oil base paints or shellac after the first coat has been applied. A storage place should be provided for both new and used sandpaper.

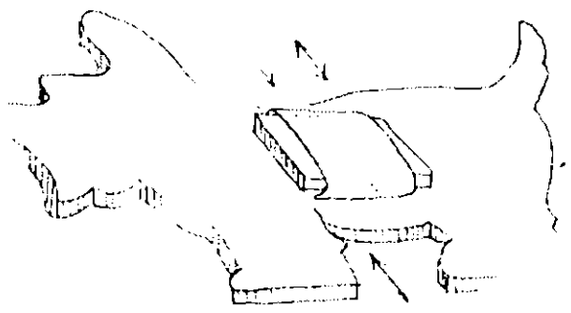
For finishing the soft woods used in handcraft, No. ½ and No. 0 are usually satisfactory. However, it is well to have a few sheets of No. 1 on hand for the youngster who does a poor job of sawing or filing or for the one who chooses a very rough piece of wood.

All surfaces and edges of the wood should be sandpapered before applying any finish. Edges are sandpapered to remove any marks left by the file. As in filing, be sure the jaws of the vises are covered with blocks of wood to prevent the steel from marring the wood. To sandpaper the edges, wrap a square of sandpaper about 2″ x 2″ around the file.

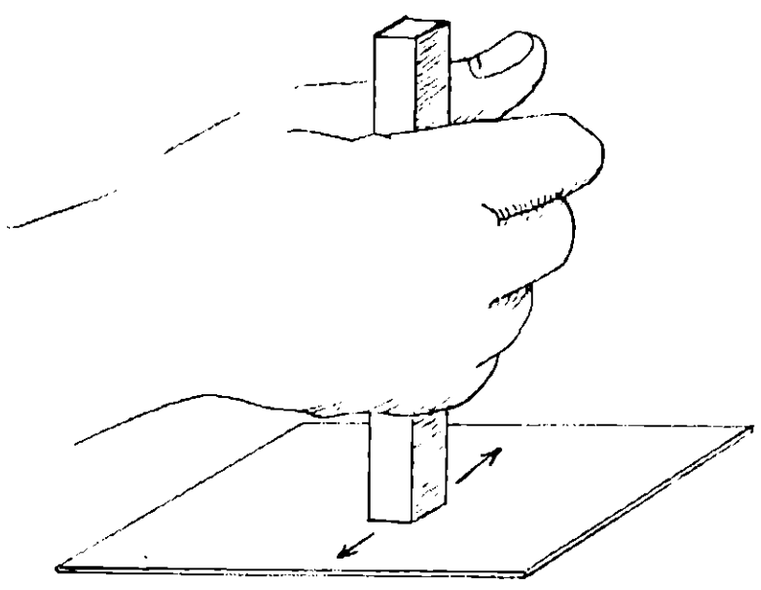


Holding the sandpaper on the file with your fingers, go over all the edges as you did when filing.

When sanding the surface, a small piece of sandpaper should be wrapped around a block of wood. This block should then be rubbed with firm pressure over the wood. Each stroke should follow the lines of the grain.



Strips or sticks are more easily sanded on the ends by rubbing them over the sandpaper rather than by rubbing the sandpaper over the ends.



Small pieces, such as wheels made from 1″ dowel rods or ears for animals with applied parts, should be rubbed over the sandpaper. Rub these so that the sandpaper cuts with the grain of the wood.

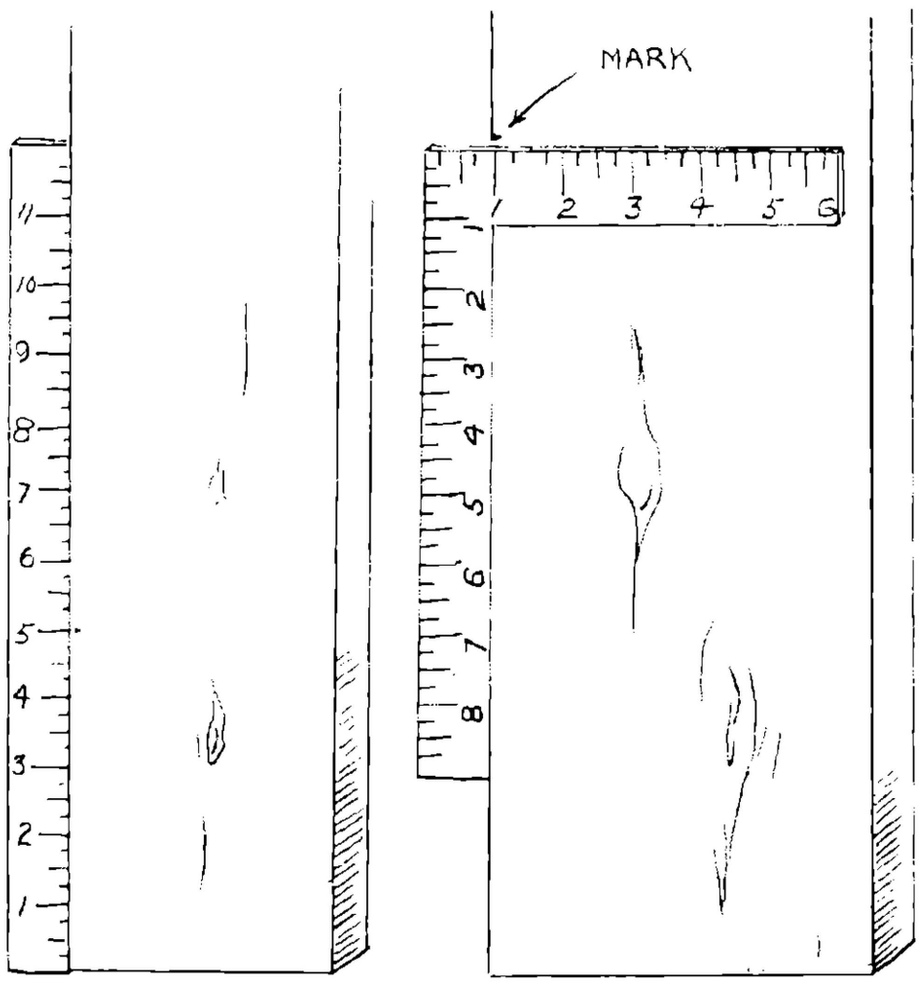
Have the children compare a well-sanded piece of wood with a poorly sanded piece. Keep their standards of workmanship high and continually encourage them to work longer to produce better work. However do not force work beyond the point where handcraft becomes enforced labor rather than real enjoyment in creating projects.

Measuring

Rulers are essential for measuring. For handcraft work a 12-inch ruler with $\frac{1}{16}$-inch markings is a practical one to use. When measuring the length of a board, the ruler is placed along the edge of the wood. Children must learn to keep the ruler parallel to the line, edge, or surface they are measuring. Metal-edged rulers with easily-read markings are desirable.

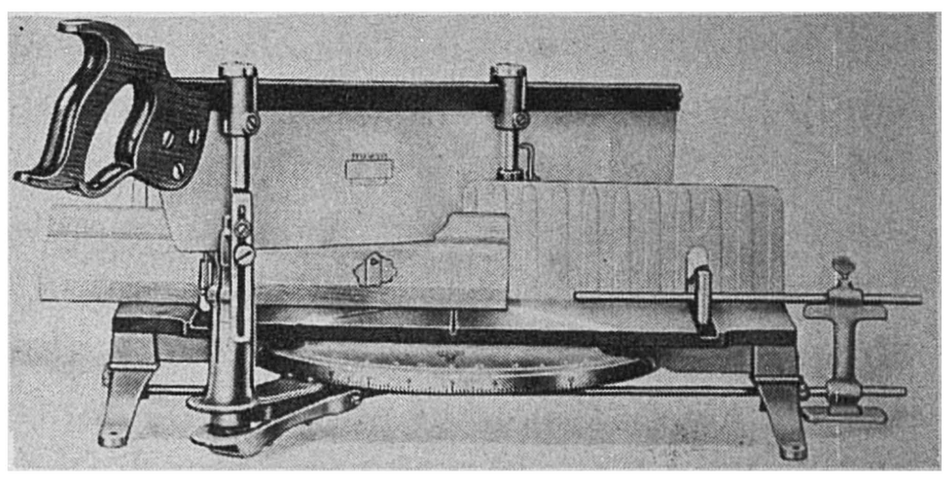
First and second graders should learn to read and measure whole inches. Third and fourth graders should be able to measure half and quarter inches. By the time a child reaches the fifth grade he should master eighth inches, and the sixth grader should master sixteenths.

The carpenter's steel square is particularly useful in marking a board that is to be sawed into smaller pieces. First, measure off the desired length on the board and make a pencil mark. The long edge of the square is placed tightly against the board and then slid along the edge until it touches the pencil mark. A pencil line is then drawn across the top of the square. The try square may be used in the same way on narrow boards. But its principal use is to test edges after filing or sanding.

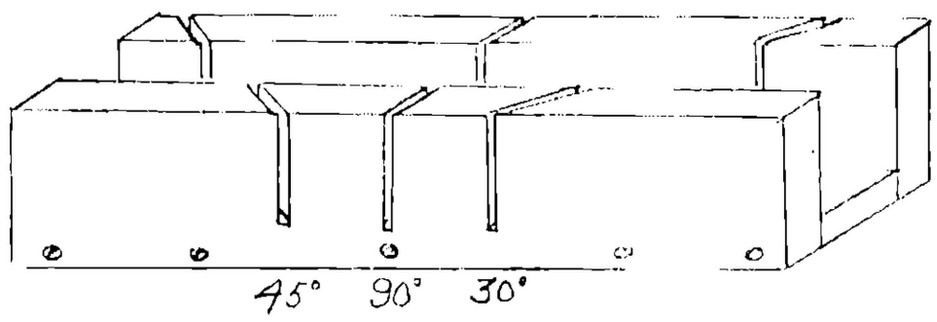


Sawing Boards to Length

A miter box will simplify the cutting of lumber to given lengths or at set angles. One with a metal frame and a device for setting the saw at a given angle will prove very durable. However, a homemade miter box with a 45° and a 90° angle will suffice. The strip of lumber is placed in the miter box and held tightly against the back wall. The saw slides through set grooves.



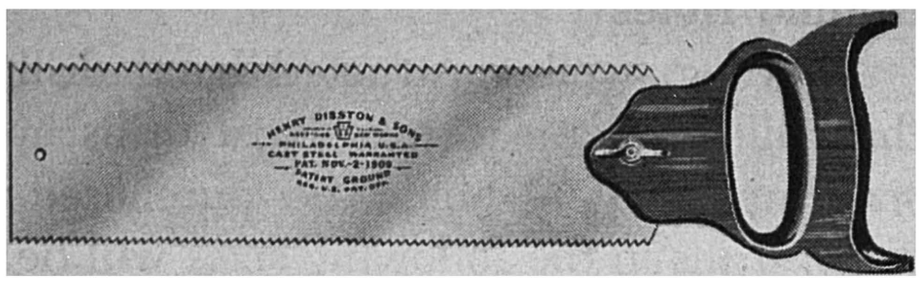
Miter box and saw



A homemade miter box

The miter box is used to saw strip lumber to lengths when making trains, boxes, wagons, carts, and stands for toys. Children in the third grade may use the miter box if they are given a little individual help. It is not a difficult tool to use. One miter box in a craftroom is sufficient.

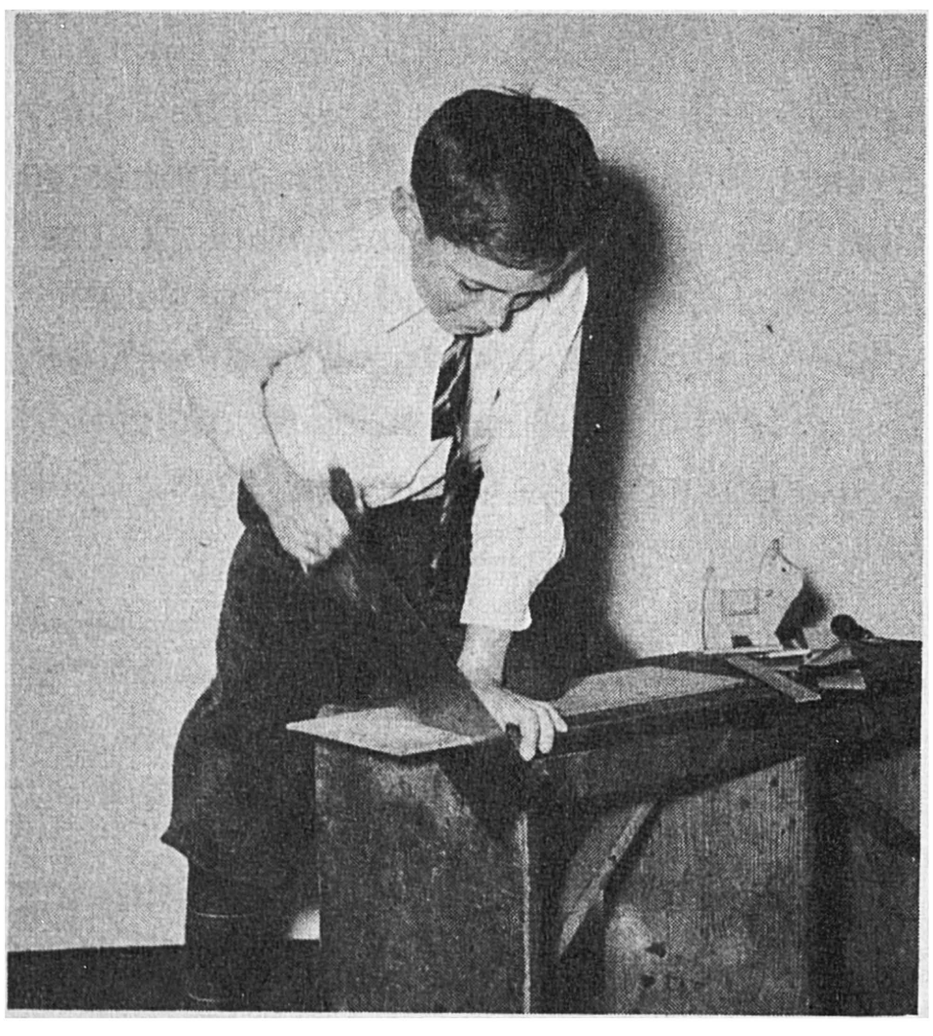
If a miter box is not available, a cabinet saw may be used to cut boards to length. This is a double edged saw of a convenient length for children to use. One edge is set with rip teeth, the other with crosscut teeth. The small crosscut teeth are used when sawing across the grain. The rip teeth are used when cutting lumber to



Cabinet saw

width. The wood should be carefully measured and marked off with a square before sawing. Place the board on knee-high sawhorses or boxes reserved for this purpose. Hold the wood in place by putting one knee on the board. Start the saw by drawing the teeth lightly against the pencil marking with two or three strokes. When a small groove has been made, continue sawing with long, sure strokes until almost to the end. Then slow up and take lighter, shorter strokes to prevent splitting the wood. After using, the saw should be returned to its place of storage.

Few children in the third and fourth grades can use the cabinet saw accurately. Yet at this age they should begin to get some practice with this tool. Wood should be cut to size for younger children. Fifth and sixth graders can and should cut their own.



Cutting Stock to Size

As discussed before, wood should be surfaced to desired thicknesses before it is given to children to use. Since wood is purchased and stored in large boards, it is economically necessary to teach children how to cut it to the size pieces that will meet their needs.

The ideal way of making a piece of wood to the exact size is with the use of a plane and a miter box. The plane is used to make a piece of wood the right width, while the miter box is used to make it the right length. It is very difficult for children below the sixth grade to use a plane. Therefore, two methods of making a piece of wood to size are given — Method A for the pupils below the sixth grade, and Method B for pupils in the sixth grade.

Method A

Suppose pupils below the sixth grade were making a simple jigsaw puzzle ¼″ thick, 3″ wide, and 5″ long. The following steps would be followed in cutting wood to size. For this example let us suppose the board to be used measures ¼″ x 4″ x 6″.

1. Measure off 6″ (this allows one extra inch) along the length of the board. Make a dot with a pencil and square a line across the board with a pencil and try square.
2. Measure off the width plus ⅛″, or a total width of 3⅛″ in two places. Make dots and connect them with a ruler and pencil.
3. Saw with the grain first (on the outside of the line), using the rip saw edge of the cabinet saw.
4. Saw across the grain next, using the crosscut edge of the cabinet saw.
5. Carefully file both long edges so that the piece is 3″ wide when finished.
6. Saw ½″ off one end with the miter box saw.

7. Measure the exact length (5″) from this sawed end, make a dot, and square a pencil line across the piece.
8. Place the piece in the miter box and saw on the line to the exact length.
9. Lightly file the sawed edges.

Method B

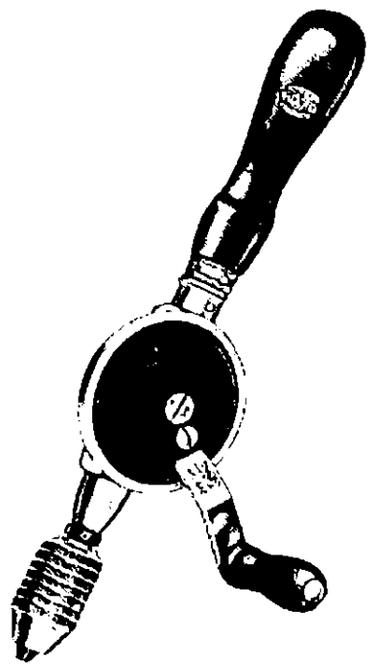
When the plane is used to make a piece of wood to size, two sets of dimensions are given the pupils. Suppose pupils are to make the bottom of a wagon ⅜″ thick, 3″ wide, and 5″ long. The following sets of dimensions should be put on the board: rough dimensions, ⅜″ x 3½″ x 7″, finished dimensions, ⅜″ x 3″ x 6″. For this example let us suppose the board to be used measures ⅜″ x 6″ x 3′.

1. Measure off the rough length (7″), make a dot with a pencil, and square a line across the board with a pencil and try square.
2. Measure off the rough width (3½″) in two places, make dots, and connect them with a ruler and pencil.
3. Saw with the grain first, using the rip saw edge of the cabinet saw.
4. Saw across the grain next, using the crosscut edge of the saw.
5. Plane one long edge of the wood, making it straight, smooth, and square.
6. Measure off the finished width (from the planed edge) in two places and connect the dots with a ruler and pencil.
7. Plane to the finished width.
8. Saw about ½″ off one end with a miter box saw.
9. Measure off the finished length from the sawed end, make a dot, and square a pencil line across the piece.
10. Saw on the line, using the miter box saw.

These directions may seem lengthy and complicated. However, once the child has cut a piece following these steps he will find them time saving and a definite short cut to good workmanship and economy.

Drilling Holes

A strong, well-constructed hand drill that will open up to take twist drills in sizes up to ¼″ should be purchased. Twist drills in the following sizes will be needed: 1/16″, 3/32″, ⅛″, 3/16″, ¼″. Since the smaller drills break easily, it is wise to purchase two or three of the 1/16″, 3/32″, and ⅛″ sizes. Nails of equivalent diameters may be used for drilling instead of using the smaller drills. Heads of the nails must be removed with side-cutting pliers.



Hand drill. Twist drills are inserted in chuck.

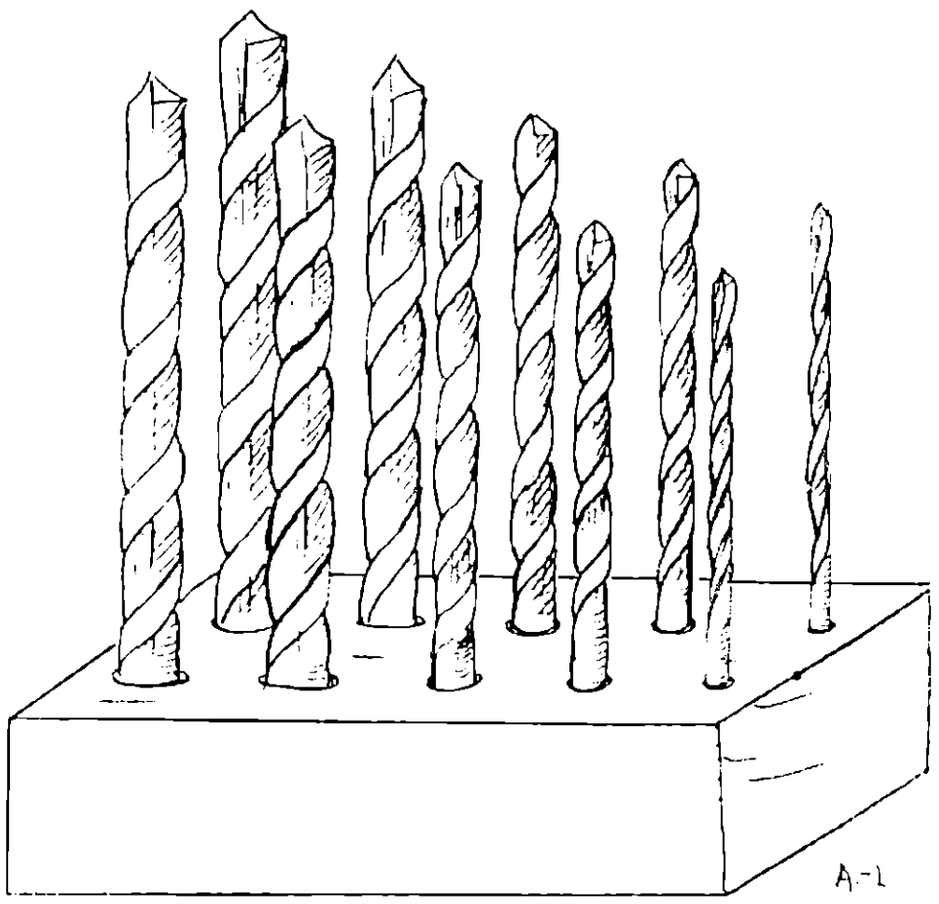
Children readily learn to use the hand drill since it works in the same manner as the common egg beater. They may have difficulty in selecting the proper size drill and inserting it in the chuck. Therefore, the teacher should give assistance when necessary. By turning the chuck, the jaws of the drill are opened and closed to hold twist drills of various sizes. Children must be taught to hold the turning handle when fastening the chuck tight or



Straight shank twist drill

the twist drill will fall out. In making the articles described in this book, holes are drilled in wheels for rolling toys, in the boats for holding the dowel-rod masts, in the sewing bird, and in the deer with the pipe-cleaner antlers. Holes are also drilled when two pieces of wood are to be screwed together. The child should mark with a pencil the place for the hole. He should then place the work flat on an old piece of lumber and drill. This prevents holes from being drilled in the work-bench.

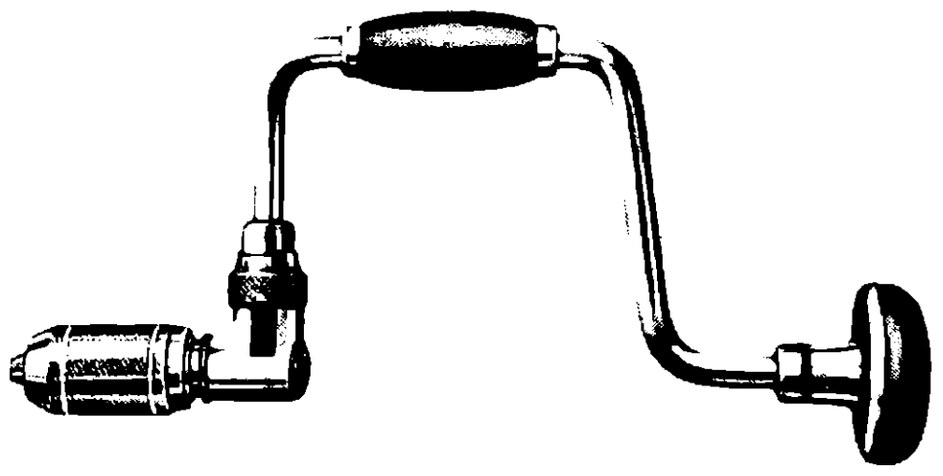
A block of wood, having in it a series of holes the same size as the drills, serves as a good storage place for twist drills. One glance will tell if a drill is missing. The hand drill may have a hole through the handle so that it may be hung on a nail.



Twist drills may be stored in a block of wood which contains holes the same size as the drills.

Boring Holes with a Brace and Bit

The brace is pictured in the right column above. Auger bits are held in the chuck which is turned to open or close the jaws. Auger bits come in various sizes up to 1″. An expansion bit can be purchased to bore holes which are larger than 1″ in diameter.



Brace

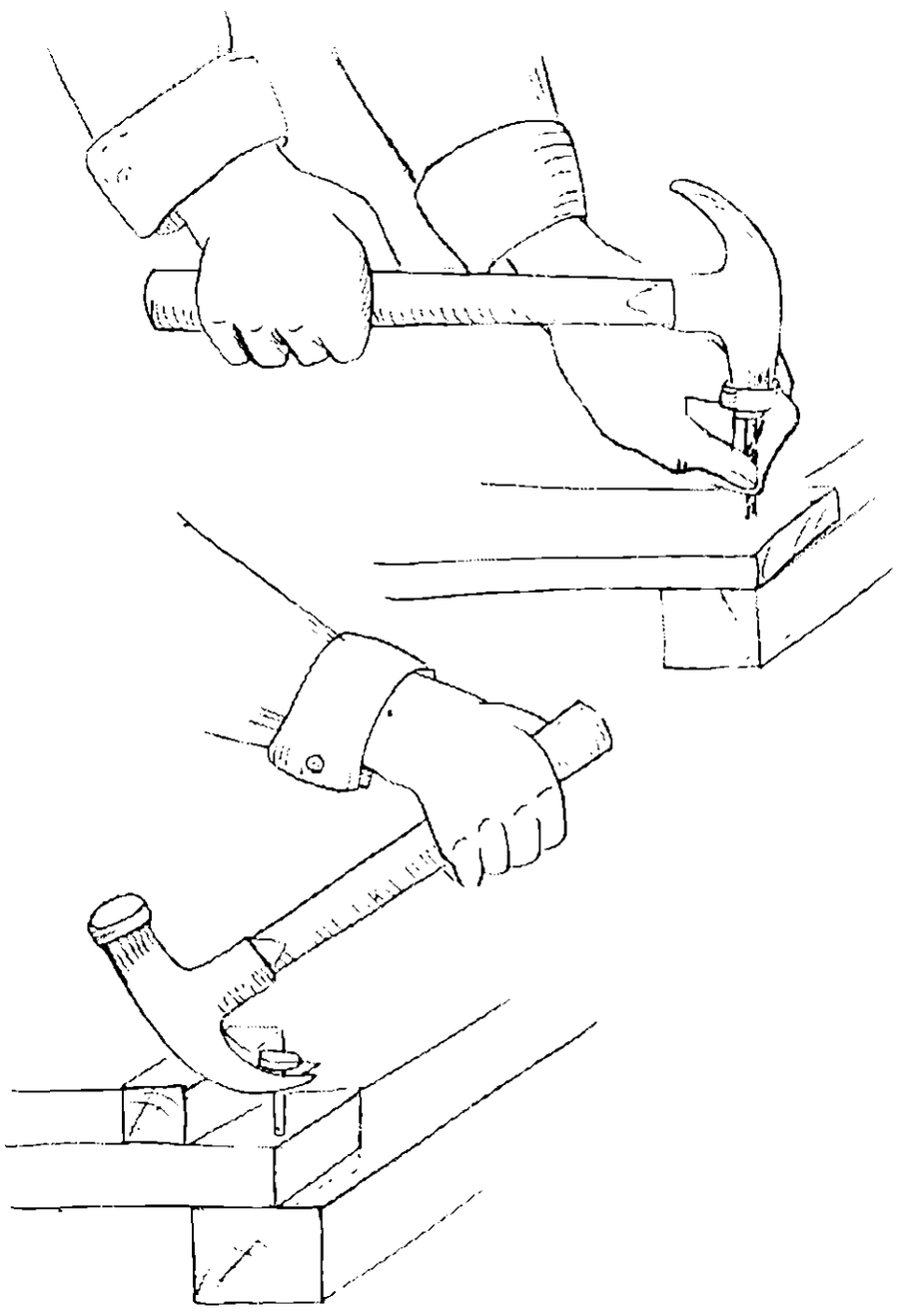


Auger bit

Children handle a drill more easily than a brace; therefore, it is best for them to use the drill for all holes up to and including ¼″ diameters. The teacher should give the children special help when it is necessary to bore larger holes with the bit and brace.

Auger bits should be purchased in the following sizes: ¼″, ⅜″, ½″, and ⅞″. These sizes correspond to the diameters of the dowel rods used in the construction of many projects. For example, the ½″ auger bit is used to bore the holes in the body of the doll shown on page 203. A ½″ dowel rod is used for the legs and it will fit snugly into these holes.

Care must be taken to see that the auger bit does not split the wood as it breaks through. An easy way to avoid this danger is to bore from one side of the wood until the spur or point of the auger bit starts to come through; then reverse the wood and complete the boring from the other side.



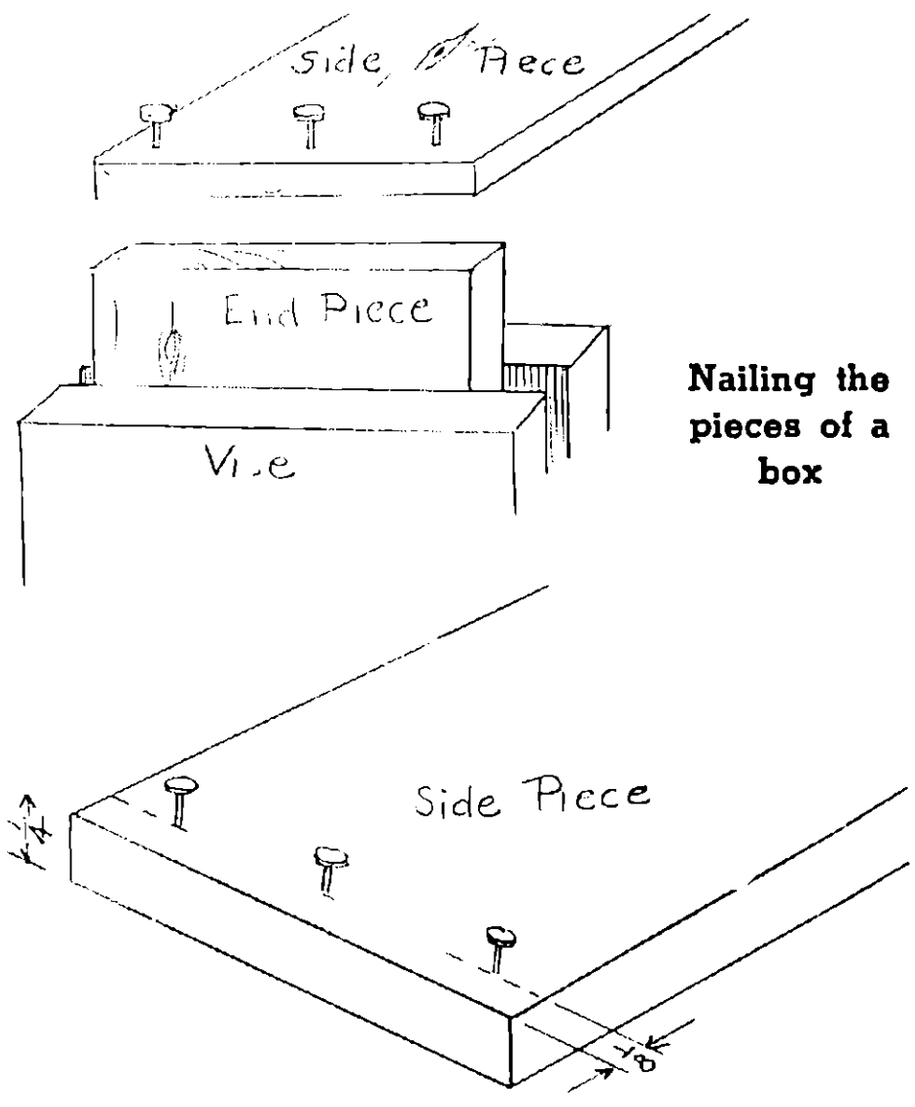
Driving and Pulling Nails

The nail hammer or claw hammer is used for driving and pulling nails. To start a nail, hold it between the thumb and forefinger, place the point on the mark where the nail is to be driven, and then give the nail light taps with the hammer. Resting the hammer on the nail before lifting it to strike increases the accuracy of the aim. Hit the nail with the center of the hammer head each time. A small hole made with an identical nail used as a drill point will assist younger children in starting nails and will lessen the possibility of injury to their fingers. Also, the drilled hole will lessen the possibility of splitting the wood when the nail is driven. Before driving the nail down, be sure it is started straight. If it is not, pull the nail out and start it again. In driving the nail down avoid hammering after the nail is sunk into the wood, as hammer marks easily mar wood.

To use a hammer to pull out a nail, the head of the nail must be exposed. Slip the claw of the hammer under the nail head and pull until the hammer is almost vertical or straight up. Then to increase leverage and to make it easier to completely draw out the nail, use a block of wood under the head of the hammer.

Hammers should be checked at frequent intervals to make sure that the handles fit tightly into the heads. A lightweight hammer of approximately eight ounces should be used with the brads and small nails used in handcraft. Each hammer should be hung in a specified place.

When constructing a box, cart, or wagon, use the following method of nailing and gluing the pieces together. Usually, the long sides are nailed and glued over the end pieces. Place the end piece in the vise. Rub glue into the end grain of this piece. Start small brads in the side piece. These brads should be as far from the edge as half the thickness of the wood. Nail in place. After all four pieces have been assembled, the box should be clamped or tied until dry.



Nailing the pieces of a box

Driving Screws

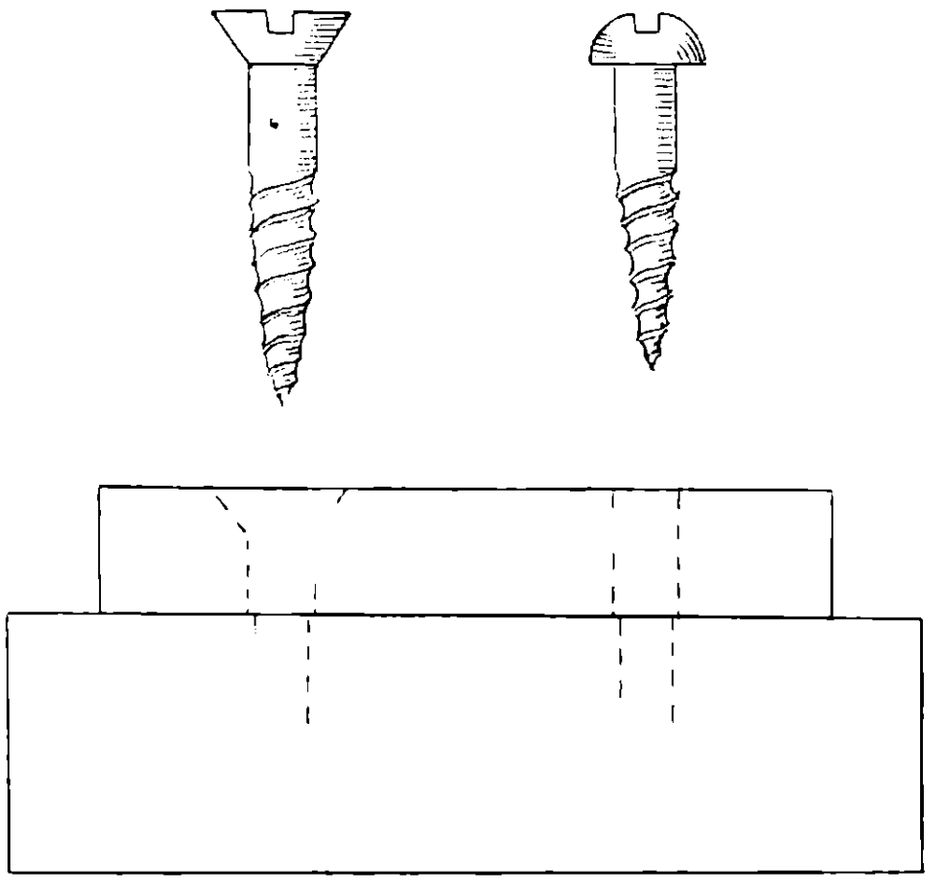
The screw driver is a much misused tool. It is designed for turning screws into the wood, and that should be its primary use. The size of the screw driver should be selected to correspond with the size of the screws used. In handcraft work, screws of the following sizes are most commonly used: ⅜″ No. 4, ½″ No. 4, ¾″ No. 6, 1″ No. 6, and 1½″ No. 8. The figures ⅜, ½, ¾, 1 and 1½ refer to the lengths of the screws. The numbers 4, 6, and 8 refer to the thickness of the screw. The smaller the number, the thinner the shank of the screw. There should be both round head and flat head screws stocked in the craft room. Either steel, brass, or blued finish may be used. When using screws of these sizes it is advisable to have two sizes of screw drivers — small and medium. The blades should fit the slots in the screw heads.

When two pieces of wood are to be fastened together with screws, the following method is suggested for children. Drill the holes in the top board with a drill equal in diameter to the diameter of the shank of the screw. Drill the holes in the lower board with a drill that is smaller in diameter than the diameter of the screw. Turn the screws into the wood with a screw driver. Place the blade in the slot of the screw and then hold it firmly in place as you turn it. If the screw driver slips out, it will mar the wood and damage the slot in the screw head. The slivers of metal on a damaged screw head are sharp and dangerous. The teacher should inspect the children's work and, if necessary, see that such slivers are filed off.

So that screws will be flush with the surface of the wood, the upper hole should be countersunk. This is done with a rosebud countersink held in a brace. Place the point of the countersink in the center of the hole in the top board and turn the brace until the countersink has cut a V-shape deep enough to hold the top of the screw.



Countersink



Hole drilled and countersunk for flat head screw

Hole drilled for round head screw

The following suggestions are for fastening metal to wood with screws, such as a metal base on wooden book ends or a metal keel on a wooden boat. In the metal, drill holes that are large enough for the shank of the screw to slide through. Countersink the holes in the metal. To do this, use a twist drill twice as large as the one used to drill the original hole. Be careful not to drill too far. Drill holes in the wood with a drill that is smaller in diameter than the shank of the screw. Screw the metal onto the wood, using flat head screws. For fastening metal to book ends use 1″ No. 6 flat head screws. For fastening the keel to the boat use ⅜″ No. 2 flat head screws.

Planing

The smooth plane is a difficult tool for beginners to use. Some fifth- and sixth-grade boys, however, will learn to use it with a degree of success. The teacher who learns to use the plane will find it a very useful tool. One or two in the elementary handcraft room will be enough. The ability to use a plane efficiently comes through purposeful practice. The plane is a smoothing tool. Properly used it can be made to smooth the surfaces and edges of a board. Improperly used it will cut gouges and rough spots.

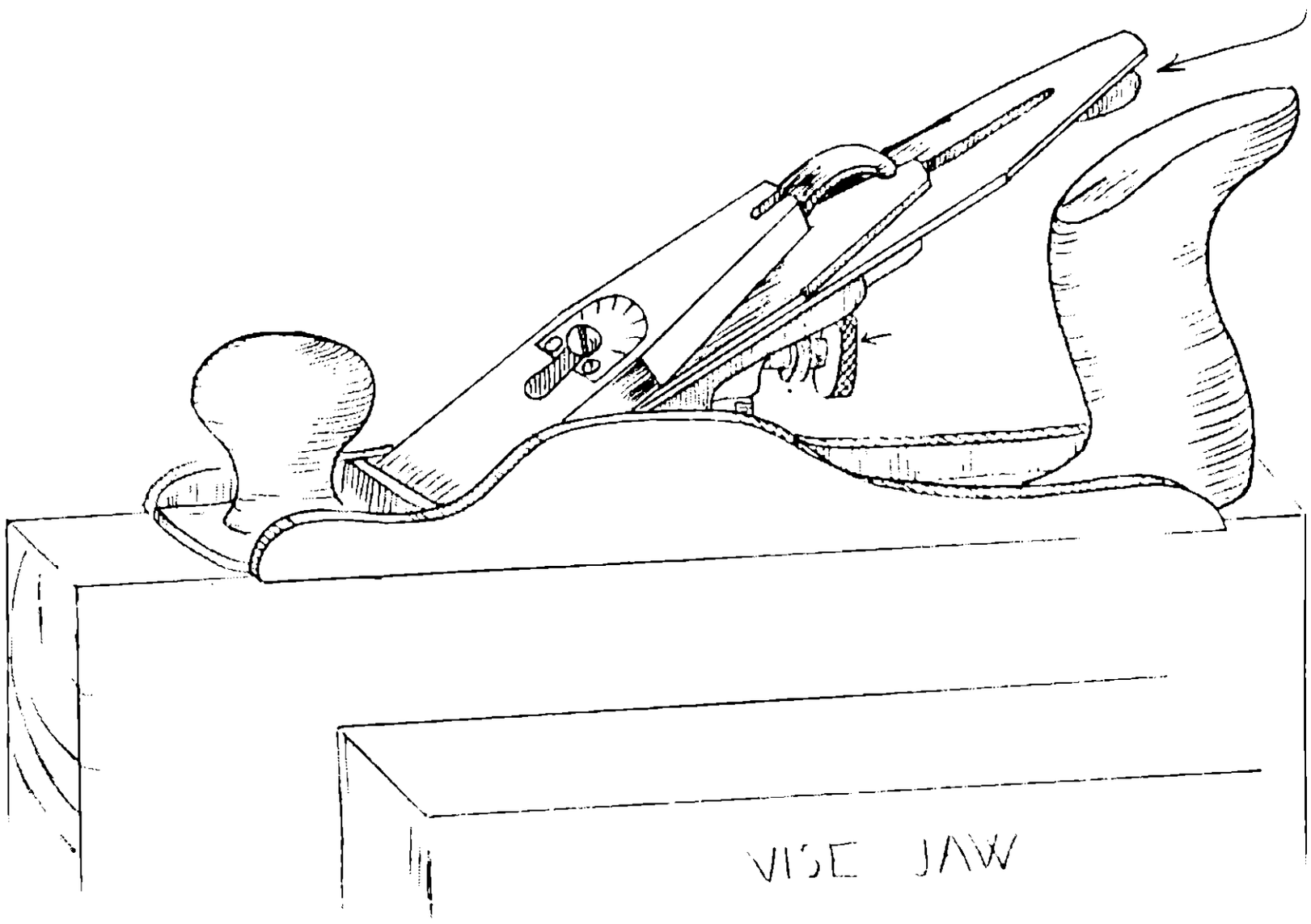
The blade must be kept sharp and perfectly adjusted. A screw behind the blade is turned to raise or lower it according to the size shaving you wish to remove. By shifting the lever under the blade you adjust the blade so that it is set straight within the frame. If the blade is set unevenly, it will cut to a greater depth on one side than on the other. By lifting the clamp above the blade, the blade may be removed for sharpening.

When planing edges of a board, the wood is placed in the vise, with the edge to be planed in a horizontal position. The plane is held with two hands — one on the knob, the other on the handle. It is pushed across the board in the direction of the grain.

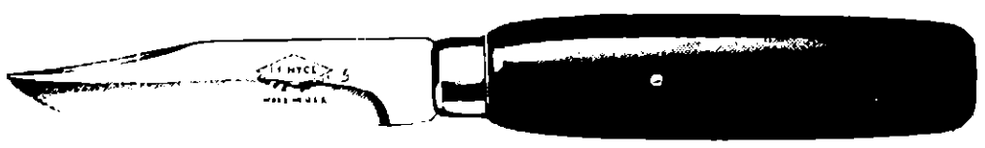
Children will find it difficult to plane the end grain of a board. It is best for them to use a file on the end grain until they become skilled in the use of a plane.

The plane may also be used by the experienced craftsman to smooth the surface of a board. Junior high school students will learn to do this but elementary students find it too difficult.

A board that may have nails, screws, corrugated fasteners, or tacks in it should never be planed until every piece of metal has been removed. The plane blade becomes badly nicked when mistreated. A nicked plane blade leaves ridges in the surface of the wood.



A smooth plane



Sloyd knife

Carving and Whittling

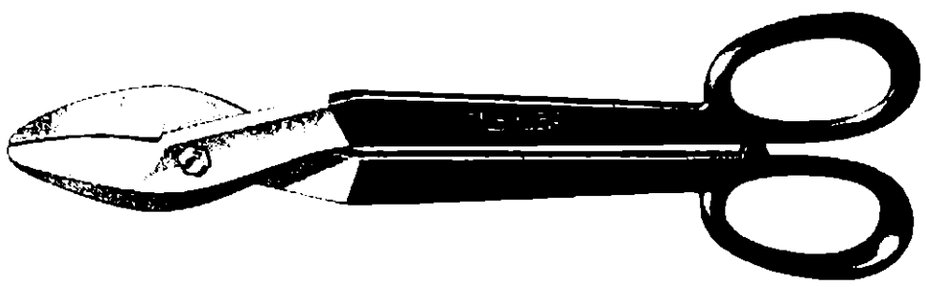
The sloyd knife is ideal for carving or whittling. Knives should be kept sharp. A dull knife is dangerous because it slips more easily than a sharp one. When whittling, if the child is taught to hold his wood back of where he is cutting and if he cuts away from himself, there is little danger of his cutting himself.

Knives should never be used as screw drivers or for prying. Not only are they apt to break but there is also serious danger of cutting oneself when using a knife improperly. Children should be taught to respect the knife as a necessary tool.

Cutting Sheet Metal

Some wood projects involve the use of pieces of sheet metal. For example, in this book metal bases are applied to book ends and a metal keel is used on the wooden sailboat.

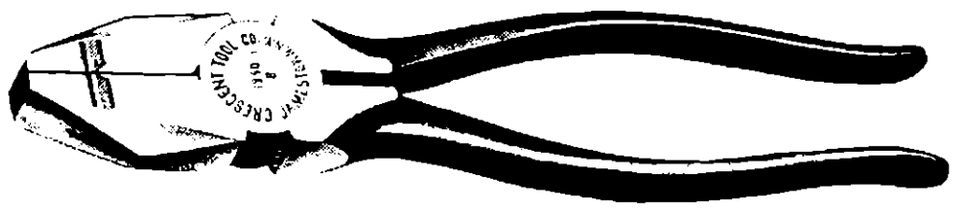
The tin snips are a large pair of shears especially designed for cutting sheet metal. The metal should be carefully marked out with a pencil. The snips are then handled in the same manner as a large pair of shears. The thinner the metal, the easier it will be to cut it. Cut edges that are sharp or ragged should be filed smooth.



Tin snips

Using the Pliers

Every handcraft room should have at least one pair of wire-cutting pliers. Wire and small nails may be cut between the sharpened jaws on the side of the pliers. The pliers may also be used for pulling out nails or for opening and closing screw eyes.



Wire-cutting pliers

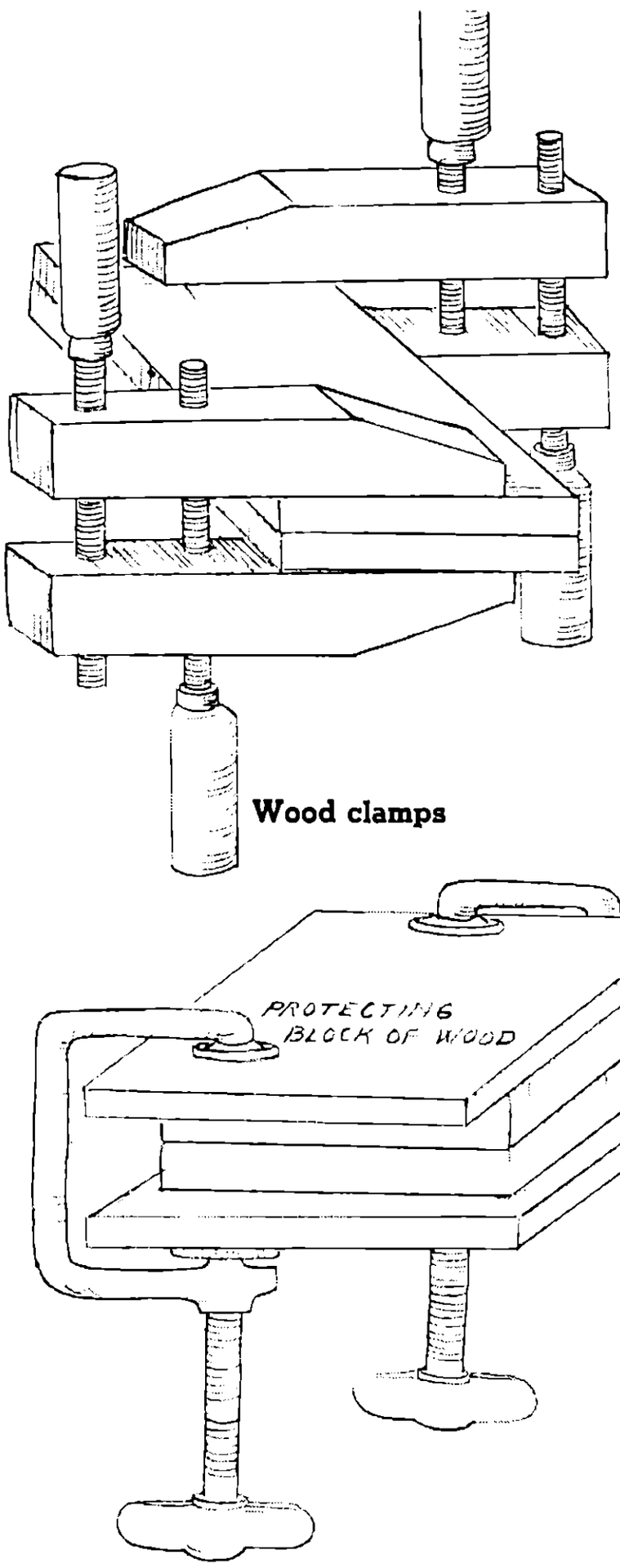
Gluing

Two pieces of wood may be fastened together by gluing them. A good grade of liquid wood glue should be used. Both surfaces should be clean, smooth, and dry. A wooden meat skewer or lollipop stick makes a good glue stick. Spread a thin layer of glue over one surface. Press the two pieces firmly together. Remove any excess glue from the seam.

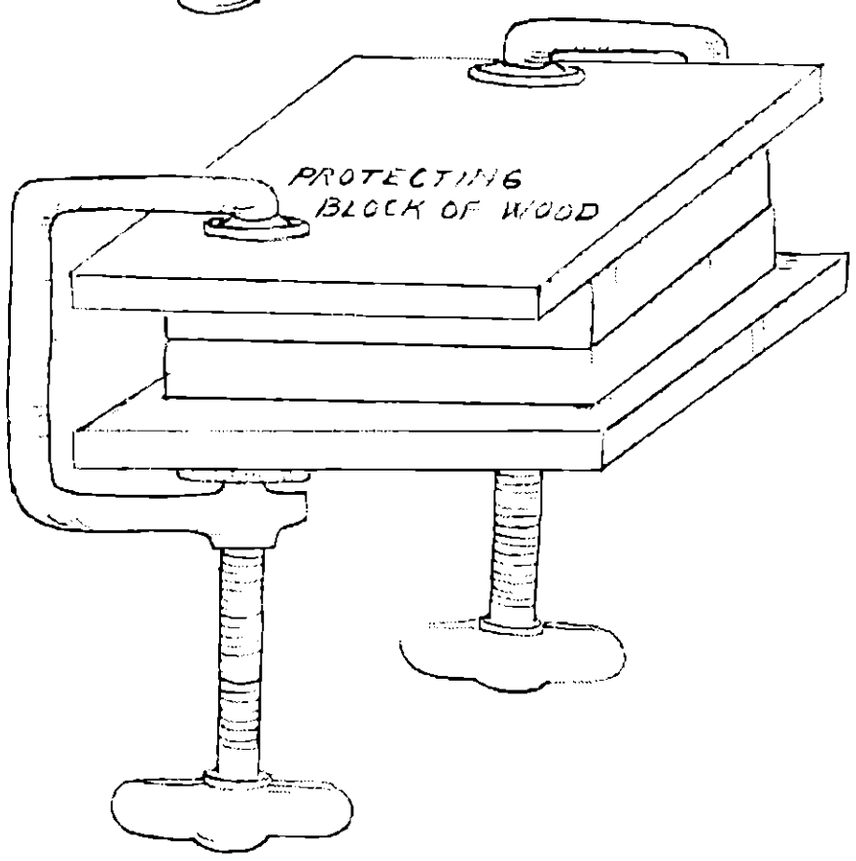
The glued pieces should be clamped together until dry. Wood clamps or C clamps may be used as shown. The glued pieces must be protected with blocks of wood when using C clamps to prevent them from marring the finished wood. Sometimes, as when gluing a box together, the joints may be held tight by tying strips of cloth around the box.

Children must be cautioned repeatedly not to use too much glue. Glue that seeps out of joints hardens in small globules that are very difficult to remove. Never use a file to rub off excess glue. The glue cakes into the teeth of the file and ruins the tool. Excess glue can be easily removed with a rag dampened with water.

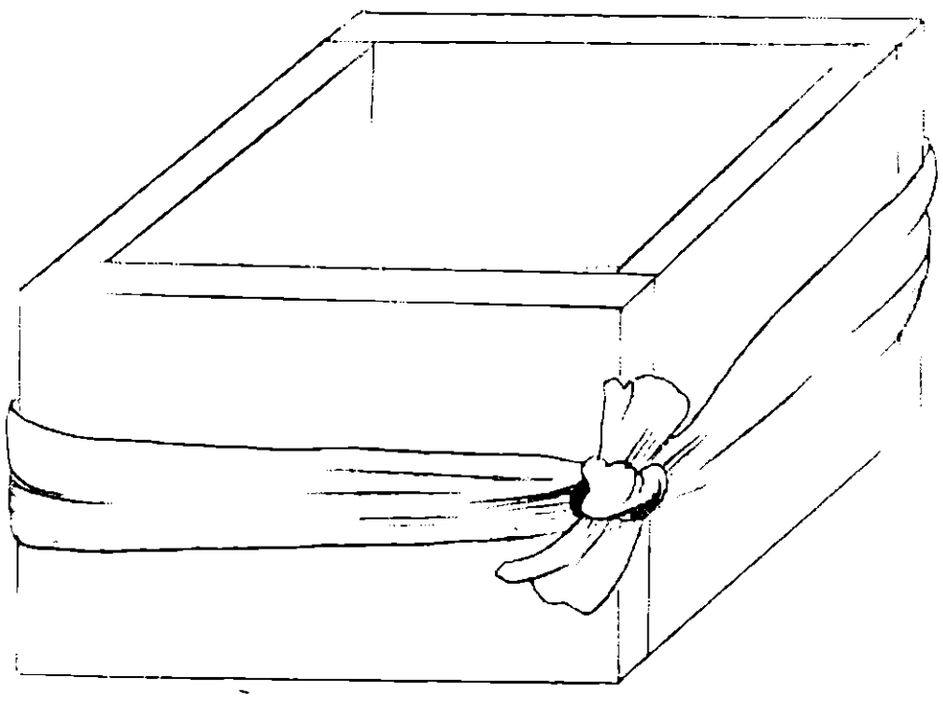
Glue cans should be tightly covered to prevent evaporation. If glue becomes too thick, it should be thinned according to directions on the container.



Wood clamps



C clamps



Tied with rag

Finishing Wood Projects

This section covers a group of processes concerned with applying color, decoration, and finish to the wood. Encourage the child to go over each piece with a piece of fine sandpaper (No. 0) before starting on this final step.

Designs can be applied in many ways. First the outline of the decoration should be carefully drawn on the wood with fine, light pencil lines. Children in the first and second grades will have the best results if they use crayons or colored pencils to color the designs. Use crayons that have very little wax content, and limit the coloring to lines and very small areas of color. Leave much of the bare wood to show as it has great beauty of its own, and its color is an excellent neutral background for any bright colors the child may apply.

Third and fourth graders may wish to use the electric woodburning pencil to burn the design into the wood. This tool has a cord fastened to it which may be inserted in any ordinary electric outlet. It is heated in the same manner as an electric iron. A cork jacket protects the fingers from getting burned as the child draws on the wood with the heated metal tip. The electric pencil is moved slowly along the lines, so that time can be allowed for the heat to burn into the wood. Children can develop considerable skill in the use of the electric woodburning pencil. Practice on scraps of wood is advisable. Youngsters of this age also do well with applying show card colors. Show card, tempera, or poster paints should be used almost as sparingly as crayons and colored pencils. Use fine brushes. Do not overload the brushes with paint. Stir the colors until they are the consistency of thick cream. Experiment on a block of scrap wood before applying the color to the toy.

Fifth and sixth graders will use all of these methods — crayons, colored pencils, electric pencils, and show card colors — with greater skill. They might also use water colors. However, these must be used with great care as they tend to spread along the grain of the wood. They are most successfully used to tint areas that have been outlined with the electric woodburning pencil.

All of the methods of applying color mentioned thus far should be followed by the application of shellac. When the paint is thoroughly dry a coat of thin, clear, white shellac should be brushed on. Shellac may be thinned by using one part of alcohol to four parts of shellac. When applying the shellac the child should brush it quickly over the edges of the article. Next, the surface is covered with quick strokes following the grain of the wood. Do not brush over shellac. Simply put it on and allow it to soak into the wood. The first coat will appear dull when dry. Wait twenty-four hours and then apply a second coat. After the second coat is thoroughly dry, rub lightly with fine, worn-out sandpaper to remove any roughness caused by raising the wood grain with the first coat of shellac. Dust the article with a cloth and apply a third and final coat of shellac. Rub the third coat of shellac lightly with very fine steel wool.

Some woods may be beautifully finished by rubbing wax into them. Black walnut, butternut, and red gum will take on beautiful finishes if paste wax is rubbed well into the grain, allowed to dry, and then polished with a soft cloth. The more coats of wax one applies and the more rubbing one does, the finer the finish will be.

A varnished finish is rarely used in beginning handcraft. However, there are times when such a finish is desired. It is best to buy an excellent grade of varnish and then follow carefully the directions given on the can.

Enamels are sometimes used. When the entire surface of an article is to be painted, enamels will serve better than a show card color and shellac finish. After the article is well sanded, a thin coat of enamel is brushed over the entire surface of the object. This should be allowed to dry thoroughly. The surface will then feel rather rough. Fine, worn-out sandpaper can be used to rub down the article before a second coat of enamel is applied.

All paints, thinners, and cleaners that are inflammable should be kept in a metal-lined cabinet. Paint rags, oily rags, and refuse should be destroyed or kept in a tightly covered metal container.

Brushes must be thoroughly cleaned each time they are used. Clean water color and show card brushes in water. Clean shellac brushes in alcohol. Clean enamel and varnish brushes in turpentine. Keep brushes separated according to the material for which they are used. Lay brushes on a flat surface to dry. This prevents the misshaping of bristles. Brushes should be stored so that the hairs are in a pointed, straight position. An excellent way to store brushes is to stand them upright (bristles pointed up, handles down) in jars or in holes drilled in blocks of wood.

Projects Made of Wood

The easiest and most interesting way for children to learn these tool processes is in the actual construction of a wood project. Children will gain skill with each new project they attempt. Projects should be chosen carefully. The ability and the experience of the child must be considered. A simple project well done is far more satisfactory than an elaborate one poorly executed. In this book are sug-

gested several types of wood projects that involve, in their construction, the fundamental hand tool processes for wood handcrafts. There are countless other projects that may be made, far too many to include in one volume. The ones chosen are basic in teaching skills. They are arranged in order of difficulty with grade suggestions included. Do not adhere to these grade levels if your children are less skilled or more skilled than average. Beginners of any age should start with the simplest project and then proceed to the next level of difficulty. In the following chart, projects that are starred (*) might also be made by more advanced groups. Decoration could be more complex and the workmanship and finish of a much higher standard.

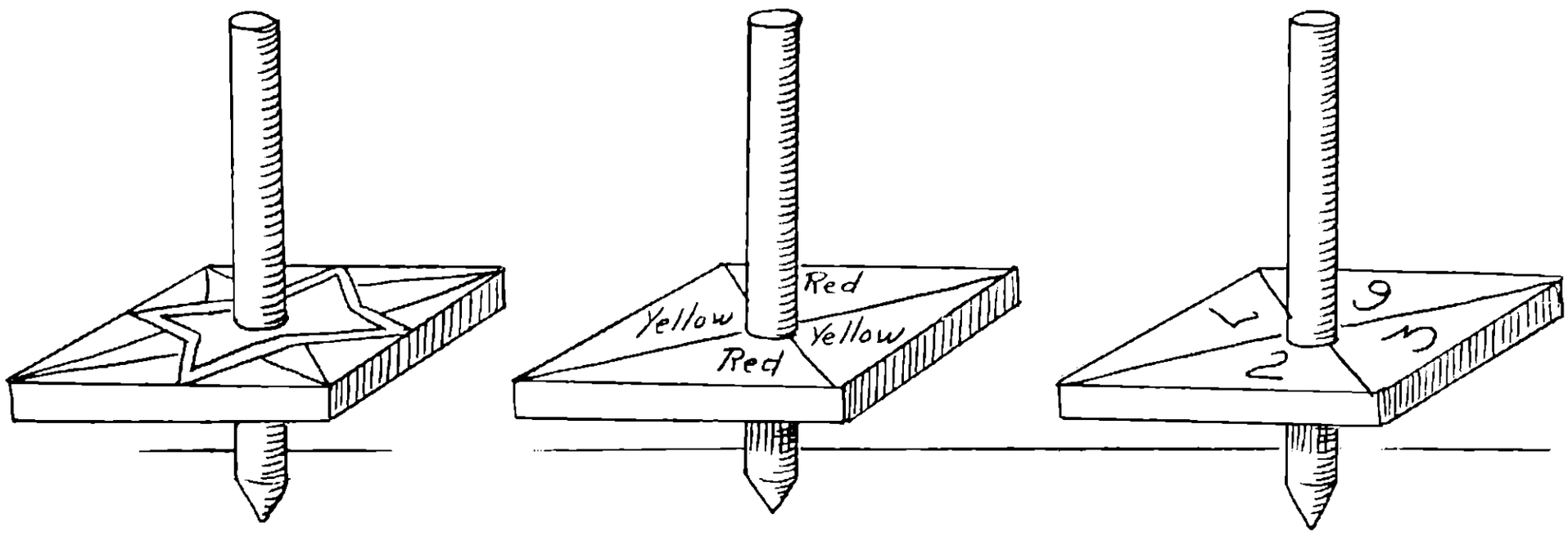
The projects which follow should be considered as suggestive ones or basic ones. Encourage the pupil to create his own designs and to express individuality in decorating his projects.

Page 57 shows the method of enlarging drawings with the aid of squared paper. Squares used here are ¼". Use 1" squares to make a full size pattern. These drawings are one-fourth the actual size.

Suggested Grade Placement of Individual Woodcraft Projects

GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
*Square top	Flat boats	*Wood-burned plaques	*Animals (applied parts)	*Boxes	Pin-up lamps
*Swedish horse (straight legs)	See page 181	*Doorstops	*Carts	*Sailboat	Wall shelves
*Single-thickness toys (simple contour)	*Toys with applied parts (very simple)	*Trains	*Lawn figures	*Dolls	Puppets
		*Tea tiles	*Paddle boat	*Dancing Dans	Small benches
		Puzzle stick	*Wagons	*Carved plaques	Book covers
		*Lapel pins	*Trucks	*Doll furniture	Candle holders
		T & F puzzle	*Trays	*Book ends	
			*Napkin holders		
			Bead puzzle		

A TOP THAT SPINS



A top decorated with designs **A red and yellow top spins orange.** **Keep score when spinning**

A SIMPLE TOY that actually has motion and is easily made is this square top. Children of any age will enjoy making it. Six-year-olds will find it fairly simple to make if ¼″ x 2″ strip lumber is provided. Older children may wish to paint a numeral on each side, counting scores as they spin the tops. The numeral that is up when the top stops spinning is the score for that turn. When it is spinning, a top which is painted with any two primary colors will form the secondary color resulting from mixing those two. For example, a blue and yellow top will appear green when spinning.

Materials Needed

1 pc. ¼″ x 2″ Strip lumber of basswood or white pine
1 pc. ¼″ Dowel rod

Tools Needed

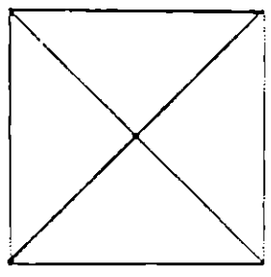
Ruler
Miter box and saw
¼″ Twist drill
Hand drill
File
Vise

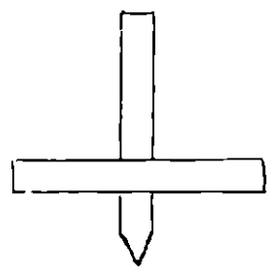
Skills Used

Measuring
Sawing
Drilling
Filing
Sandpapering
Coloring
Shellacking

PROCEDURE

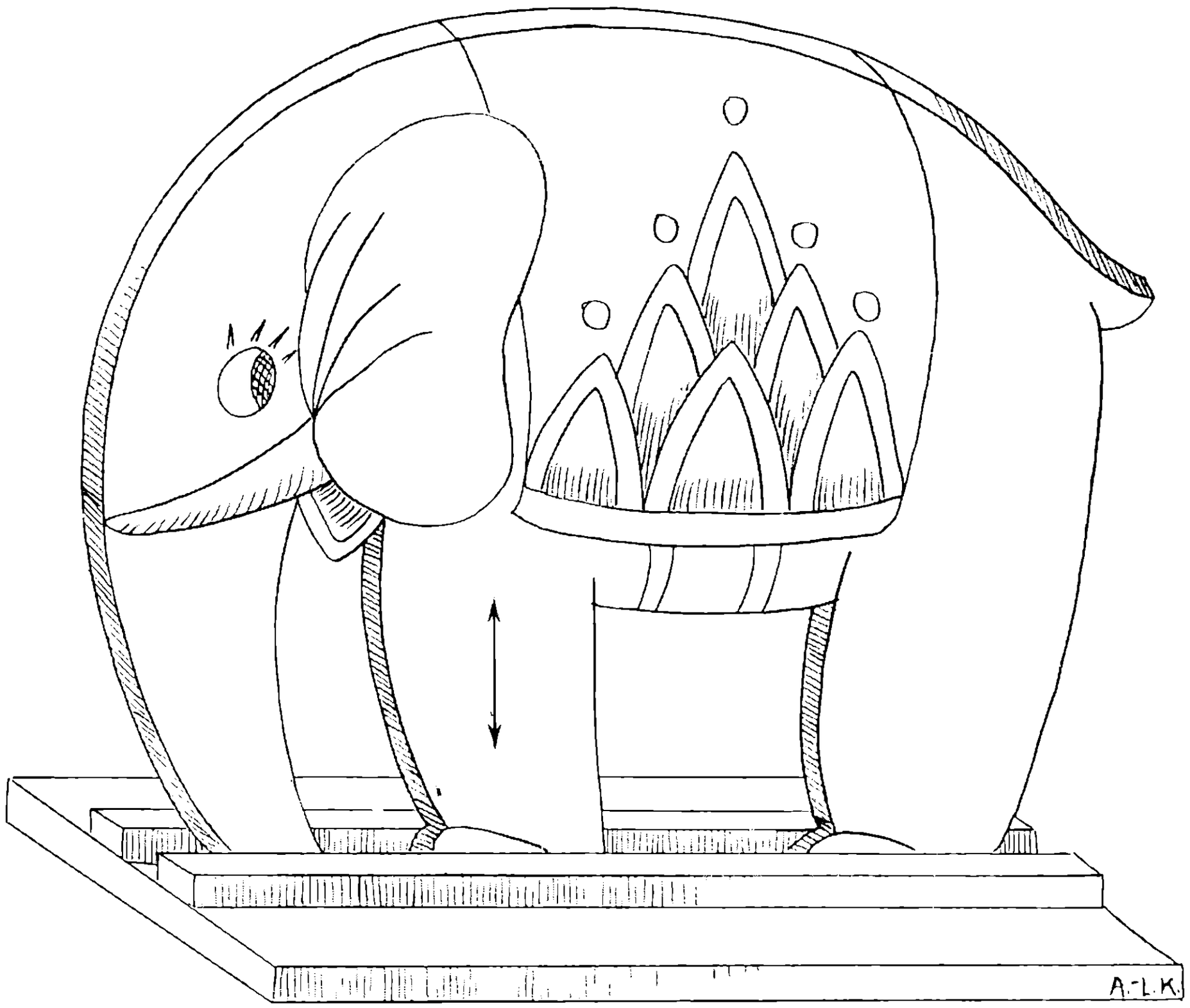
1. From the square end of ¼″ x 2″ strip lumber measure a length of 2″. Mark with a pencil and square the line across with a try square.
2. Place in the miter box and saw off the 2″ square.
3. Find the center of the square by drawing diagonal lines from corner to corner. They will cross at the center.
4. Drill a ¼″ hole through the center.





5. File and sandpaper the four edges. Sandpaper the surfaces.
6. Measure off 3″ on the dowel rod. Saw off in the miter box.
7. Sharpen one end of the dowel in the pencil sharpener, or file to a point with the file. The point does not need to be extremely sharp.
8. Insert the peg one-third of the way through the hole in the square.
9. Use colored pencils to decorate.
10. Finish with shellac.

A SIMPLE, SINGLE-THICKNESS TOY



VERY SIMPLE IN outline form, this animal of a single thickness of ¼″ wood may be made to stand in a slotted base. First graders can cut this easy pattern with a coping saw. The design is sturdy, having no thin projecting parts. Children should be encouraged to create original patterns.

Materials Needed

¼″ x 2″ Strip lumber, basswood, or white pine.
¼″ x ¼″ Strip lumber, basswood, or white pine
¼″ x 5″ Strip lumber, basswood, or white pine
½″ No. 19 Brads

Tools Needed

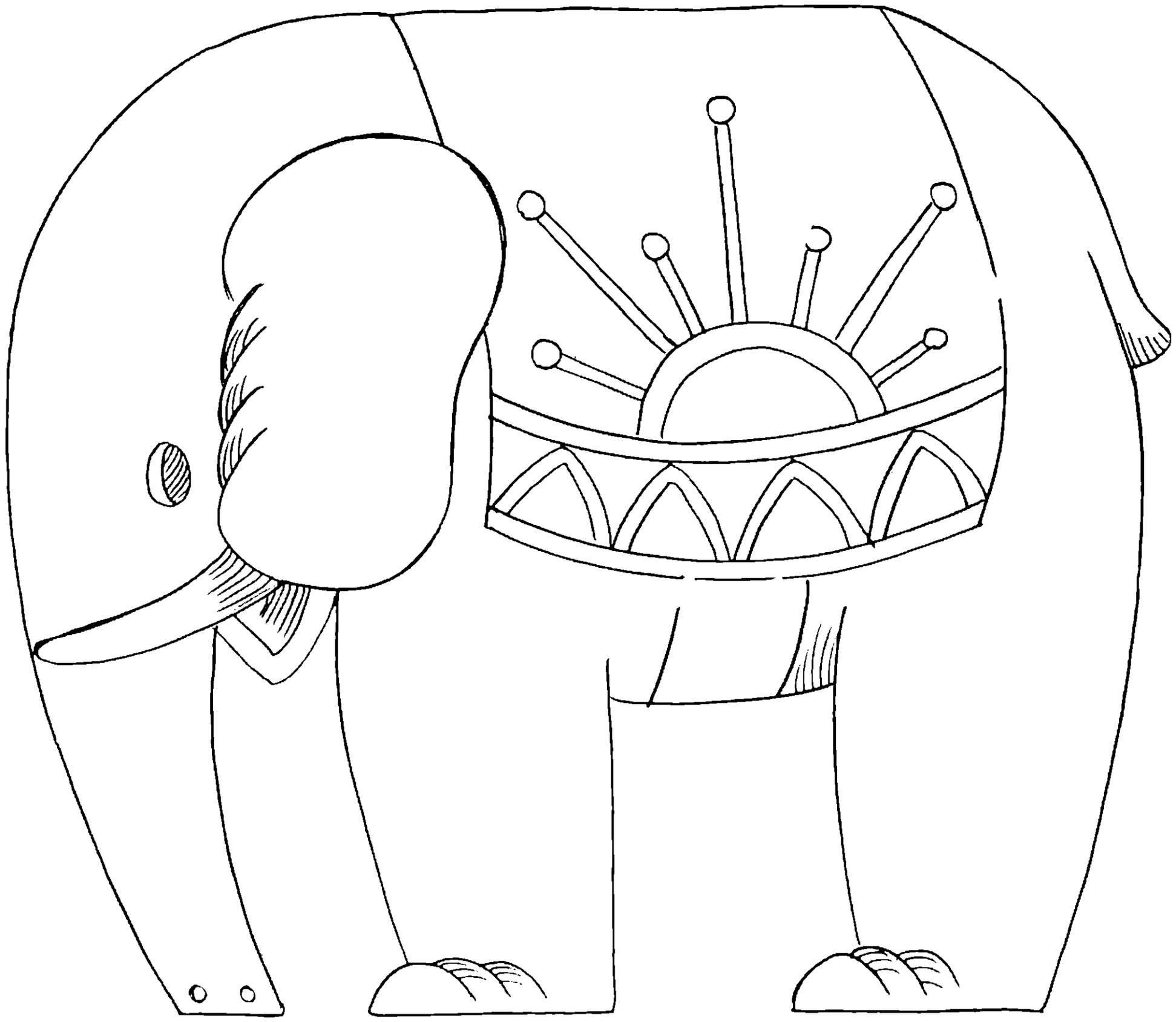
Miter box and saw
Vise
Coping saw
V board
File
Hammer
Cabinet saw

Skills Used

Measuring
Sawing
Filing
Sandpapering
Gluing
Nailing

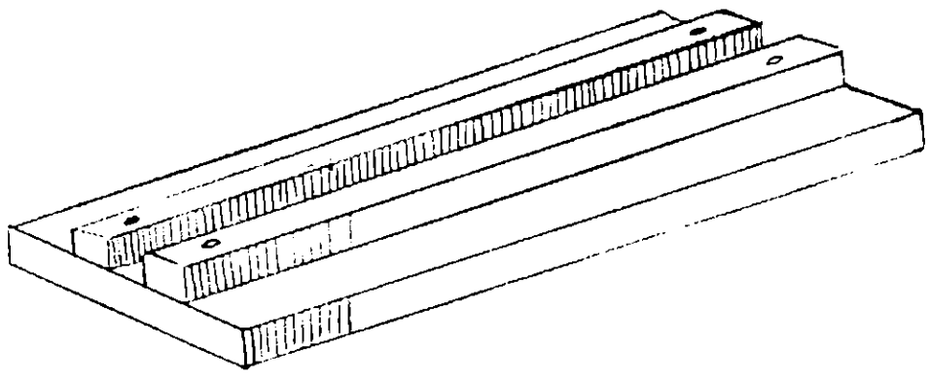
PROCEDURE

1. Measure 5″ on the length of the ¼″ x 5″ strip lumber. Saw off the 5″ square.
2. Place the pattern of the elephant (little children should be provided with a stiff cardboard pattern) on the square of wood. Be sure the grain of the wood runs up and down into the trunk and legs of the animal. (See page 161.) Note the arrow on the pattern, which indicates the direction of the grain.



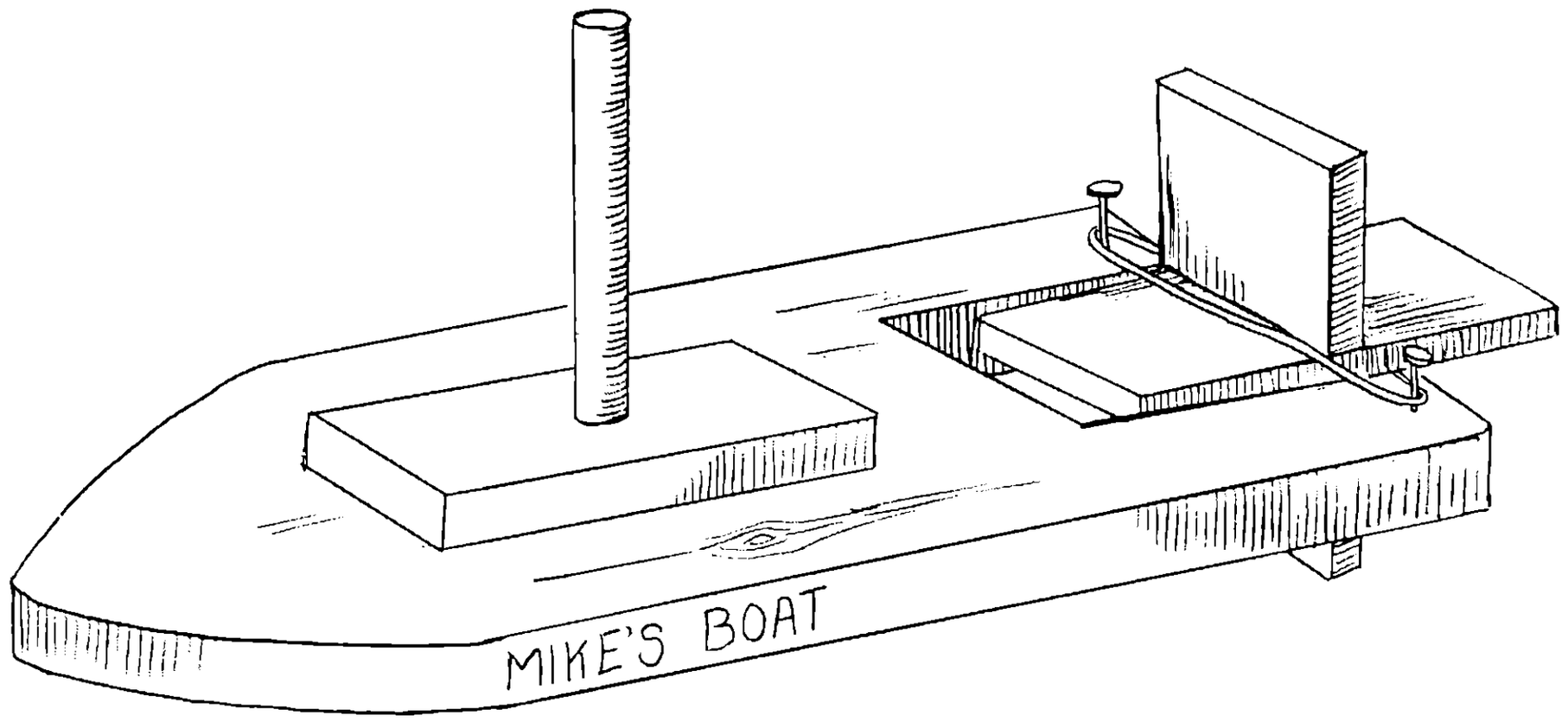
Pattern for elephant

3. Use the coping saw to saw out the animal. Saw just outside the pencil line.
4. File all the edges.
5. Sandpaper the edges and the surfaces.
6. Measure off 5″ on the length of the ¼″ x 2″ strip lumber. Place in the miter box and saw.
7. Measure off two pieces 5″ long on the ¼″ x ¼″ strip lumber. Saw off in the miter box.
8. File the ends of these three pieces.
9. Sandpaper the ends, edges, and surfaces of these three pieces.
10. Assemble the base. Put a thin layer of glue on one edge of each ¼″ x ¼″ x 5″ strip. Glue these to the ¼″ x 2″ x 5″ strip so that they are centered on the larger strip and just far enough apart for the toy to be slid into the slot thus formed.
11. Drive ½″ No. 19 brads in the ends of the ¼″ x ¼″ strips.
12. Use crayons or colored pencils to outline the ears, eyes, tusks, toenails, and blanket designs.
13. Finish with shellac.



Base for single-thickness toy

A PADDLE-WHEEL BOAT



A paddle-wheel boat can be easily made with strip lumber, some brads and nails, and an ordinary rubber band.

When made of strip lumber this boat may be constructed by second or third graders. The rubber band-powered paddle actually drives the toy craft through the water with considerable speed for a surprising distance. No purchased boat model is half so thrilling to own as this one made by the young sailor himself.

Materials Needed

- ⅜″ x 3″ Strip lumber, basswood, or white pine
- ¼″ x 1¾″ Strip lumber, basswood, or white pine
- ¼″ Dowel rod
- ½″ No. 19 Brads
- ¾″ No. 16 Wire nails with heads

Tools Needed

Miter box and saw	Vise
Coping saw	Hammer
V board	¼″ Twist drill
File	Hand drill

Skills Used

Measuring	Drilling
Sawing	Gluing
Filing	Nailing
Sandpapering	

PROCEDURE

1. Measure off 9″ along the length of the ⅜″ x 3″ strip lumber. Saw off in the miter box. (If desired the teacher could provide each child with the cut length.)
2. Trace the pattern on the ⅜″ x 3″ x 9″ piece.
3. Use the coping saw to cut out the wide, deep notch for the paddle and to shape the bow of the boat.
4. File all the edges until smooth.
5. Sandpaper all edges and surfaces.
6. On the ¼″ x 1¾″ strip lumber measure off one piece 4″ long and two pieces 3″ long.
7. Cut off these pieces in the miter box.
8. File and sandpaper all three pieces.
9. Find the center of the ¼″ x 1¾″ x 4″ piece by drawing diagonal lines from corner to opposite corner. This piece will be for the cabin.
10. Drill a ¼″ hole clear through the center of the cabin.
11. Glue the cabin to the main part of the boat, placing it back 2″ from the front point of the boat and centering it from side to side.

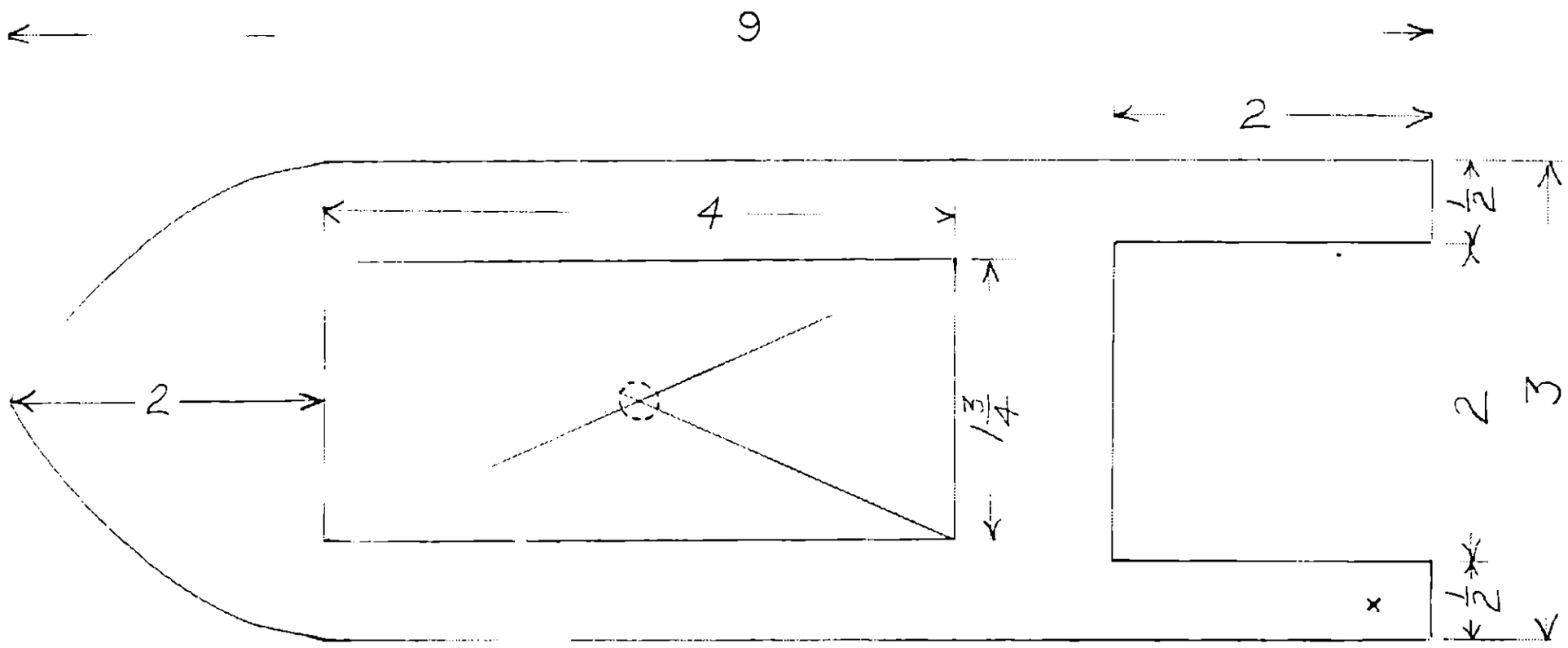
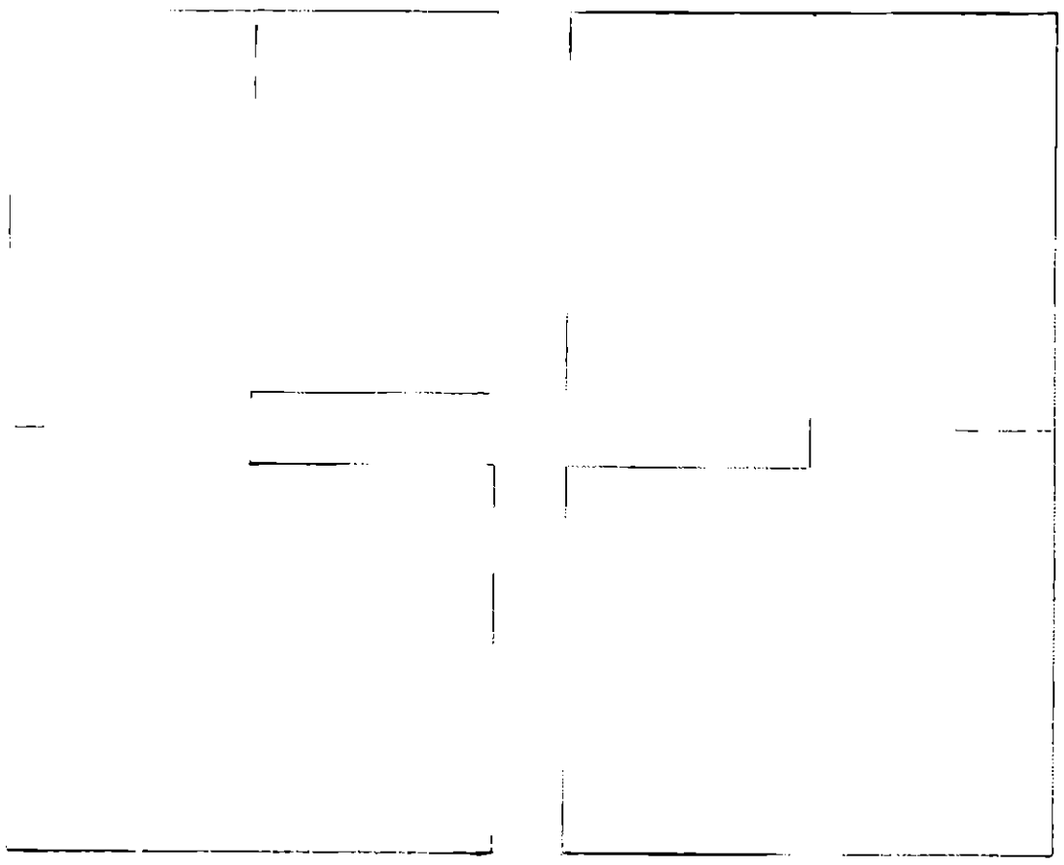
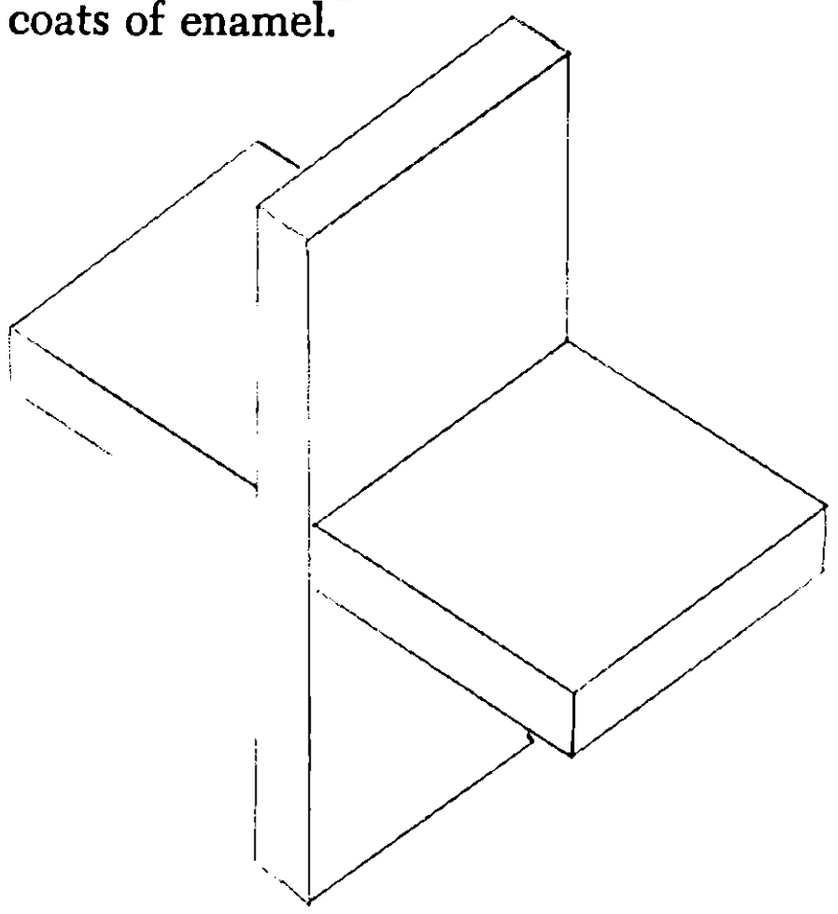


Diagram of paddle-wheel boat

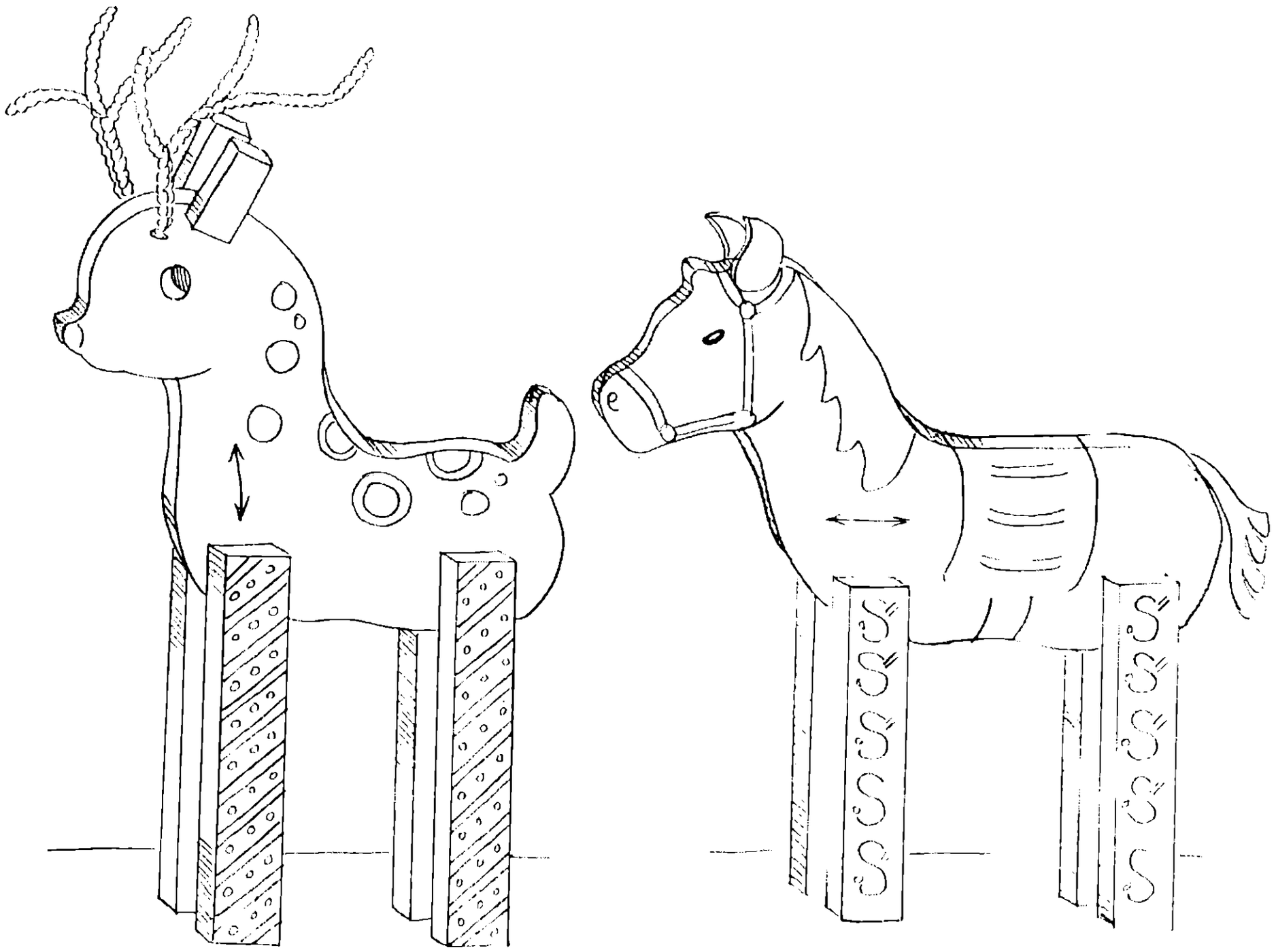
12. When the glue is set nail down the four corners with ½″ No. 19 brads.
13. For the smokestack, measure off 4″ of ¼″ dowel rod. Saw off. Sandpaper the ends. Glue one end into the ¼″ hole in the cabin.
14. Use the coping saw to cut notches in the ¼″ x 1¾″ x 3″ pieces to make the paddle. Each notch is ¼″ wide, ⅞″ deep, and is centered halfway down the long side of the piece.
15. File and sandpaper these notches until the two pieces can be fitted together to form the paddle. Glue the notches together.
16. Drive ¾″ No. 16 nails into ends of boat to hold rubber band. Place nails ½″ from end and hammer through until point just shows at bottom of boat.
17. Paint boat and paddle wheel with two coats of enamel.





Notched pieces slide together to form paddle.

SIMPLY-MADE ANIMALS THAT STAND



YOUNGSTERS WILL BE fascinated by these toys because they begin to have a third-dimensional quality and because they will stand on their own legs. Try them with second or third graders after they have made several single thickness toys.

Materials Needed

⅜″ x 4″ Strip lumber or ⅜″ x 4″ x 4½″ basswood or pine
¼″ x ½″ Strip lumber, basswood, pine, or red gum
3 Pipe cleaners (for deer)
½″ No. 19 Brads
Raffia or colored yarns (for horse's tail and mane)

Tools Needed

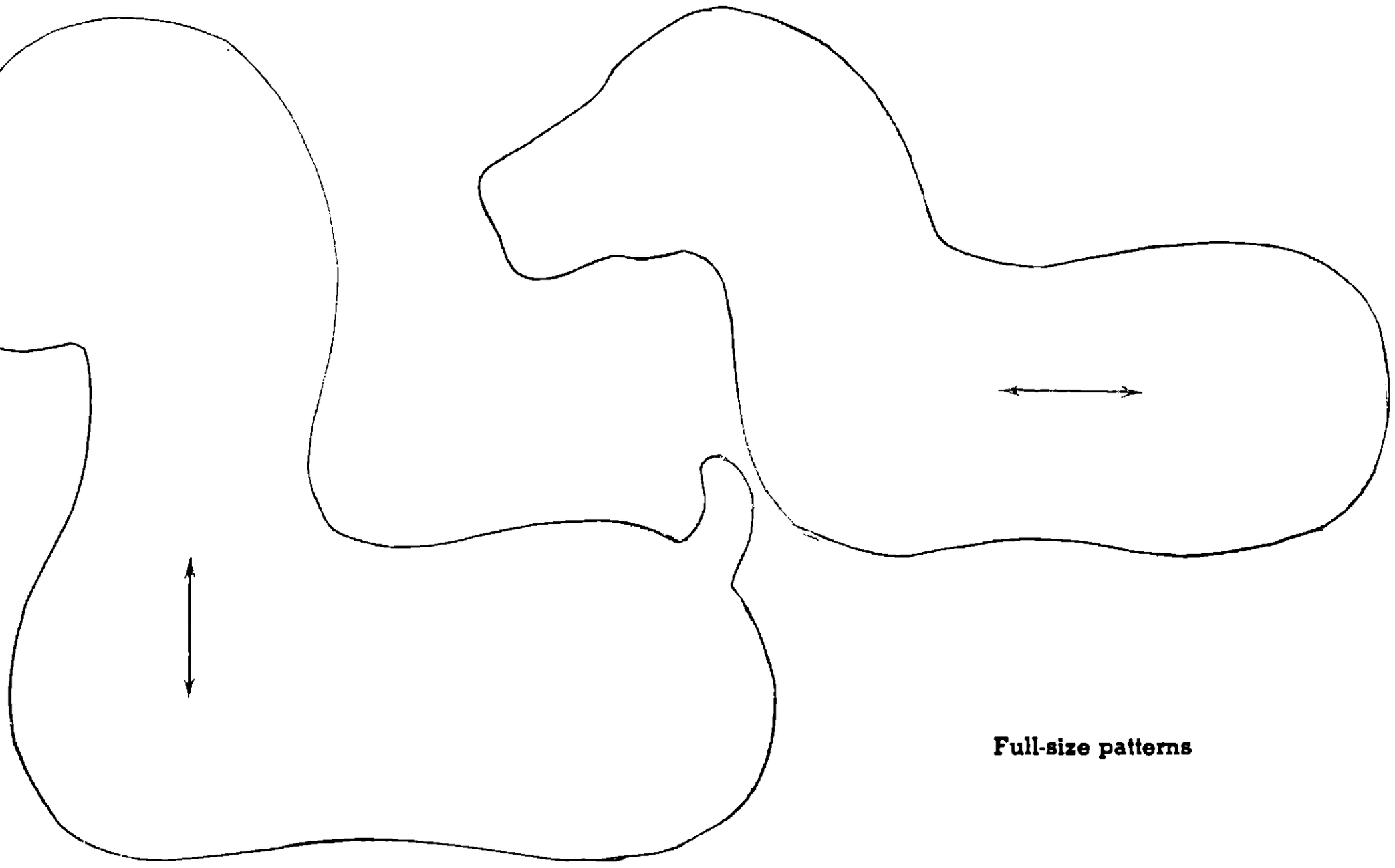
Miter box and saw
Coping saw
V board
File
Vise
⅛″ Twist drill
Hand drill
Hammer
Wood clamps

Skills Used

Measuring
Sawing
Filing
Sandpapering
Drilling
Gluing
Nailing
Braiding

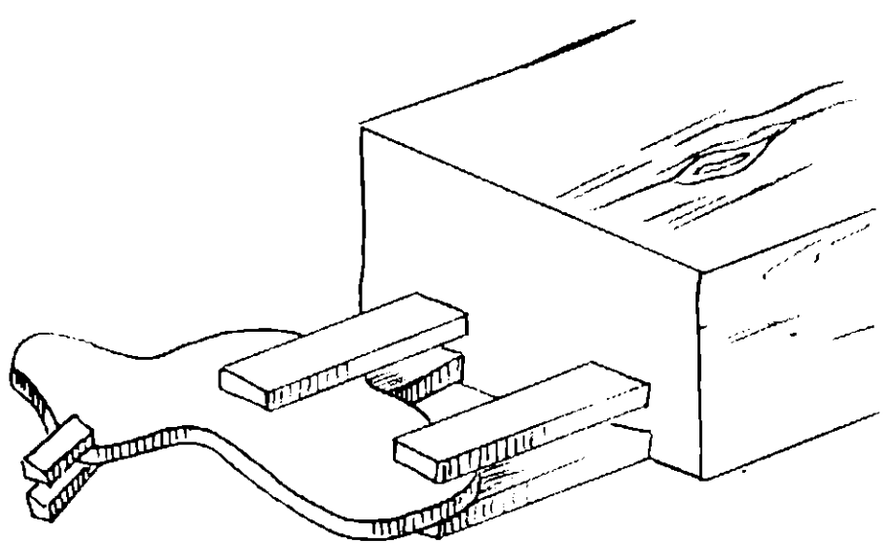
PROCEDURE

1. If using strip lumber, measure off 4½″ on the ⅜″ x 4″ strip. Saw off this piece.
2. Draw the body on this piece. The drawings on page 184 may be traced as patterns. Note the arrow on the body showing the direction of the grain.
3. Use the coping saw to cut to shape.
4. File all the edges.
5. Sandpaper all edges and surfaces.
6. Use a ⅛″ twist drill to drill a hole for the antlers in the deer's head.
7. Measure off the legs on the ¼″ x ½″ strip lumber. If making the deer, mark off four pieces 2½″ long. For the horse mark off four pieces 2″ long.



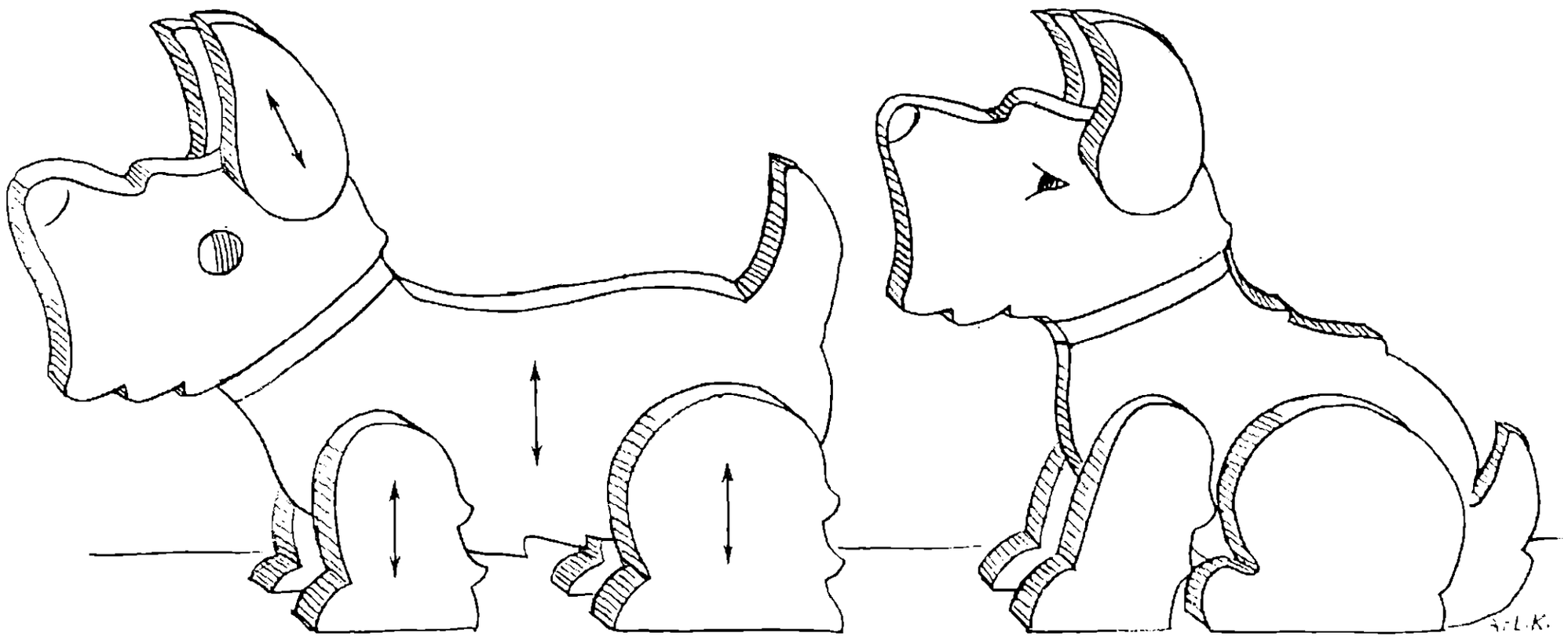
Full-size patterns

8. Saw off the leg pieces in the miter box.
9. For the deer's ears mark off and saw a piece 1¼″ long from the ¼″ x ½″ strip. For the horse's ears cut off a piece ¾″ long. Ears may also be made of scraps of leather.
10. Saw the ear pieces in half lengthwise. Finished ears for the deer will measure ¼″ x ¼″ x 1¼″. Ears for the horse will measure ¼″ x ¼″ x ¾″.
11. File the ends lightly on all leg and ear pieces.
12. Sandpaper all edges and surfaces of legs and ears.
13. Assemble the animal. Rub glue into the upper ½″ of one surface of each leg. Stick the legs into position on the body. Place the toy flat on the workbench while doing this. Check the bottoms of the legs against a block of wood to make sure the animal will stand. Glue ears in position.
14. Permit glue to set for ten or fifteen minutes. Then place the animal between two pieces of wood and fasten with clamps. See page 175. Let glue dry overnight.
15. Apply decorations with colored pencils or show card colors.
16. Finish with shellac.
17. Braid a raffia or yarn tail for the horse. Tack and glue in place. Use ½″ No. 19 brads.
18. Twist three pipe cleaners together at the centers to make the deer's antlers. Thread one end of twisted cleaners through the hole in the deer's head. Bend cleaners to form spreading antlers. Cut off excess pipe cleaner with wire-cutting pliers or tin snips. (See instructions on page 174.)



Check the glued legs against a block of wood to be sure the animal will stand straight.

ANIMALS WITH APPLIED PARTS



CONTRAST IN THE colors of wood used, variation in thicknesses of wood, and a three-dimensional quality make these animals interesting and unusual. One color of wood ⅜″ thick is used for the body. Another color of wood ¼″ thick is used for applied parts. Any part growing in pairs may be applied. This, of course, includes legs, ears, wings, and horns. Third and fourth graders will enjoy making animals with applied parts.

Materials Needed

1 pc. White pine or basswood, ⅜″ x 6″ x 4″
1 pc. Red gum or Philippine mahogany, ¼″ x 6″ x 4″

Tools Needed

Coping saw	Vise
V board	Wood clamps
File	

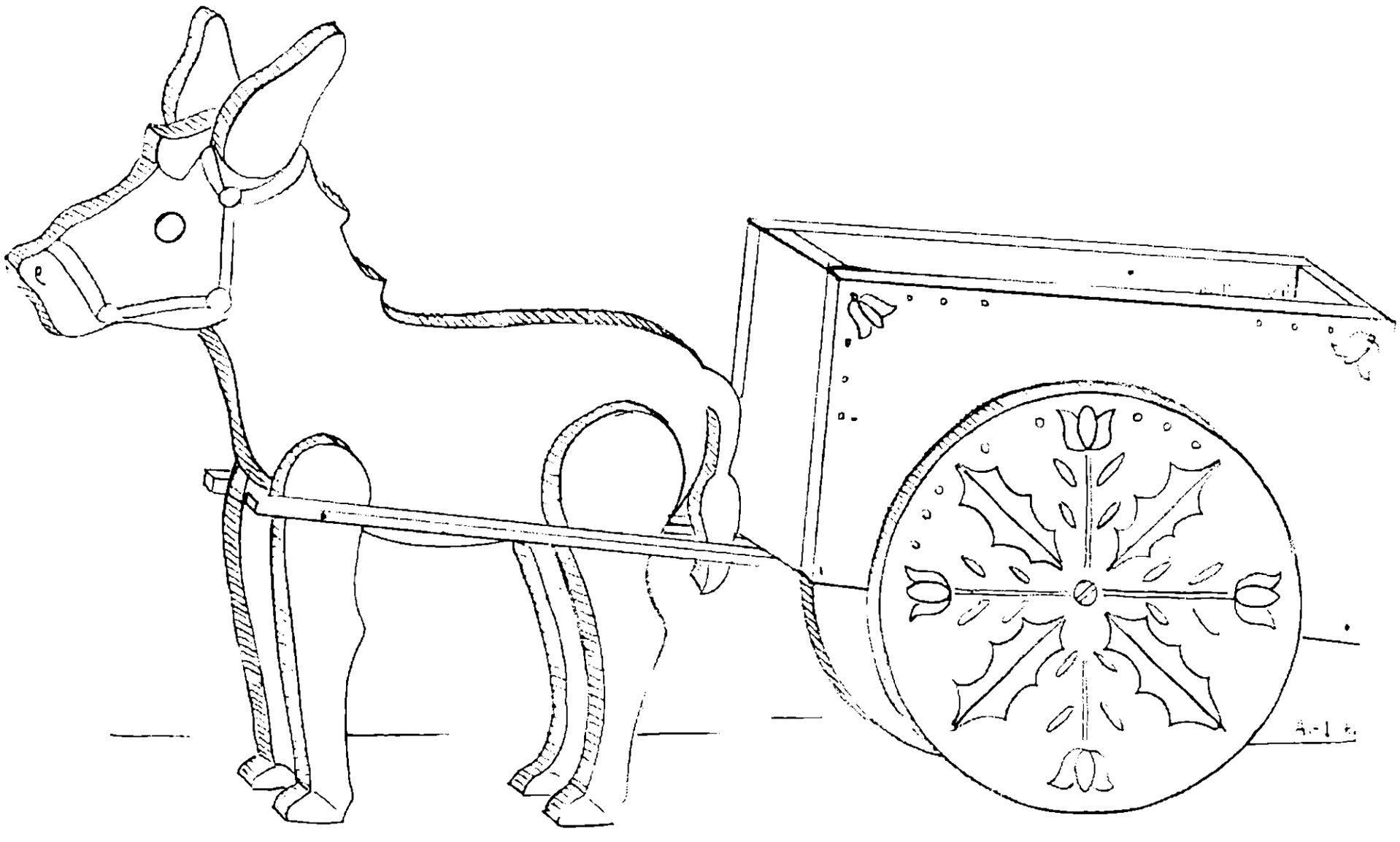
Skills Used

Sawing	Sandpapering
Filing	Gluing

PROCEDURE

1. Trace the body of the animal on the ⅜″ x 6″ x 4″ pine or basswood. Pay special attention to the grain. Trace the four legs and two ears on the ¼″ x 6″ x 4″ red gum or Philippine mahogany. Pay special attention to the grain.
2. Use the coping saw to cut out all parts. Saw just outside the line.
3. File the edges of all pieces.
4. Sandpaper the edges and surfaces of all pieces.
5. For eyes for the standing Scotty dog cut two thin slices of ¼″ dowel rod. These should be approximately ⅛″ thick. Place the dowel rod in the vise with the end which you intend to saw close to the jaws of the vise. Use the coping saw to cut off the pieces. Sandpaper by rubbing the tiny discs of wood over the sandpaper.
6. Glue the pieces together. Rub a small amount of glue on the upper part of one surface of each leg. Stick the legs in place. Work with the animal flat on the bench with the legs up against a block of thick wood (2″ x 4″). This will insure that the animal stands level when finished. Glue the ears on. Do not put glue over the entire surface of the ear. Rub it in on that part which will be fastened to the body. Glue the eyes on.
7. As soon as the glue has set (after ten or fifteen minutes), place the animal between pieces of wood and apply wood clamps as shown on page 175. Allow twenty-four hours to dry.
8. Woodburn the eyes, nose, and collar, or paint fine lines with brown or black show card colors.
9. Finish with shellac.

A DONKEY CART



CARTS AND WAGONS require more skill to construct than do the previous projects. Wheels are introduced and pieces of wood are nailed at right angles to each other. Canned meat tins may be placed in the carts. Flowers may be placed in these rectangular tins. The donkey is an applied parts animal made as described on page 185. Wood used for the donkey should be in two colors. Use one piece about ⅜″ x 7″ x 4″ for the body. Use another ¼″ material for the legs and ears. If by chance the tail splits off, saw it off entirely and tack on a braided tail with a tassel on the end. Try this project in the fifth or sixth grades.

Materials Needed

¼″ x 2″ Strip lumber, red gum or Philippine mahogany (for sides of cart)
½″ x 2½″ Strip lumber, red gum or Philippine mahogany (for base of cart)
½″ x ½″ Strip lumber, white pine or basswood (for axles)
¼″ x ¼″ Strip lumber, white pine or basswood (for wagon shafts)
¼″ x 4″ x 8″ Pine or basswood (for wheels)
½″ No. 19 Brads
¾″ No. 18 Brads
¾″ No. 6 Round head wood screws

Tools Needed

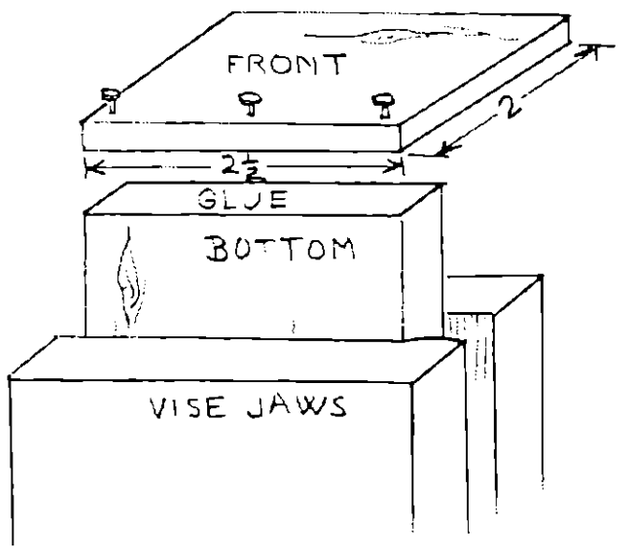
Ruler
Miter box and saw
Coping saw
File
V board
Vise
Hand drill
⅛″ Twist drill
3/32″ Twist drill
Hammer

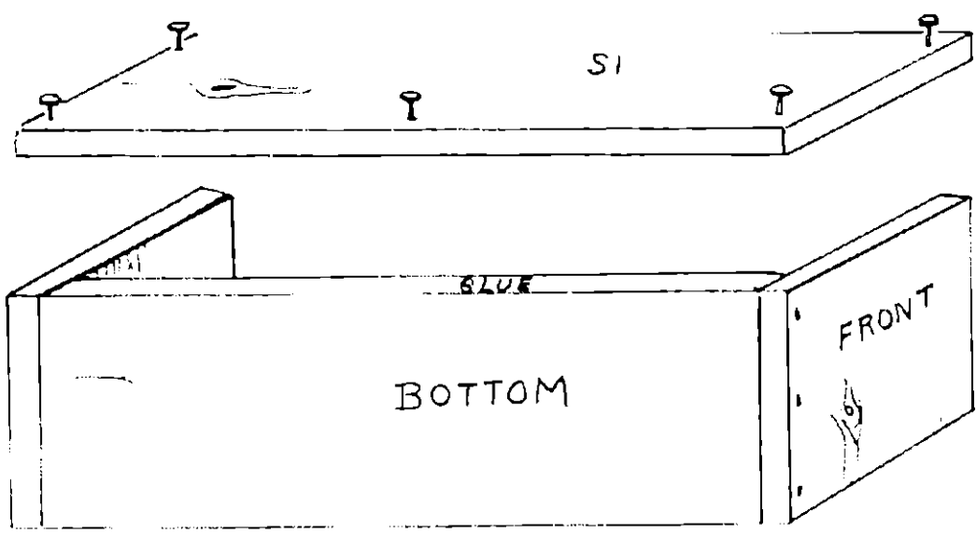
Skills Used

Measuring
Sawing
Filing
Sandpapering
Drilling
Gluing
Nailing

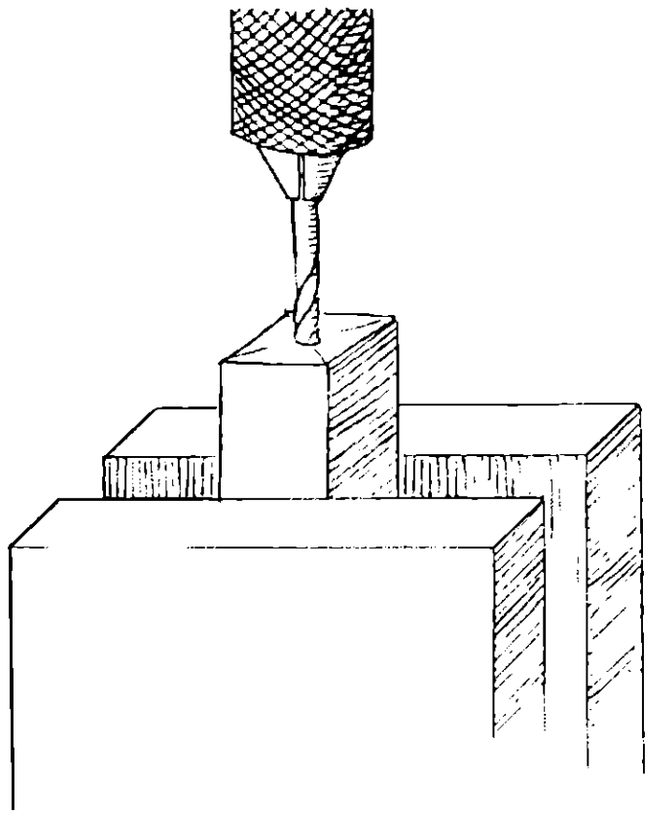
PROCEDURE

1. Measure the pieces for the cart box. On the ¼″ x 2″ strip lumber measure off two pieces 2½″ long for the front and back of the cart. Measure off two more pieces 6″ long for the two sides of the cart. On the ½″ x 2½″ strip lumber measure off a piece 5½″ long to make the bottom of the cart.

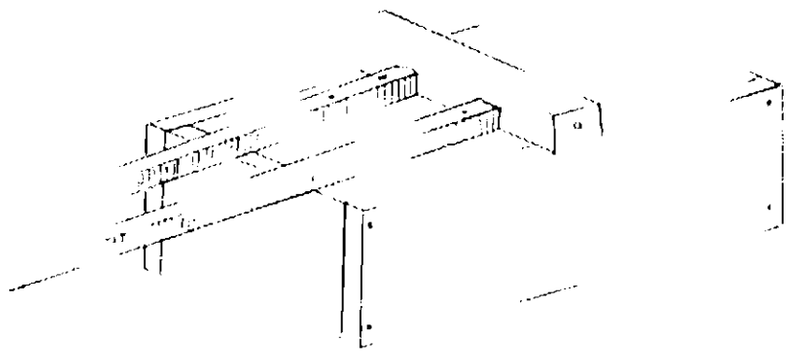




2. Saw off all these pieces in the miter box to insure square corners.
3. Lightly file the ends of these pieces to smooth off the sawed edges.
4. Sandpaper all edges and surfaces.
5. Assemble these pieces. Place the bottom of the cart in the vise, with one of the short ends up. Rub glue into this end. Start ½″ No. 19 brads into the front piece of the cart. Nail this piece over one end of the bottom piece. Glue and nail the back of the cart on the other end of the bottom. Remove from the vise. Rub glue onto the three edges of the cart and nail one side in place. Nail and glue the other side on. Tie with rags to dry as shown on page 175.
6. Cut an axle 3⅛″ long from the ½″ x ½″ strip lumber. File and sandpaper the axle.
7. Find the center of each end of the axle by drawing lines from corner to opposite corner. Place the axle in the vise and drill a 3/32″ hole into the center of each end. Make the hole about ½″ deep.

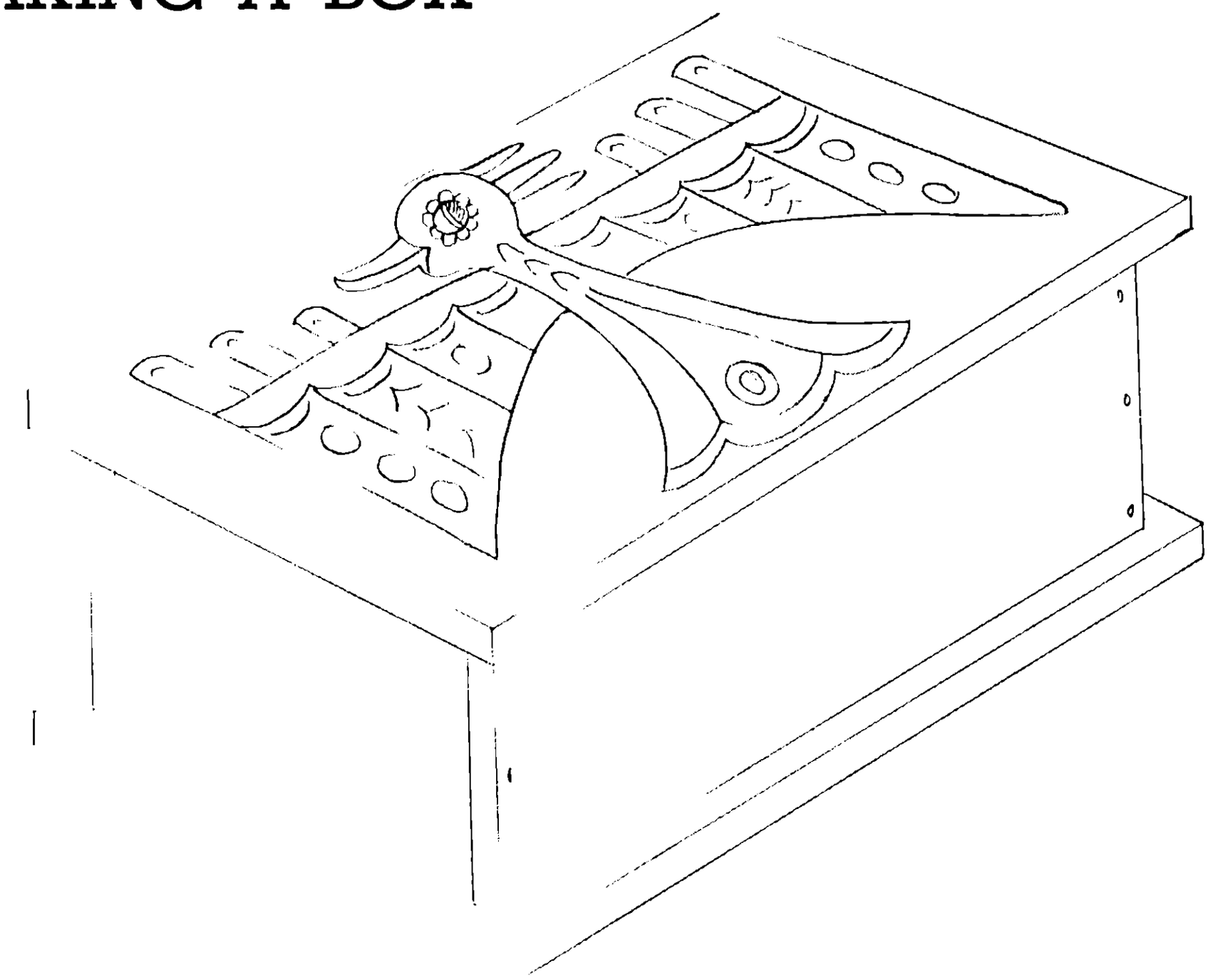


8. Use ¾″ No. 18 brads to glue and nail the axle across the center of the bottom of the cart. Be sure the brads do not go through the drilled holes.
9. Make the wheels. Use the ¼″ x 4″ x 8″ white pine or basswood to saw out two 4″ circles. File and sandpaper the wheels.
10. Drill ⅛″ holes through the center of the wheels. Do *not* screw the wheels onto the cart until after it is decorated and shellacked.
11. Cut two pieces 8″ long from the ¼″ x ¼″ strip lumber. Sandpaper these.
12. Use ½″ No. 19 brads and glue to fasten these strips to the bottom of the cart. These are the shafts and should be far enough apart for the donkey to fit tightly between them.



13. Use colored pencils, show card colors, or the electric woodburning pencil to apply designs. The wheels may be brilliantly decorated with compass or floral designs.
14. Finish all parts with shellac.
15. Screw the wheels on. If the cart is to be used for flowers, screw the wheels tightly in place so that they will not turn. Slide the donkey between the shafts. Drive a ½″ No. 19 brad through each shaft and into the top of the front leg of the donkey.

MAKING A BOX



CHILDREN ENJOY making gifts. Boxes may be used for jewelry, handkerchiefs, stamp collections, or cigarettes. A well-made box requires accuracy in measuring and sawing and skill in assembling. Boys and girls in the fifth and sixth grades will enjoy making them and decorating them. Decorations may be done with show card colors, an electric woodburning pencil, applied wood or metal ornaments. Also, the surfaces could be carved.

Materials Needed

¼″ x 2″ Strip lumber, pine, basswood, red gum, or walnut
¼″ x 4″ Strip lumber to match above
½″ No. 19 Brads

Tools Needed

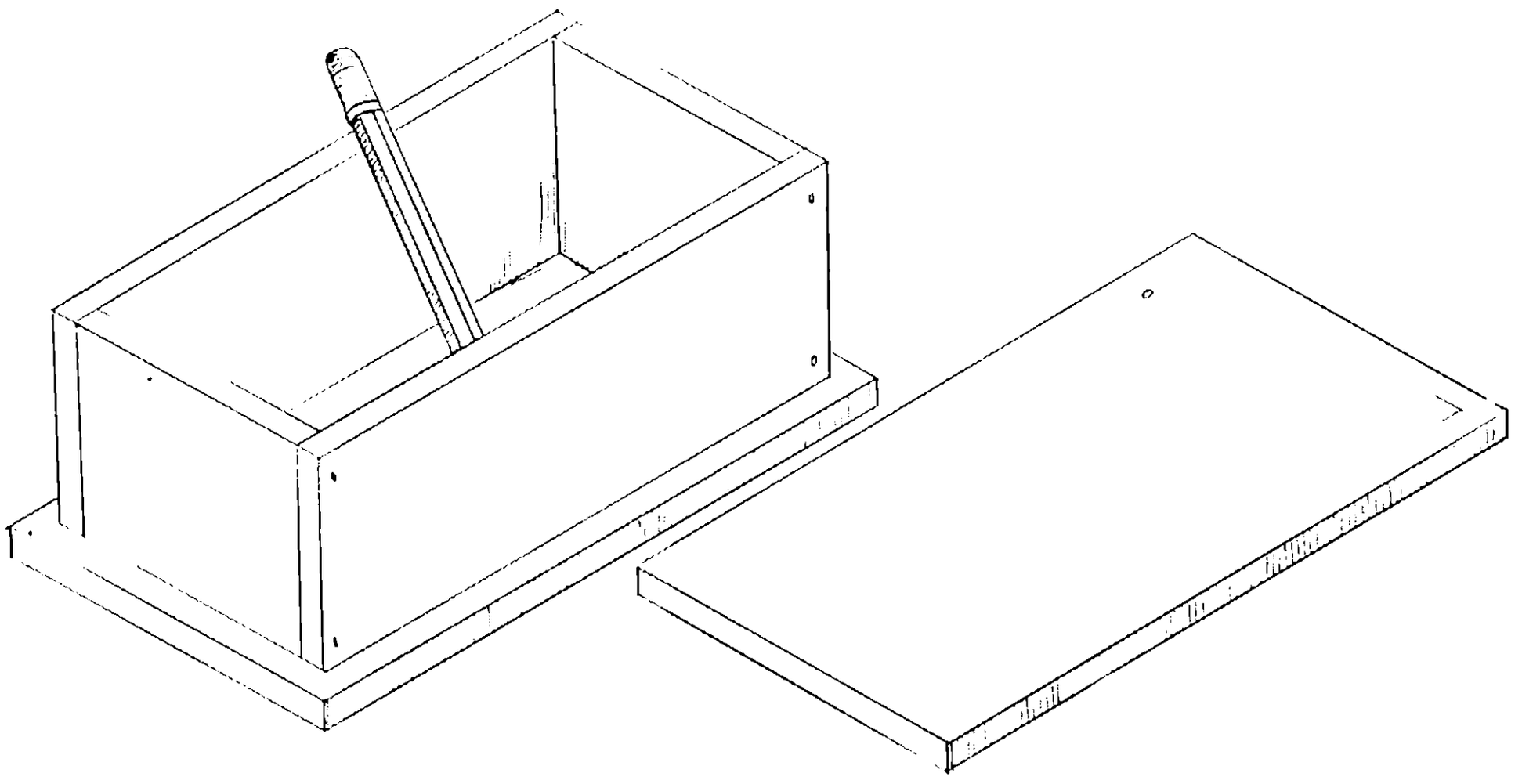
Ruler
Miter box and saw
File
Hand drill
Wire-cutting pliers
Hammer

Skills Used

Measuring
Sawing
Filing
Sandpapering
Drilling
Nailing

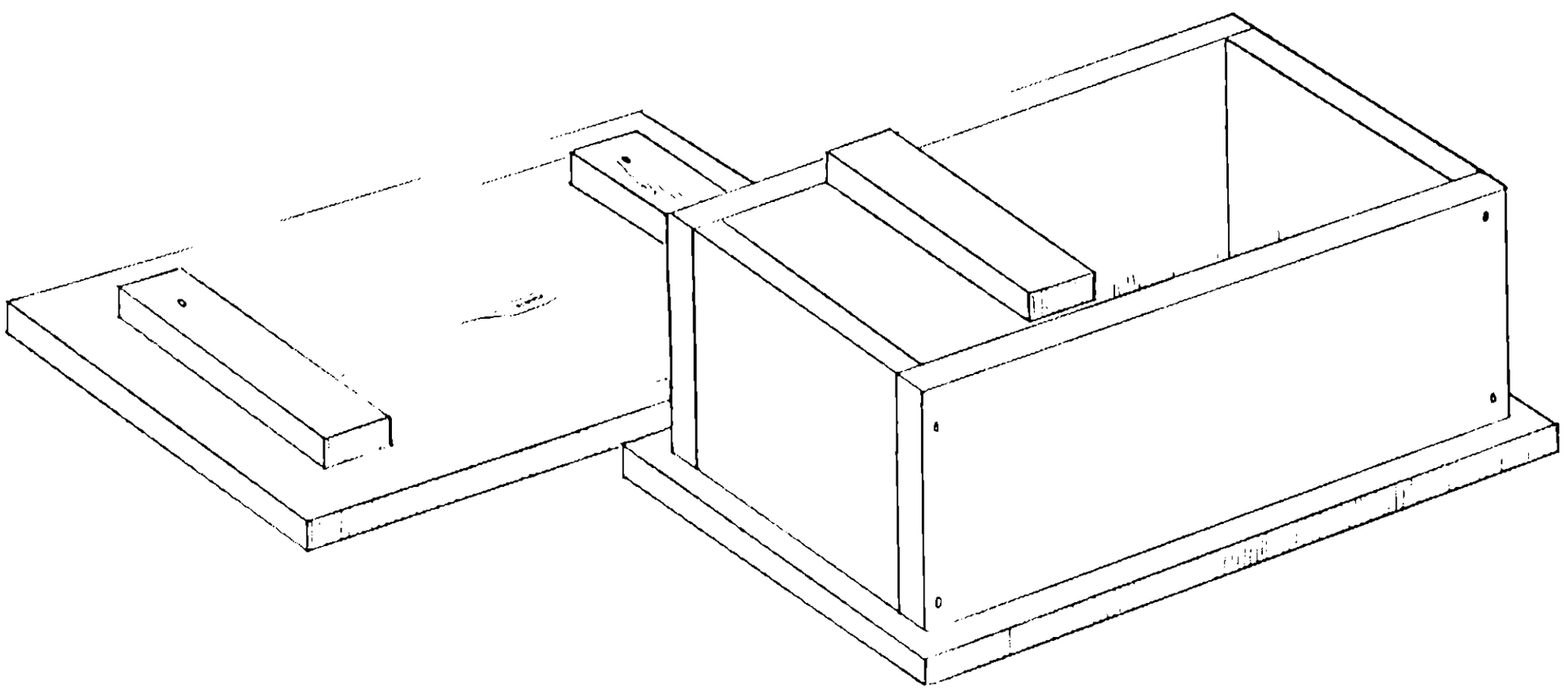
PROCEDURE

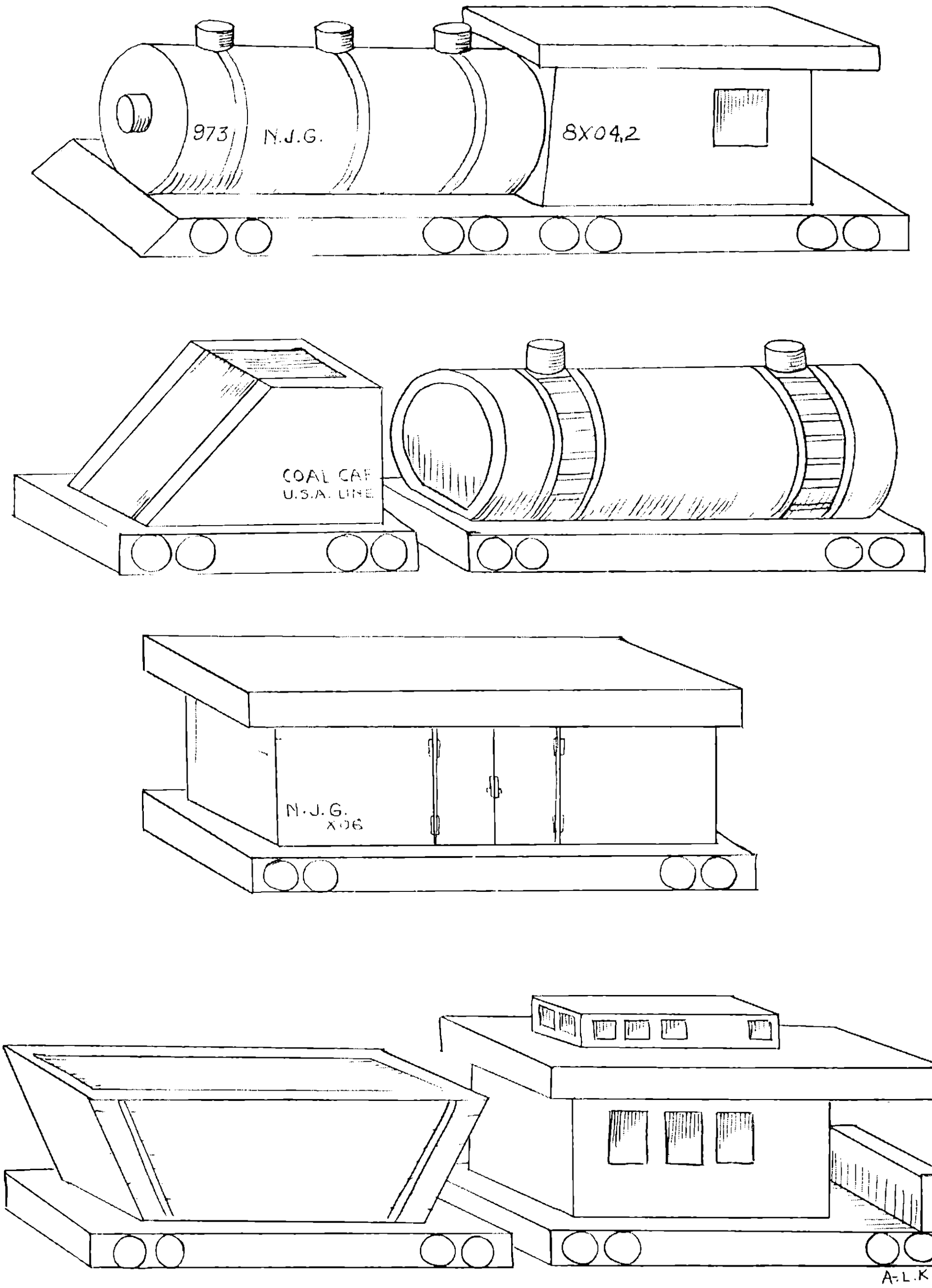
1. On the ¼″ x 2″ strip lumber measure off three pieces 3″ long and two pieces 5½″ long. On the ¼″ x 4″ strip lumber measure off two pieces 6″ long.
2. Saw off these pieces with the miter box saw. This will assure square-cut corners.
3. File the ends lightly on each piece.
4. Sandpaper all the edges and surfaces.
5. Take one of the ¼″ x 2″ x 3″ pieces and saw it in half to make two 1″ strips 3″ long. These pieces will be the cleats for the top of the box.
6. Assemble the box. The sides are first nailed and glued over the end pieces. Cut the head off a ¾″ No. 19 brad and use it for a drill point. Drill holes in the



wood before nailing to prevent splitting. See page 171 for method of nailing and gluing one piece over the end of another.

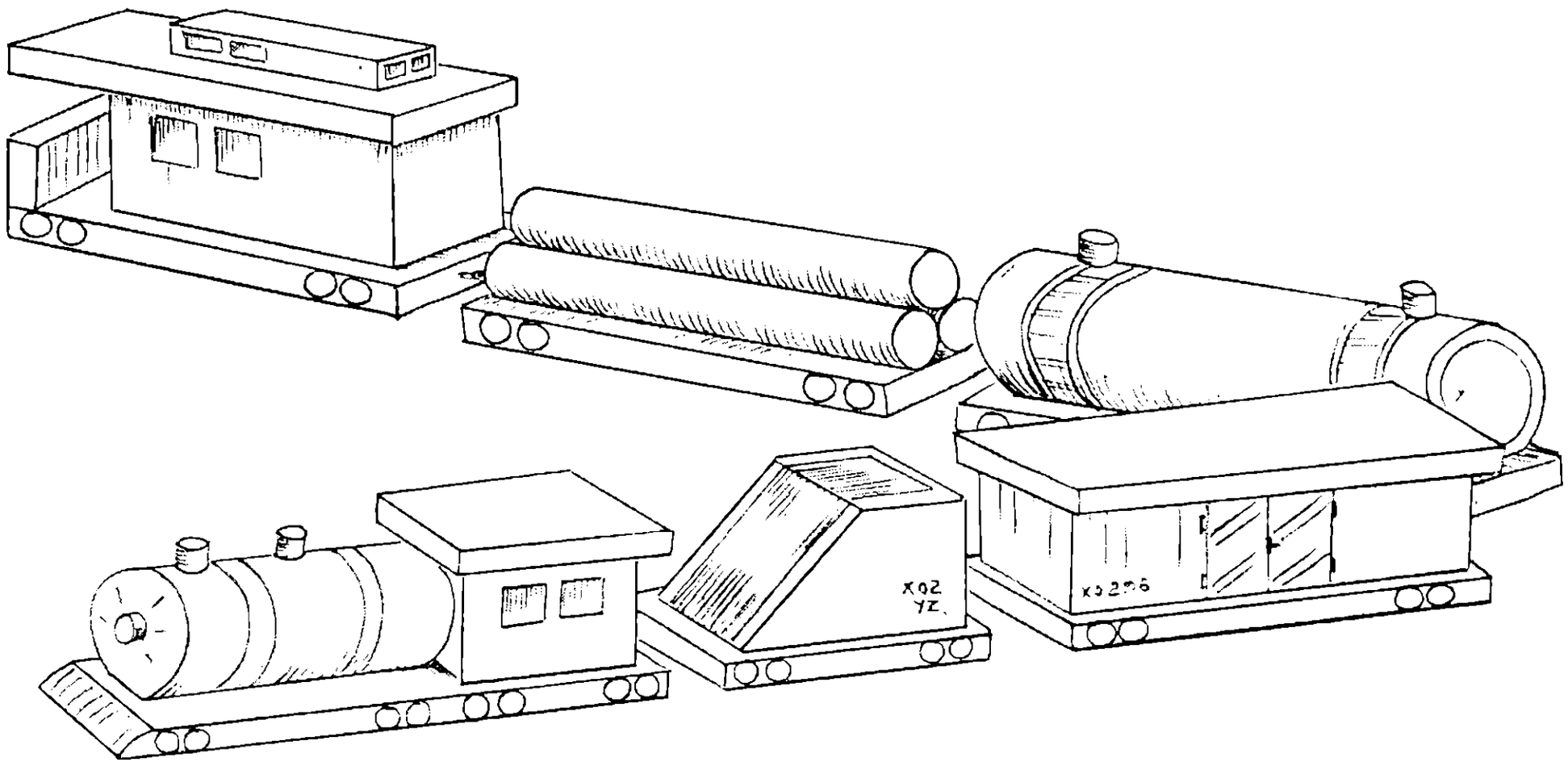
7. Glue and nail the bottom onto the box. Holes should be drilled ⅜″ in from the edge of the bottom piece as the bottom is designed to extend ¼″ all the way around. An easy way for children to mark these holes is to place the frame of the box on the bottom, centering it, and then to draw around both the outside and inside of the box with a pencil. Holes may then be drilled halfway between the pencil lines. Mark the lid of the box in the same way but do *not* drill any holes in the lid.
8. Make the lid of the box. File and sandpaper the ends of the cleats until they will drop easily into the box. Use ½″ No. 19 brads and glue to fasten the cleats to the lid. Nail the cleats just inside the inner pencil line on the box lid.
9. Tie up the box with rags to dry as shown on page 175. Put the lid of the box between two boards and clamp them as shown on page 175.
10. Decorate the box by using show card colors, colored pencils, or a woodburning needle. If the wood is particularly beautiful in grain and color, finish it with wax only. See page 176 for directions.
11. If the wood is *not* waxed, finish with shellac.





An engine, coal car, tank car, box car, hopper car, and caboose form a train when linked together.

A BLOCK TRAIN



IF THE CHILD is young enough he will want the block train for himself. If he is in the fifth or sixth grade, he will enjoy making it for a younger brother or sister. The train is simply made of strip lumber and dowels but it is realistic and sturdy. The cars are linked together with screw eyes.

Materials Needed

¼″ x 1¼″ Strip lumber, basswood, or white pine
1″ x 1″ Strip lumber, basswood, or white pine
1″ Dowel rod
¼″ Dowel rod
Thumbtacks
¾″ No. 18 Brads
¼″ Screw eyes

Tools Needed

Ruler	Hand drill
Miter box and saw	¼″ Twist drill
File	Hammer
Vise	

Skills Used

Measuring	Sandpapering
Sawing	Drilling
Filing	Gluing
Painting	Nailing

PROCEDURE

1. Measure and mark off the following pieces. Write the name of each part on the piece of wood as you measure. On the ¼″ x 1¼″ strip, mark off:

*1 pc. 6″ long for the engine base
1 pc. 2¾″ long for the engine cab roof
1 pc. 2½″ long for the coal car base
1 pc. 4″ long for the hopper car base
2 pcs. 4″ long for the box car base and top
1 pc. 4″ long for the tank car base
1 pc. 4″ long for the flat car
2 pcs. 3½″ long for the caboose base and top
2 pcs. ½″ long for the caboose look out and tail gate

On the 1″ x 1″ strip, mark off:

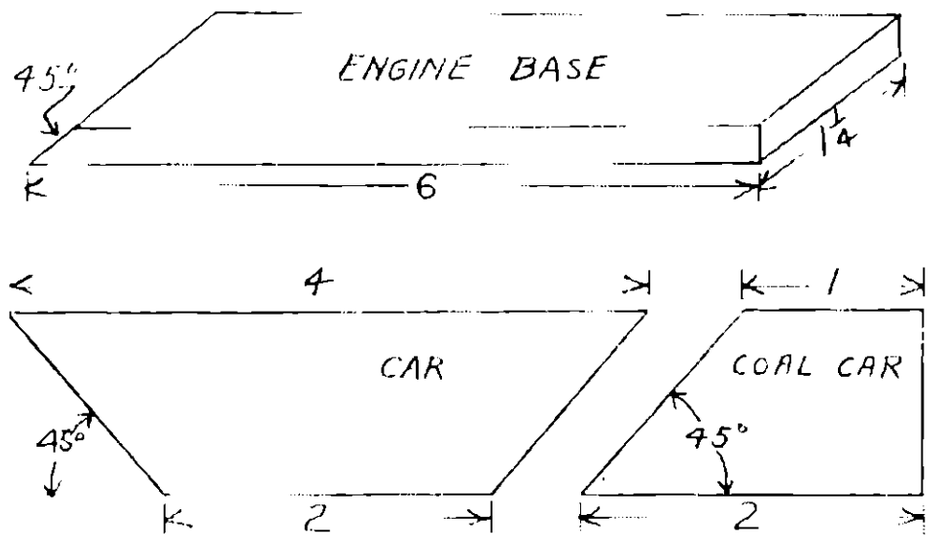
1 pc. 2¼″ long for the engine cab
*1 pc. 2″ long for the coal car
*1 pc. 4″ long for the hopper car
1 pc. 3½″ long for the box car
1 pc. 2¼″ long for the caboose

On the 1″ dowel rod, mark off:

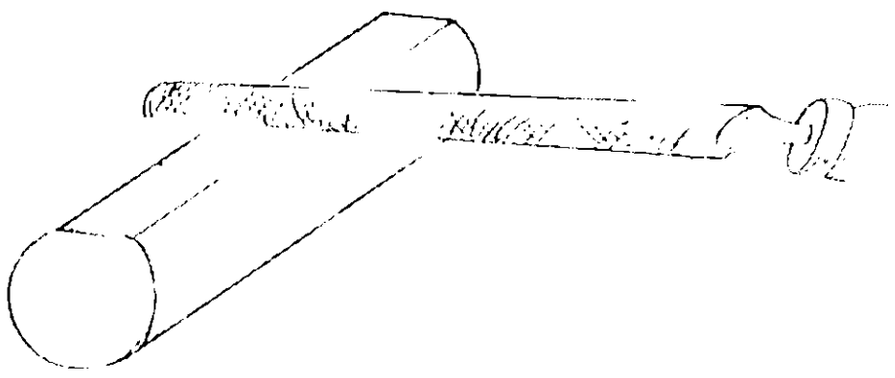
1 pc. 3″ long for the engine
1 pc. 3½″ long for the tank car

On the ¼″ dowel rod, mark off:

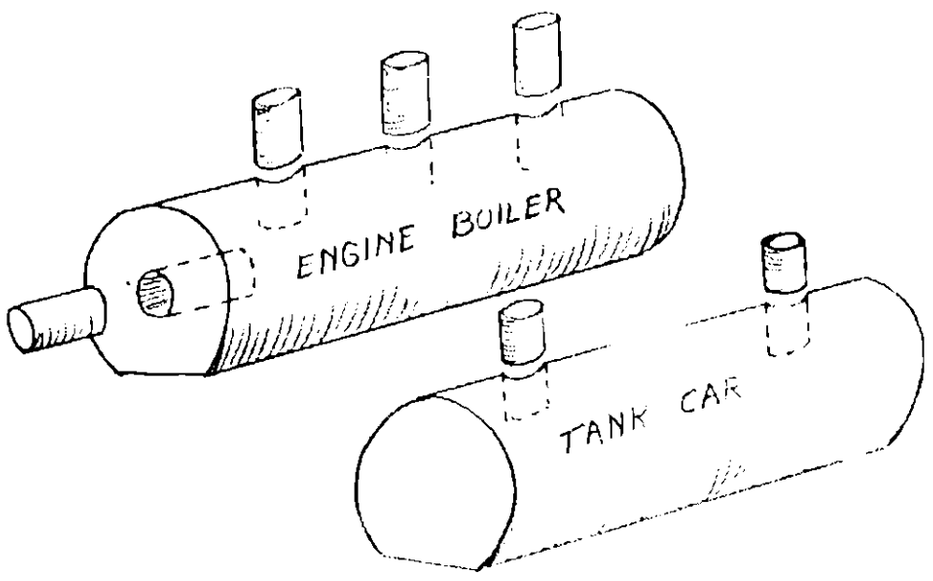
5 pcs. ½″ long for the headlight, smokestack, etc.



2. Saw off all these pieces in the miter box. The three starred pieces — the engine base, the 1″ x 1″ x 2″ strip for the coal car, and the 1″ x 1″ x 4″ strip for the hopper car — are to be cut at a 45° angle in the miter box. Set the miter box at 45° and saw off one end of the engine base at this angle to represent the cowcatcher. Saw off one end of the coal car. Saw off both ends of the 1″ x 1″ x 4″ piece for the hopper car.
3. File the bottom edge of the 1″ dowel rod pieces that are to form the tank car and the tank part of the engine. This will prevent rolling when assembling and will provide a flat surface for nailing and gluing.



4. Use the ¼″ twist drill to drill holes in the engine tank and tank car. Drill one hole in the front on the engine tank and two in the top, spaced approximately ¾″ apart. Drill one hole in each end of the top in the tank car. Make the holes about ¼″ deep.
5. Lightly file the ends of all pieces.
6. Sandpaper all edges and all surfaces of all parts of the train.
7. Glue and nail all parts together. Clamp or tie them until glue is thoroughly dry. The engine cab sets back ¼″. The cab and tank touch. The cab roof extends ¼″ front and back. Glue the ¼″ dowel rod pieces into the holes drilled in the engine tank. Drive brads through the base of the engine into the cab and into the filed or flattened surface of the engine tank.



The base of the coal car extends ¼″ front and back.

The base of the tank car extends ¼″ front and back. The flattened surface of the dowel rod is glued to the base. Nails are driven up from the bottom. Two ½″ pieces of ¼″ dowel rod are glued in the holes.

The top and bottom of the box car extend ¼″ at each end.

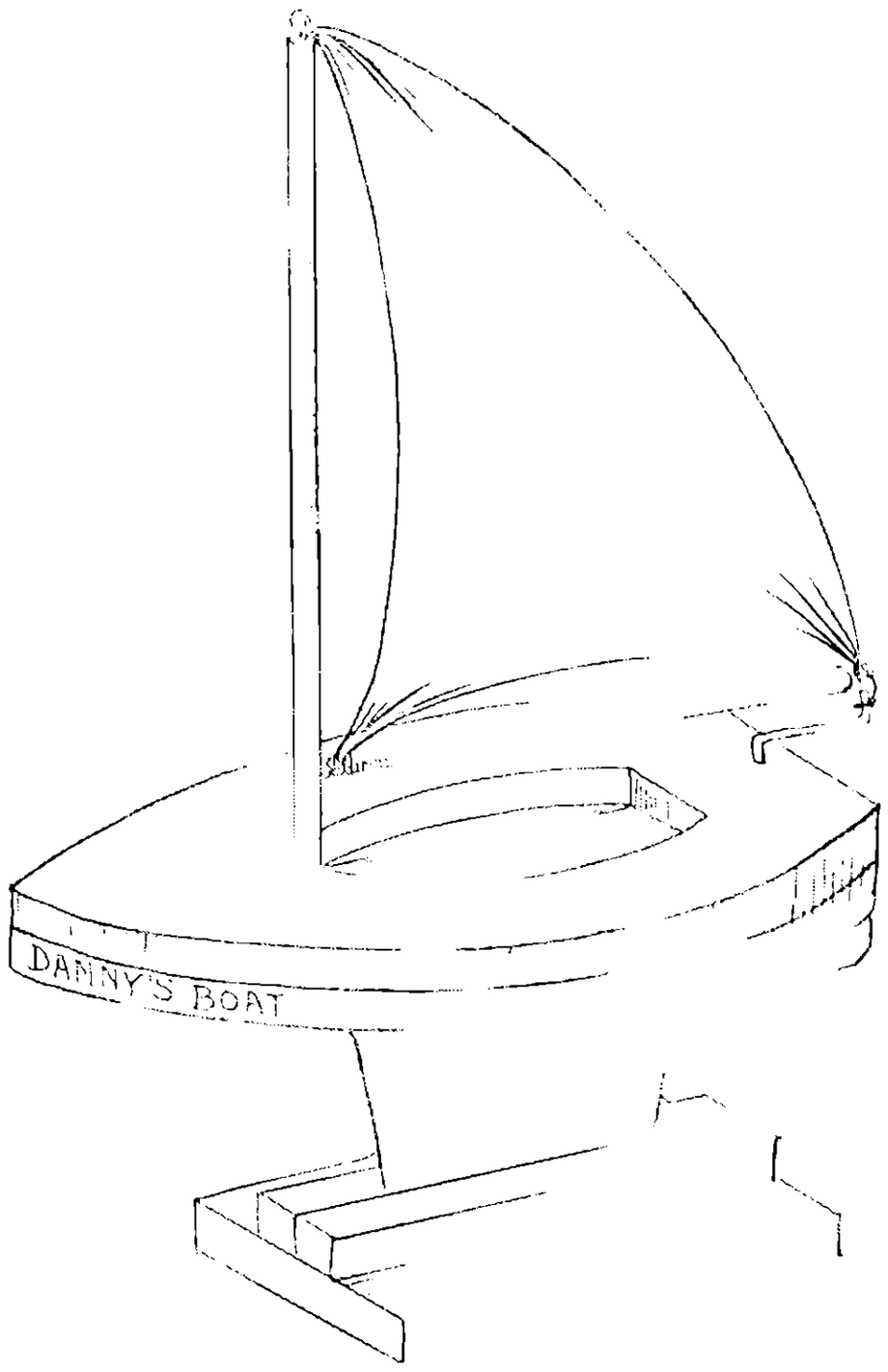
Center the top piece on the base of the hopper car.

The 1″ x 1″ x 2¼″ block is glued and nailed ¼″ from the front of the base. The tail gate is glued to the very end of the caboose. The top is directly above the base. The lookout is centered over the 1″ x 1″ x 2¼″ block.

The flat car is made of one piece of wood ¼″ x 1¼″ x 4″.

8. Drill a hole in the center of each end of the base of each car. Use a brad that is smaller than the shank of the screw eye for a drill point. Cut off the head of the brad with the wire-cutting pliers.
9. Put opened screw eyes in the holes in the back of each car, except the caboose. Put closed screw eyes in the holes in the front of each car, except the engine.
10. Paint the cars with brilliant show card colors. Wheels may be painted on or colored thumbtacks may be used. Details to be painted are shown in the drawings.
11. Finish with shellac.

A SAILBOAT AND STAND



IT SAILS! The keel holds it upright. The sail and rudder turn. This sailboat can be made by fifth- and sixth-grade students. The standard holds the boat in an upright position when it is out of the water.

Materials Needed

- 2 pcs. White pine or yellow poplar, ½″ x 5″ x 12″
- 1 pc. White pine or yellow poplar, ½″ x 4″ x 6″
- 2 pcs. White pine or yellow poplar, ½″ x ½″ x 6″
- 1 pc. ¼″ Dowel rod 12″ long
- 1 pc. ¼″ Dowel rod 8″ long
- 1 pc. Muslin or cambric, 10½″ x 8″
- 1 pc. tin, 4″ x 4″
- 1 pc. tin, 1½″ x 2¼″
- 1 pc. Stovepipe wire, 12″ long
- ¼″ Screw eyes
- ½″ No. 4 Round head wood screws
- ¾″ No. 18 Brads

Tools Needed

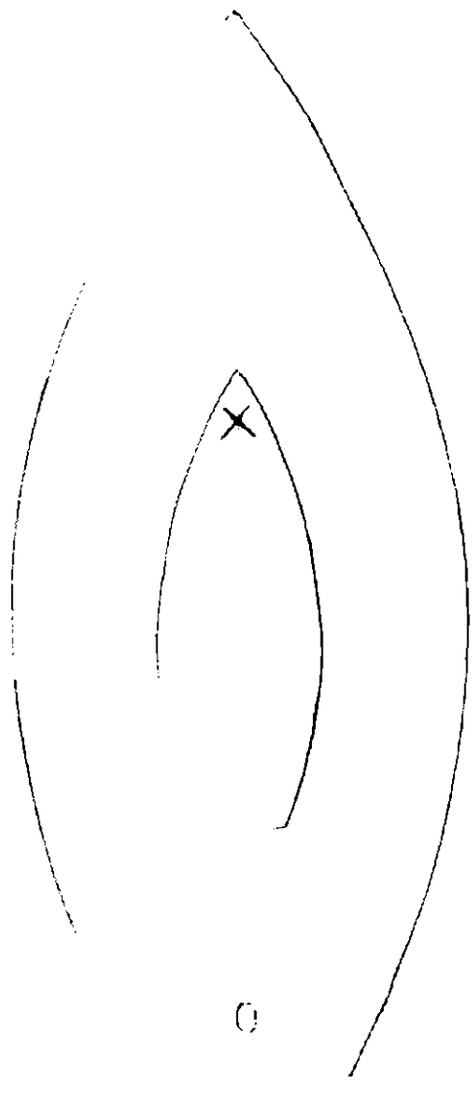
- Ruler
- Coping saw
- V board
- Vise
- File
- Screw driver
- 1/16″ Twist drill
- 3/32″ Twist drill
- ¼″ Twist drill
- Hand drill
- Hammer
- Tin snips

Skills Used

- Measuring
- Sawing
- Filing
- Sandpapering
- Drilling
- Nailing
- Cutting with tin snips
- Painting

PROCEDURE

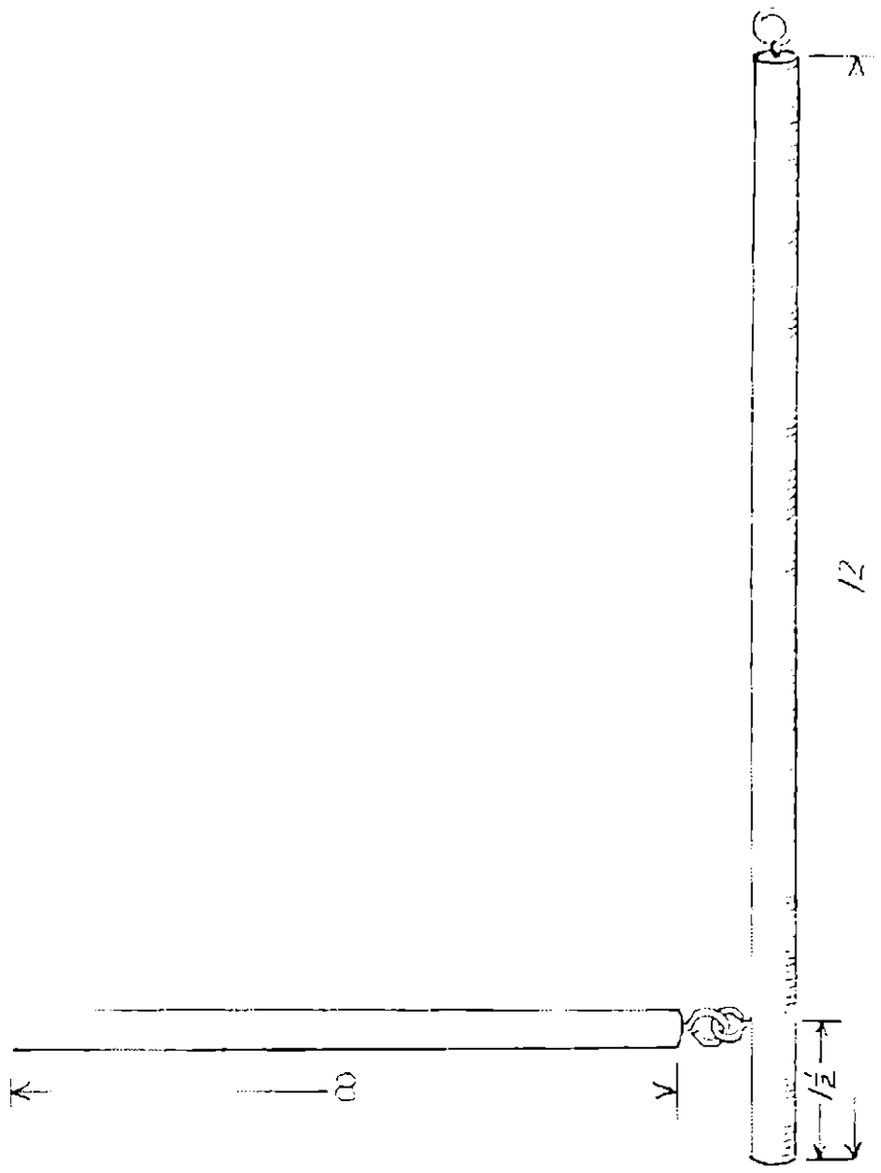
1. Trace the outside pattern of the boat hull on *both* of the large pieces of wood — those measuring ½″ x 5″ x 12″. Trace



Quarter-size pattern

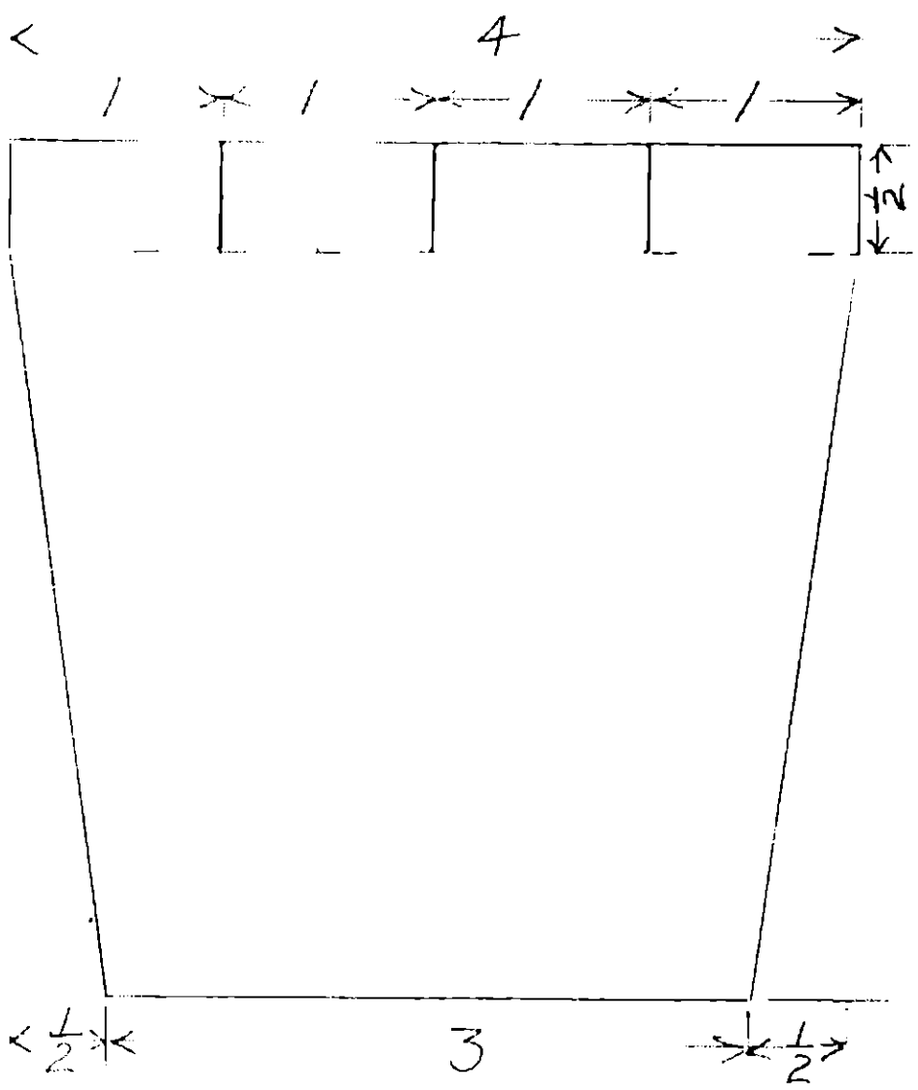
the inside cut of the pattern on *just one* of these pieces.

2. Use the coping saw to cut out the outside shape on both pieces. Saw carefully just outside the pencil line.
3. Drill a hole through the center of the piece with the inside pattern. Use a ¼″ drill and drill far enough inside the line so that the hole will not touch the line. Remove the saw blade from the frame, insert it through the hole, and fasten the blade back in the frame. See page 164. Proceed to saw as usual, staying just inside the pencil line.
4. File and sandpaper the edges of the hole cut in the preceding step.
5. File the edges of the two pieces of the boat. Both may be put in the vise together to be filed at the same time.
6. Sandpaper all edges and surfaces.
7. Rub glue over one surface of the piece with the cutout center. Allow the glue to dry. Rub another thin layer of glue over the same surface. Wipe off all excess glue with the finger. Glue the two pieces together, making sure the edges match. Place between two boards and fasten with wood clamps to dry.
8. Drill a ¼″ hole through the base of the boat, inside the cutaway part, as close to the front point of that cut as you can make it. This point is marked with an *X* on the pattern. Drill a 3/32″ hole through both pieces at the back of the boat. This point is marked with an *O* on the pattern. It is ½″ in from the center of the back.
9. Use the two pieces of ¼″ dowel rod to make the mast and boom. Use a brad smaller than the screw eye as a drill point. Cut off the head of the brad with wire-cutting pliers. Drill holes in both ends of the 8″ dowel. Drill a hole in one end of the 12″ dowel and another hole 1½″ up from the opposite end. Open one screw eye by placing the screw end in the vise and pulling the eye open with the pliers. Screw the three closed screw eyes in the end holes. Screw the one open screw eye in the hole 1½″ from the end. Hook the short dowel rod onto this open screw eye and then pinch it shut with the pliers.



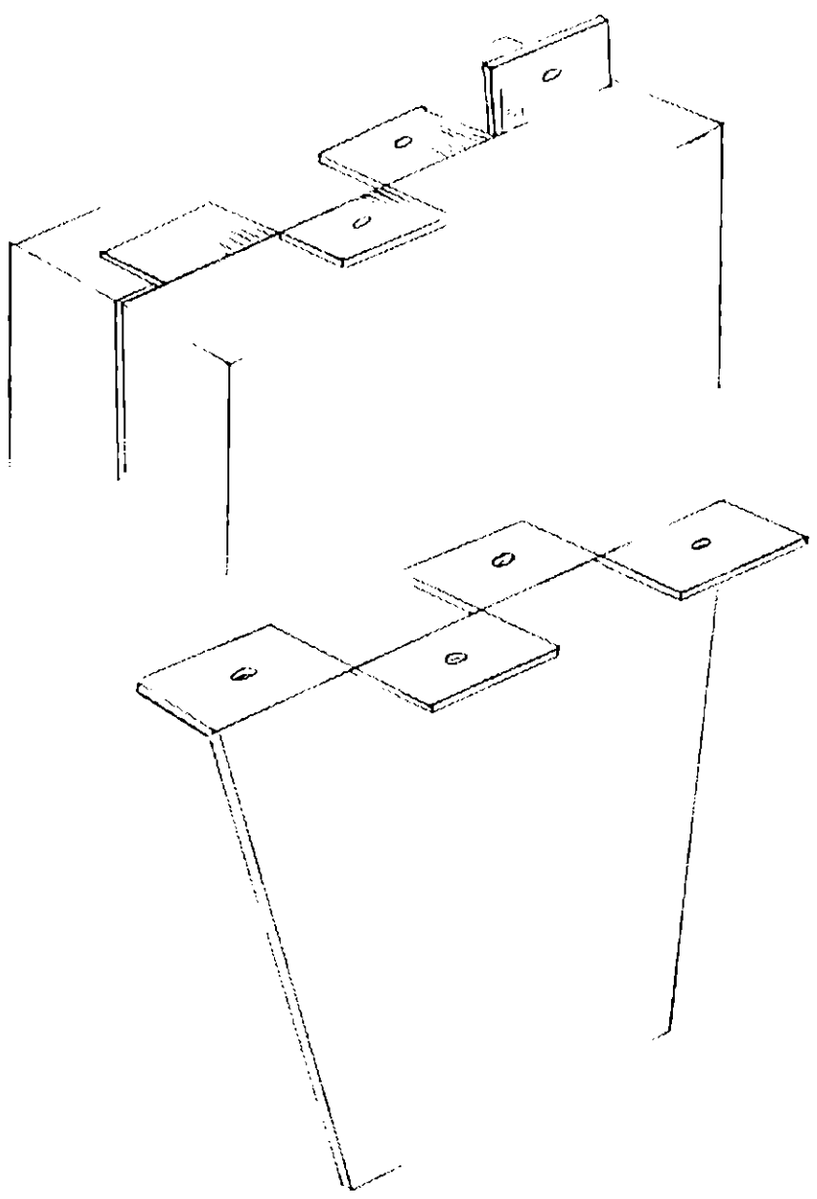
Mast and boom, showing location of four screw eyes

10. Use the 4″ x 4″ piece of tin to make the keel. Mark off the tin as shown in the drawing. Cut on the solid lines, using the tin snips.
11. Use the 3/32″ drill to make a hole in the center of each tab just cut.



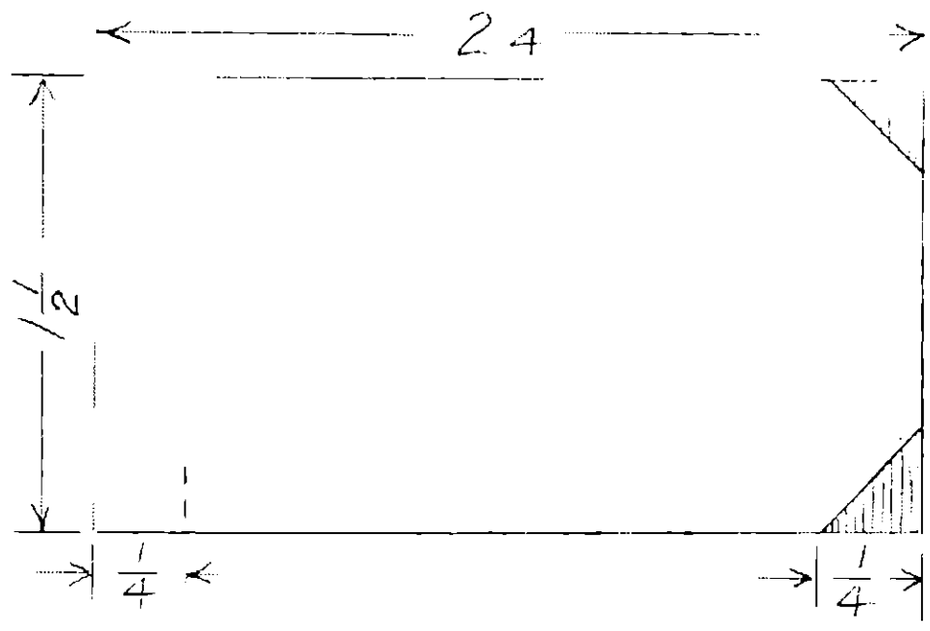
Pattern for keel

12. Place the keel in a vise so that only the tabs project above the jaws. Bend the tabs in alternate directions as shown below. Use a hammer to tap along the edges to get a sharp bend.

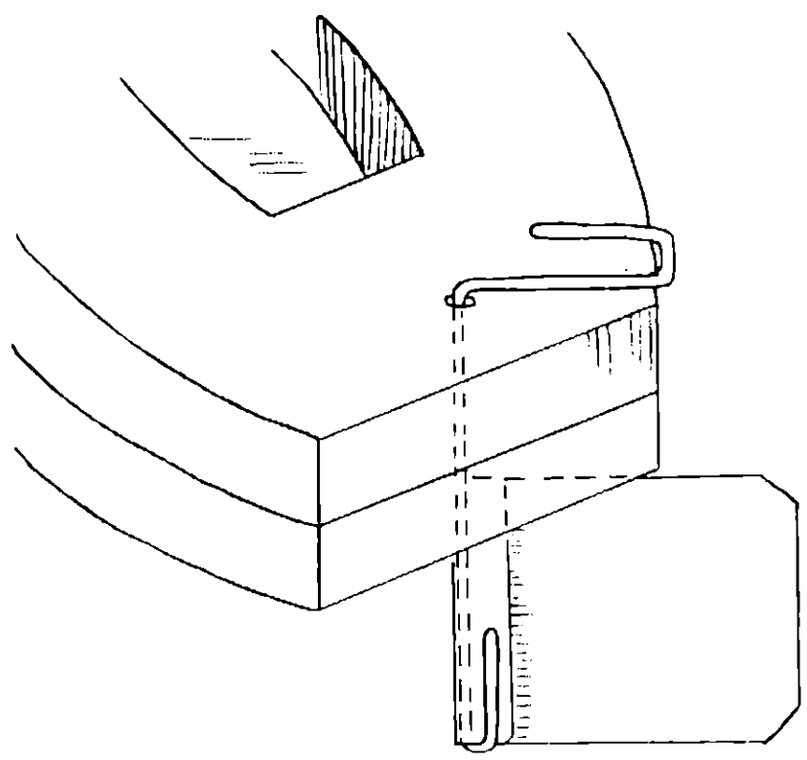


Top drawing shows keel in vise. Lower drawing shows keel after tabs have been cut, drilled, and bent.

13. The keel is screwed to the exact center of the bottom of the boat, equidistant from front to back and from side to side. Draw a light pencil line down the center to serve as a guide line. Place the keel on the boat and mark with a pencil where screws will go into the wood. Drill 1/16″ holes approximately 1/4″ deep. Avoid drilling clear through the wood. Screw the keel to the wood using 1/2″ No. 4 round head wood screws.
14. Glue the mast into the 1/4″ hole.
15. Use the 1 1/2″ x 2 1/4″ piece of tin to make the rudder. Follow the directions shown in the drawing to cut off two of the corners. Use tin snips for cutting. The dotted line in the drawing is 1/4″ from the edge. Fold the tin back along this line. Place the wire inside the fold allowing one inch to project. Use the hammer to flatten the folded edge of tin tightly over the wire. Bend the end of the wire up over the rudder. Run the wire up through the small hole at the back of the boat. Bend and twist to make a handle for turning the rudder. Cut off any excess wire with the tin snips.

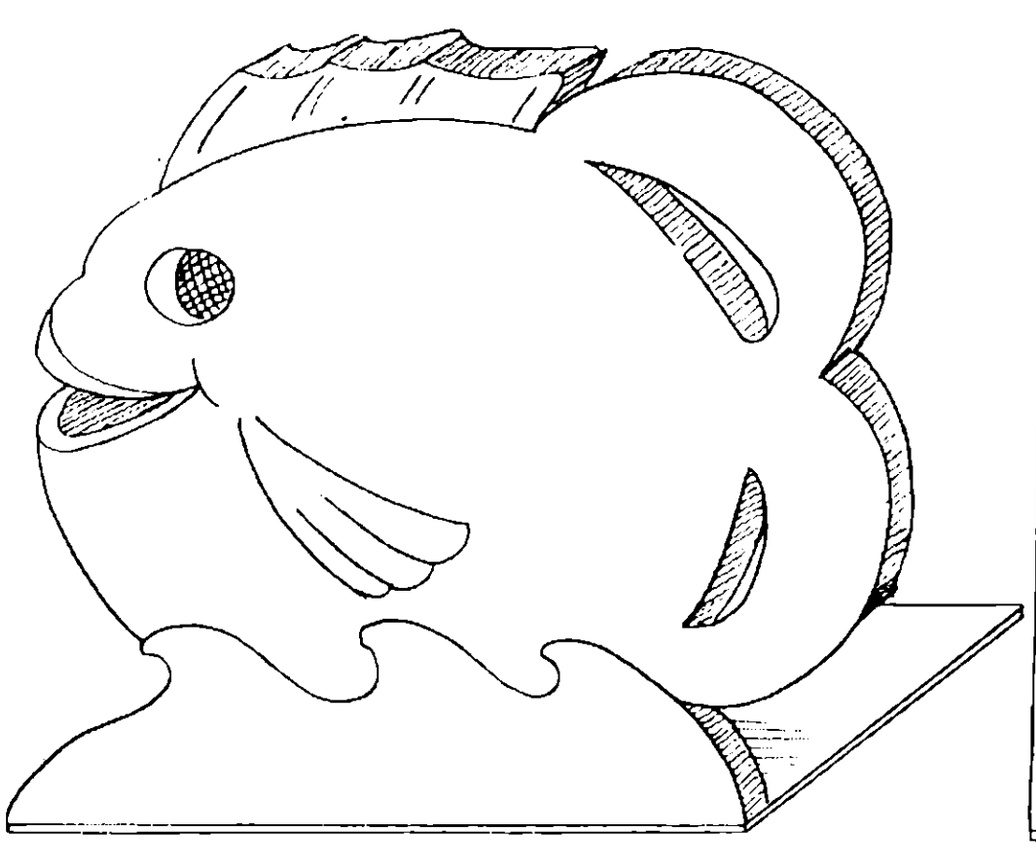


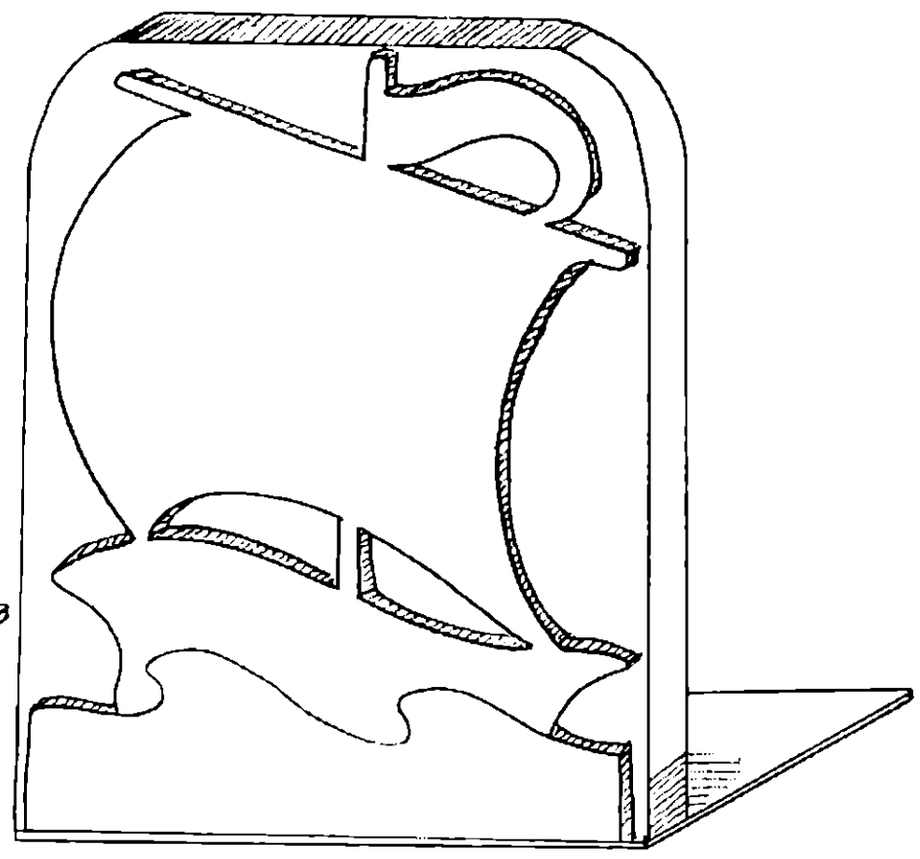
Pattern for rudder



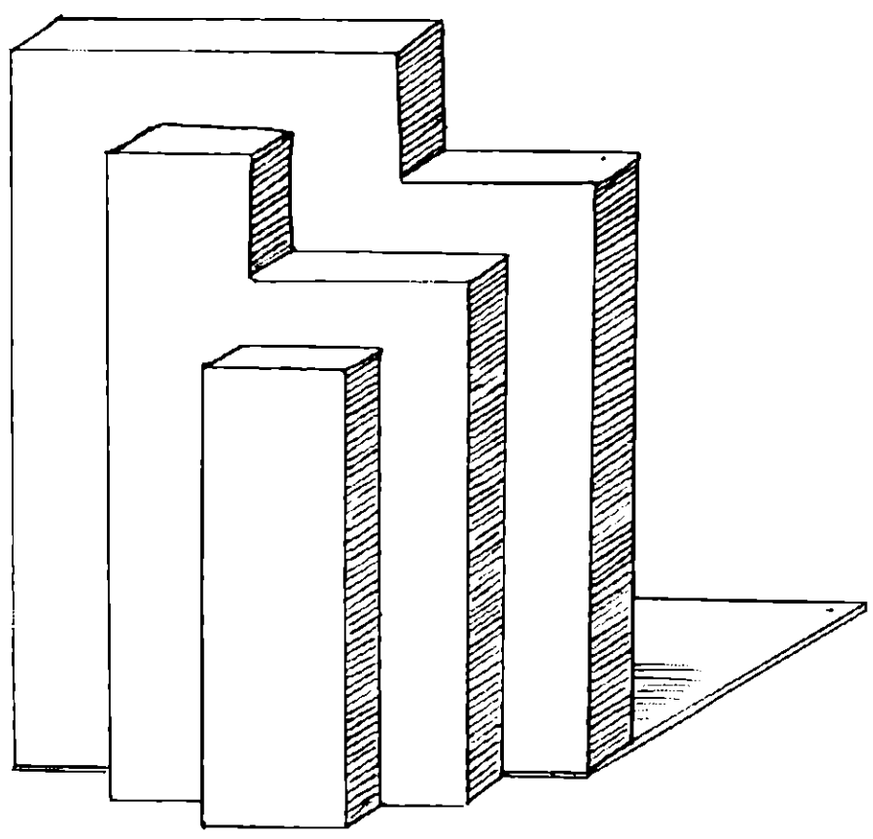
16. To make a standard for the sailboat, file and sandpaper all edges and surfaces of the 1/2″ x 4″ x 6″ piece and the 1/2″ x 1/2″ x 6″ pieces. Glue and nail the 1/2″ strips on the base just far enough apart to slide the keel between them. (See drawing on page 193.)
17. Finish the mast and boom with spar or waterproof varnish. Finish the boat with two coats of enamel. Paint tin and wood.
18. To make a sail, cut diagonally across an 8″ x 10 1/2″ rectangle of cloth. Sew the three corners to the screw eyes on the mast and boom.

BOOK ENDS





NUMEROUS DESIGNS may be worked out for book ends. Four are suggested here. Explicit directions are given for the one with the applied boat design. The others are made in a similar fashion. The fish design is cut from ½″ wood; the block design is cut from wood of various thicknesses. Metal bases are screwed to the bottoms of all of them. The bottom of the metal is covered with felt to prevent scratching the table.

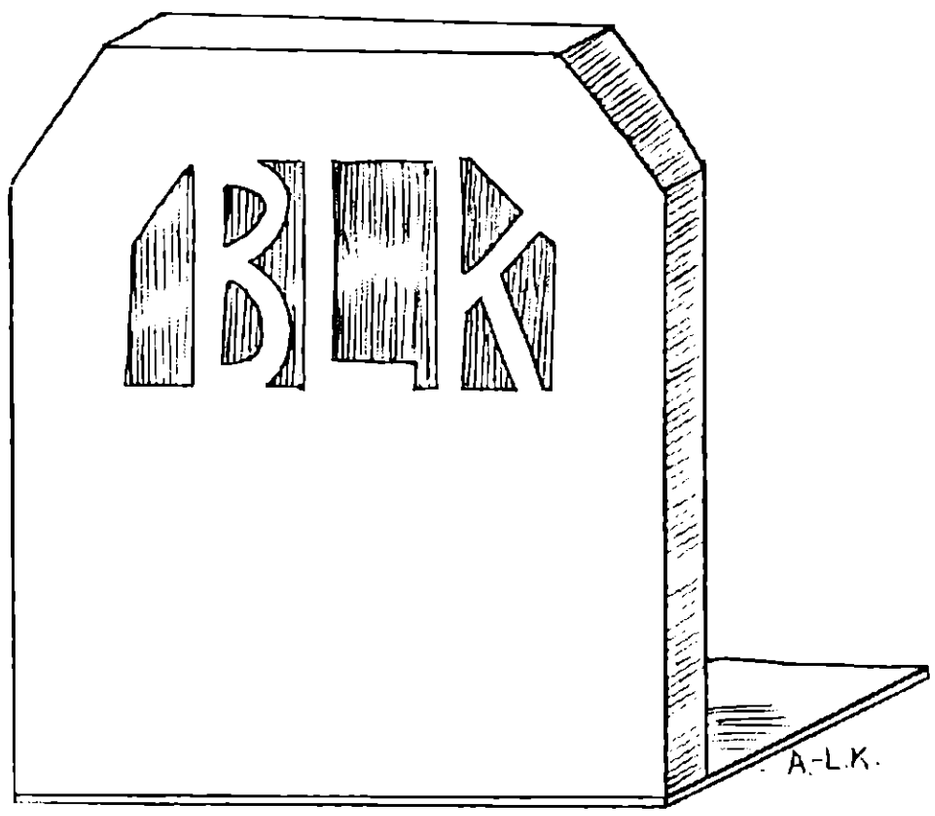


Materials Needed

- 2 pcs. Red gum, Philippine mahogany, or black walnut, ½″ x 5″ x 6½″
- 2 pcs. White pine or basswood, ¼″ x 5″ x 6½″
- 2 pcs. 18-gauge Copper or heavy galvanized iron, 3½″ x 5″
- 2 pcs. Felt, 3½″ x 5″
- 1″ No. 6 Flat head wood screws

Tools Needed

- Coping saw
- V board
- File
- Vise
- Hand drill
- 3/32″, ⅛″, ¼″ Twist drills
- Screw driver
- Wood clamps
- Tin snips
- Metal file

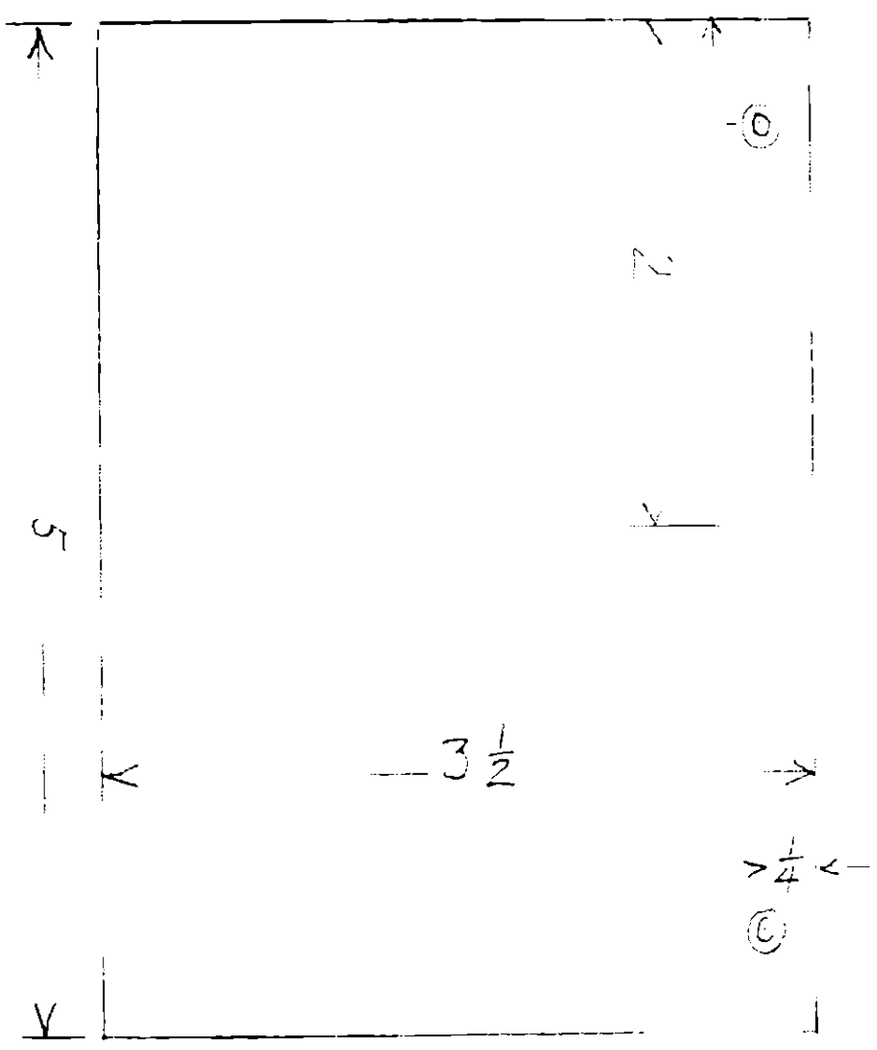


Skills Used

Measuring
Sawing
Filing
Drilling
Sandpapering
Gluing
Screwing
Countersinking

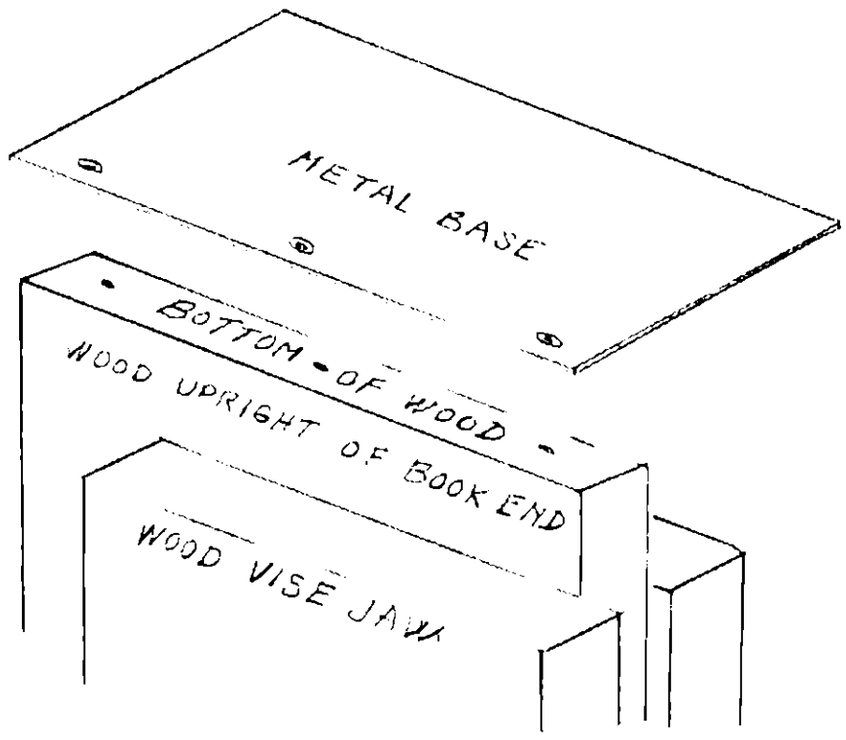
PROCEDURE

1. Draw a pattern of the design to be used. See page 57 for directions for enlarging designs.
2. Trace the boat pattern on the ¼″ white pine or basswood, using the grain in a vertical position. Trace the background pattern with the rounded top on the ½″ red gum or mahogany.
3. Use the coping saw to cut out the boat design. To saw interior sections, drill holes within the lines. Insert the blade of the coping saw through the hole and saw. See page 164. Round off the upper corners of the ½″ wood with the coping saw.
4. File all edges until smooth. Encourage the child to work for an excellent finish.



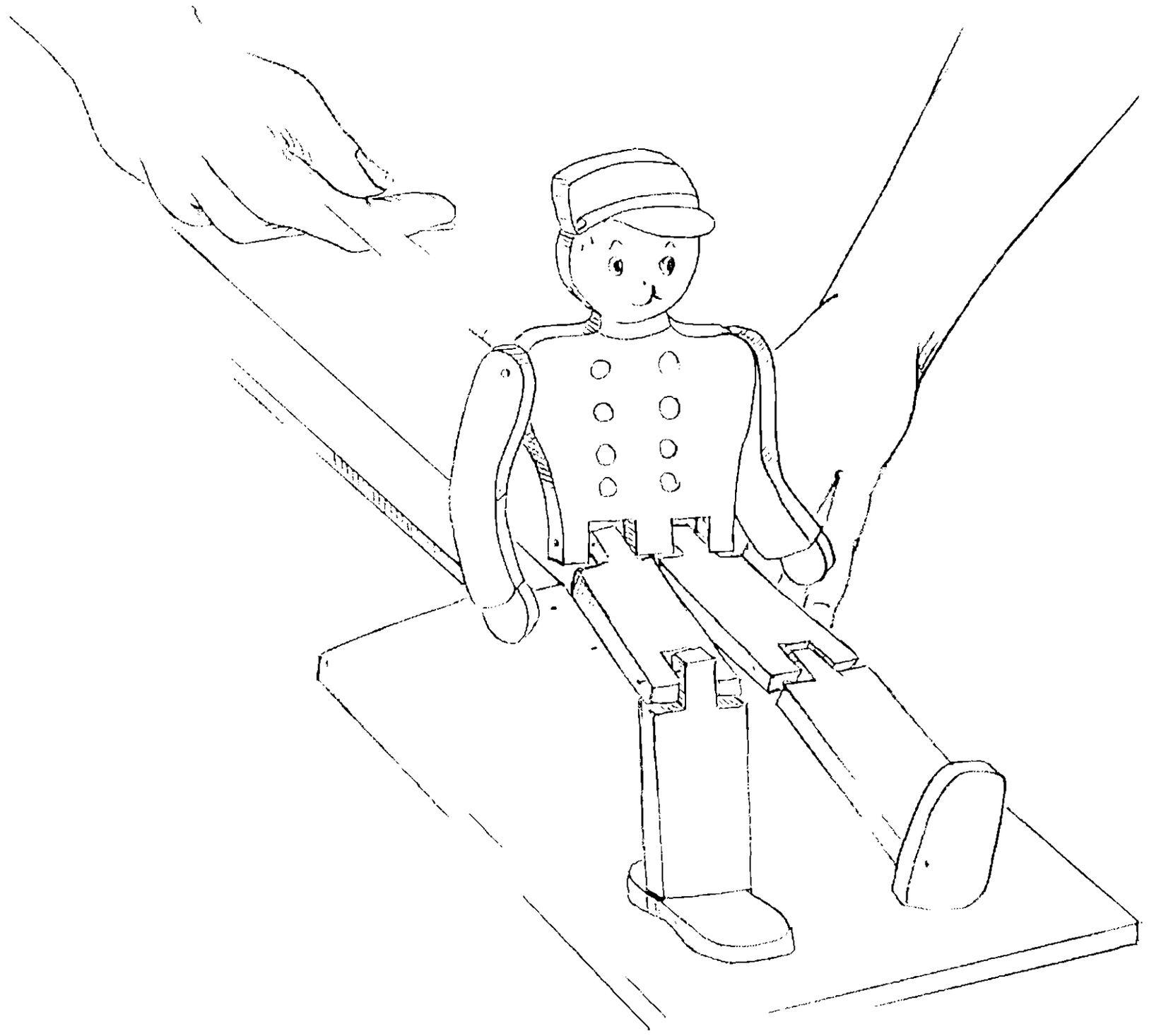
Layout of metal base

5. Sandpaper all edges and surfaces.
6. Glue the boat cutout to the ½″ wood and clamp.
7. Cut the metal to size, using the tin snips. File the metal, slightly rounding all the edges and corners.
8. Mark the holes for drilling. Holes should be on a line ¼″ from the edge. One hole is centered on this line. Place the other two ½″ from the ends.
9. Drill holes through the metal with the ⅛″ twist drill.
10. Use the ¼″ twist drill to countersink these holes. See page 172.
11. Place the book ends upside down in the vise. Place the metal over the bottom of the ½″ wood. With a pencil, mark through the holes onto the wood. Remove the metal. Use a 3/32″ drill to make holes approximately 1″ deep in the wood. Screw the metal bases onto the wood, using 1″ No. 6 flat head screws.



12. Use a quick-drying cement or liquid wood glue to fasten the felt to the bottom of the metal base.
13. Sandpaper the wooden parts until they are smooth and clean and finish with shellac.
14. If the metal bases are made of copper, they should be polished with steel wool. Lacquer the metal with clear lacquer or clear fingernail polish. If galvanized iron is used for the bases, the appearance may be improved by enameling the metal.

DANCING DAN



THE LOOSE-JOINTED LEGS and arms of this toy move in a very human fashion as the operator taps the handle of the paddle. The wooden feet of Dancing Dan click on the paddle as he clogs to the child's whistled tune. Here is an action toy that fascinates children and adults. The full-size patterns given on the opposite page will make it easy to construct this toy.

Materials Needed

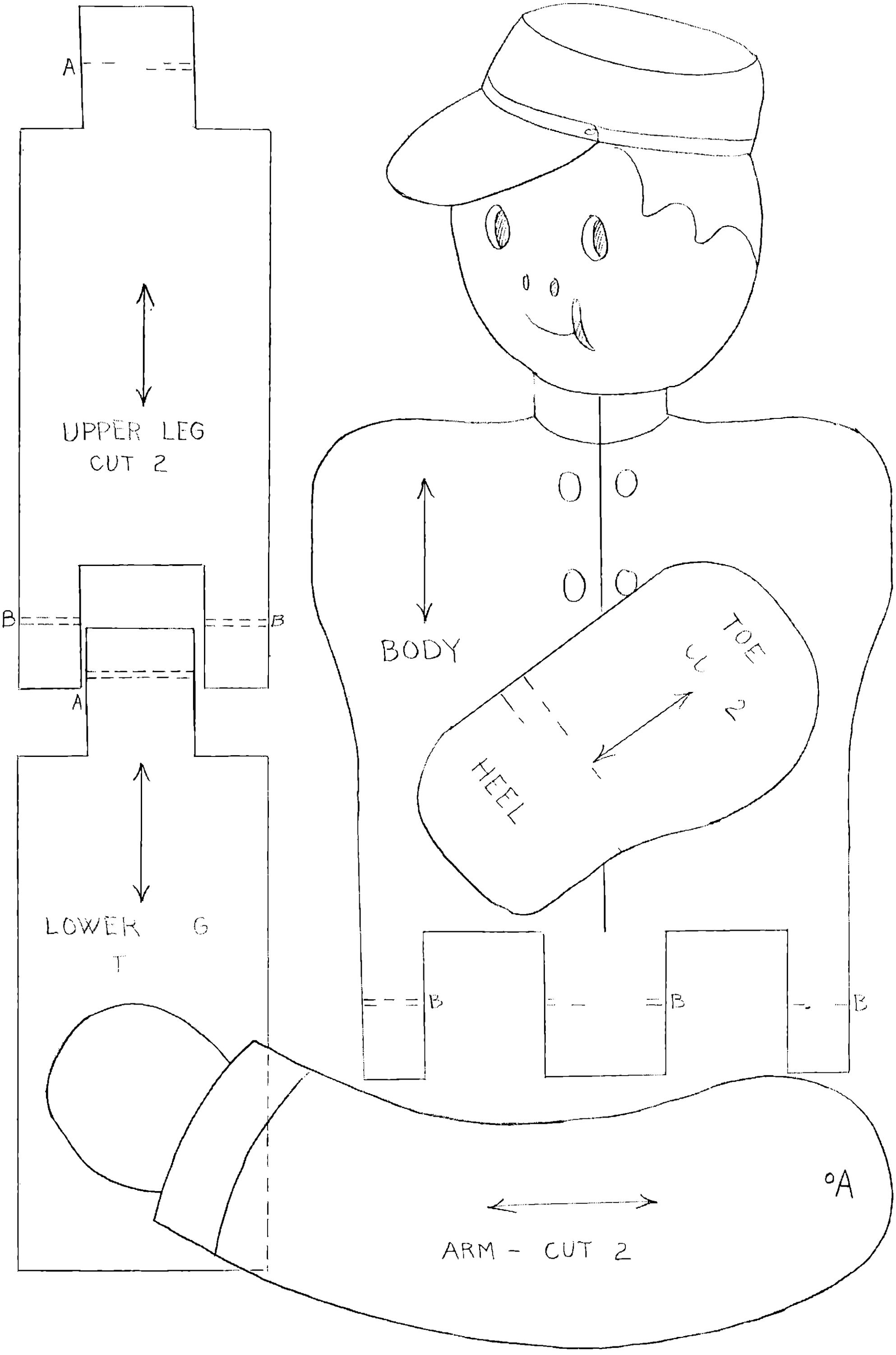
- 1 pc. White pine or basswood for body and arms, ⅜″ x 3½″ x 12″
- 1 pc. White pine or basswood for legs and feet, ⅜″ x 1½″ x 22″
- 1 pc. White pine or basswood for paddle, ¼″ x 6″ x 8″
- 1 pc. White pine or basswood for paddle handle, ¼″ x 1¼″ x 18″
- 1 pc. ¼″ Dowel rod 18″ long for handle
- 1½″ No. 17 Nails with heads
- ½″ No. 19 Brads
- ¾″ No. 19 Nails with heads

Tools Needed

- Coping saw
- V board
- File
- Vise
- 3/32″ or ⅛″ and ¼″ Twist drills
- Hand drill
- Hammer

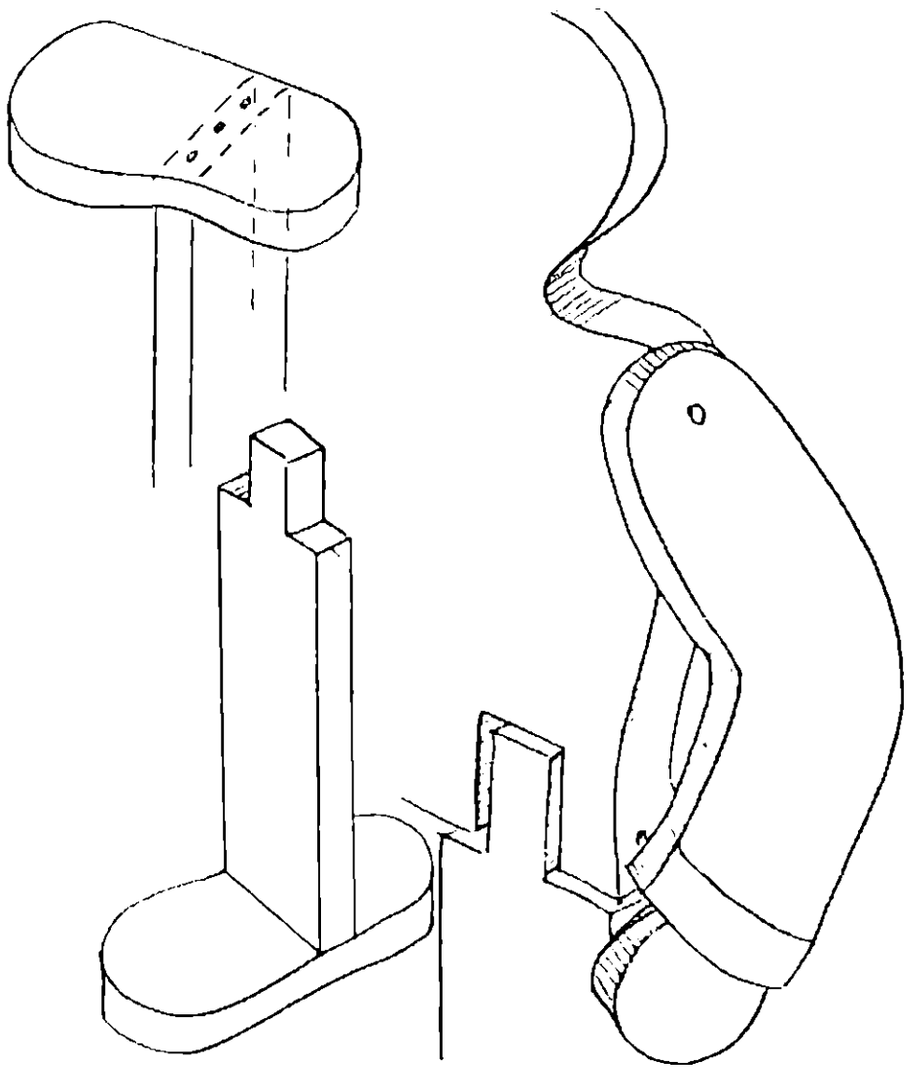
Skills Used

- Measuring
- Sawing
- Filing
- Sandpapering
- Drilling
- Nailing
- Gluing
- Painting

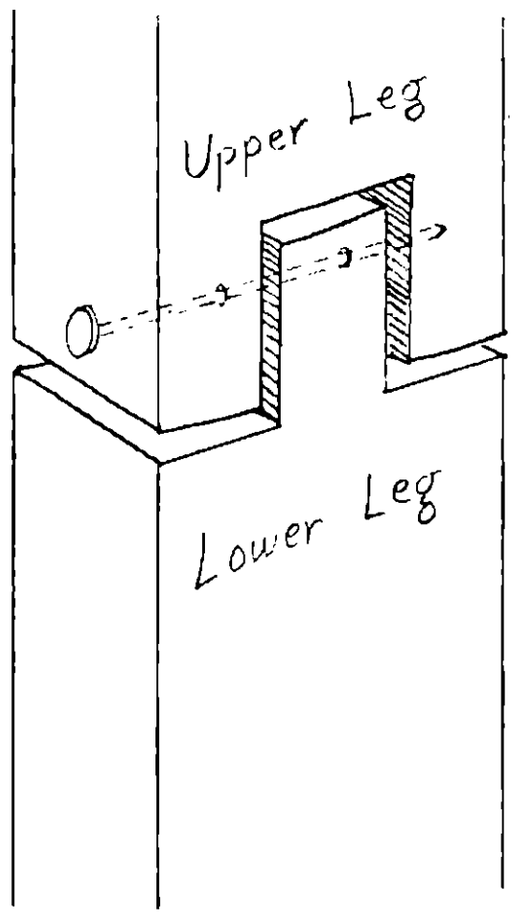

A
UPPER LEG
CUT 2
B
B
A
LOWER LEG
CUT 2
BODY
TOE
HEEL
B
B
B
ARM - CUT 2
A

PROCEDURE

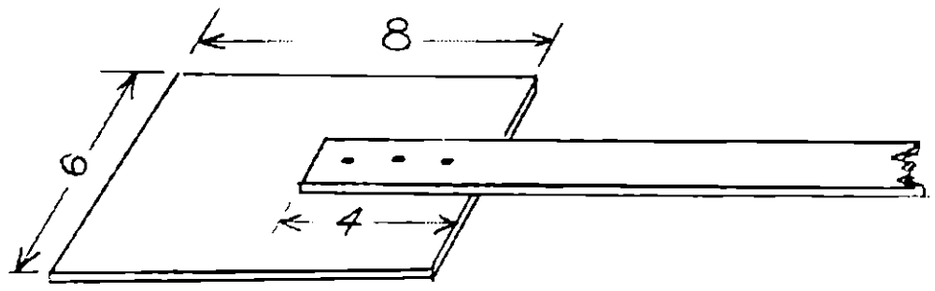
1. Trace the patterns of the body and head and the arms on the ⅜″ x 3½″ x 12″ wood. Trace the four pieces for the legs and the two for the feet on the ⅜″ x 1½″ strip lumber.
2. Saw out all pieces with the coping saw. Saw carefully at the joints on the legs and the body. The tongue of each piece must fit loosely inside the groove in the corresponding piece.
3. File the edges of all pieces.
4. Sandpaper the edges and surfaces of all pieces.
5. Drill holes as shown in the patterns. For the holes marked *B*, use one of the 1½″ No. 17 nails for a drill point. Cut off the head of the nail with the wire-cutting pliers. At points marked *A*, drill holes with a 3/32″ or ⅛″ twist drill. Notice that a hole is drilled in the upper part of the arm with the same size twist drill. Use a ¼″ twist drill to make a hole clear through the body at the point in line with the buttons.
6. Nail and glue the feet to the bottom leg piece, as shown below. Use ¾″ No. 19 nails. Nail through the two points marked. Nail the arms to the side of the shoulder driving the nails through the drilled holes. Do not drive the nails tight. The arms should swing freely.



7. Use the 1½″ nails to fasten the legs to the body, and the lower legs to the upper legs. These nails are driven through the drilled holes. All joints should swing freely. If a joint is too tight, remove the nail and file the joint until there is easy movement.

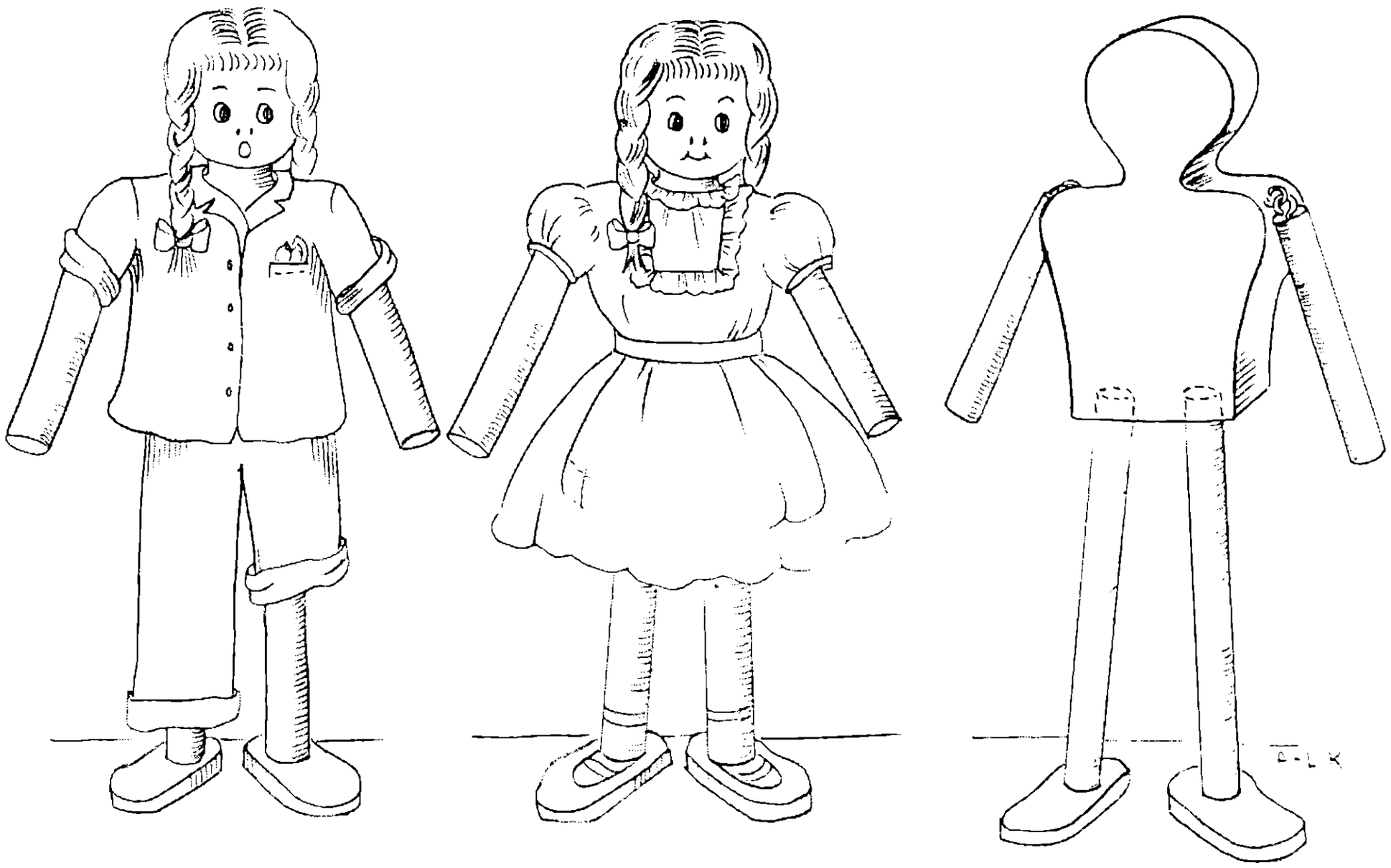


8. Glue the ¼″ dowel rod into the hole in the body. This serves as a handle for holding the dancing figure in an upright position.
9. Make the paddle or dancing platform. Cut pieces to size, file, and sandpaper. Nail and glue the handle to the paddle. Use ½″ No. 19 brads.



10. Paint with show card colors, then shellac or finish with enamels.
11. Make the figure dance. Sit on the end of the paddle handle. Hold Dancing Dan by the dowel rod handle so that his feet rest lightly on the center of the paddle. Use your free hand to tap the handle of the paddle. This causes the paddle to vibrate and sends Dancing Dan's feet tapping briskly against the board.

A WOODEN DOLL THAT WILL STAND



THESE WOODEN DOLLS have rigid legs that enable them to stand. The arms are movable. They may be dressed in the costume of any character from history, from other lands, or from a storybook. Younger children may wish to dress them in felt, since the edges of this material will not fray and therefore do not need to be hemmed.

Materials Needed

1 pc. Basswood or clear white pine, 1″ x 4″ x 6″
1 pc. Basswood or clear white pine, ¼″ x 3″ x 3″
½″ Dowel rod 22″ long
4 ¼″ Screw eyes
½″ No. 19 Brads
1 pc. Felt 1″ x 3″, color of hair
Small skein of yarn—suitable color for hair

Tools Needed

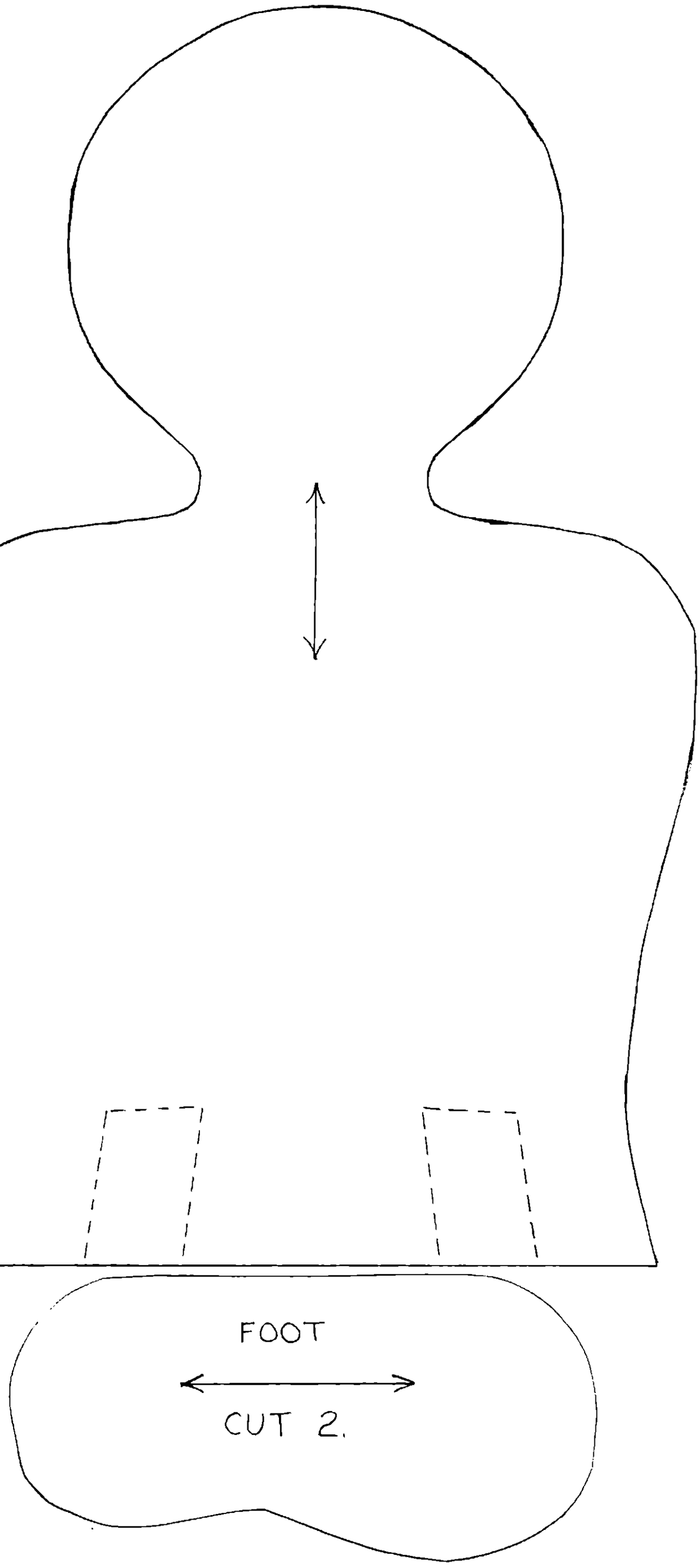
Coping saw
V board
File
Vise
Brace
½″ Bit
Pliers
Hammer
Ruler
Hand drill

Skills Used

Measuring
Sawing
Filing
Sandpapering
Boring holes (bit and brace)
Drilling holes (hand drill)
Nailing

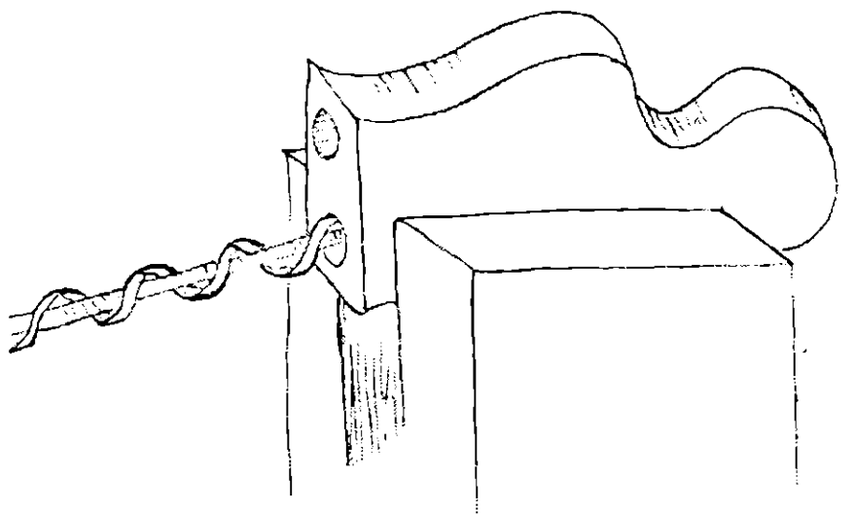
PROCEDURE

1. Trace the pattern of the doll's head and body on the 1″ x 4″ x 6″ piece of wood. Trace the feet on the ¼″ x 3″ x 3″ piece of wood.
2. Saw out these pieces with the coping saw. When sawing thick wood, as in the doll's body, it is especially important to hold the saw in a vertical position.
3. File all the edges of the three pieces.
4. Sandpaper all edges and surfaces.

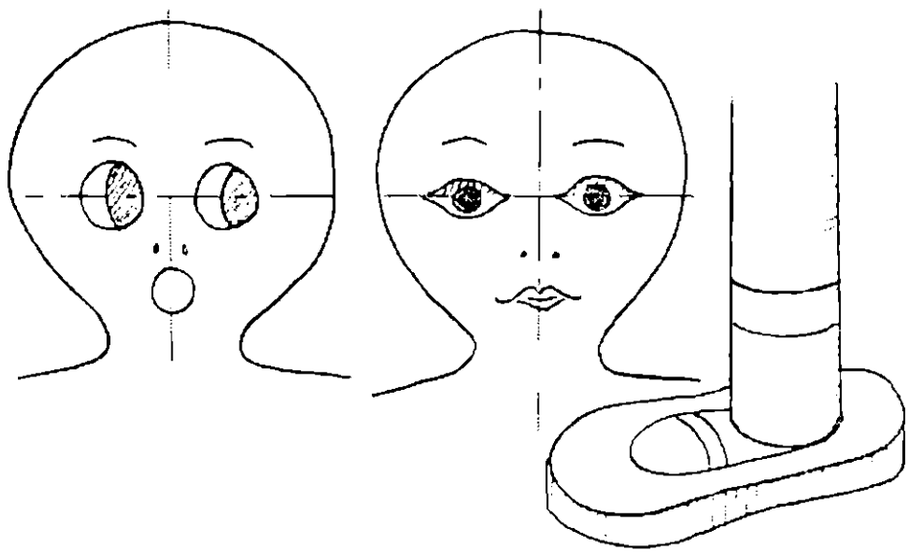


Full-size pattern

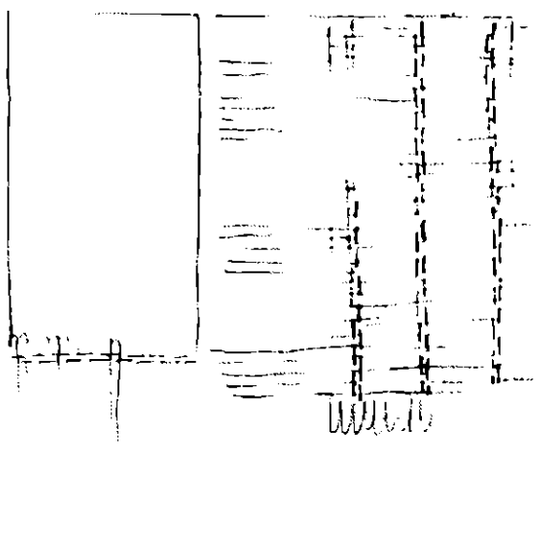
5. Use the ½″ bit and the brace to bore ½″ holes into the bottom of the body piece. These holes should be bored at a slight angle so that the legs will have a slight spread when the doll is standing. Note the dotted lines in the pattern showing the depth and slant of these holes.

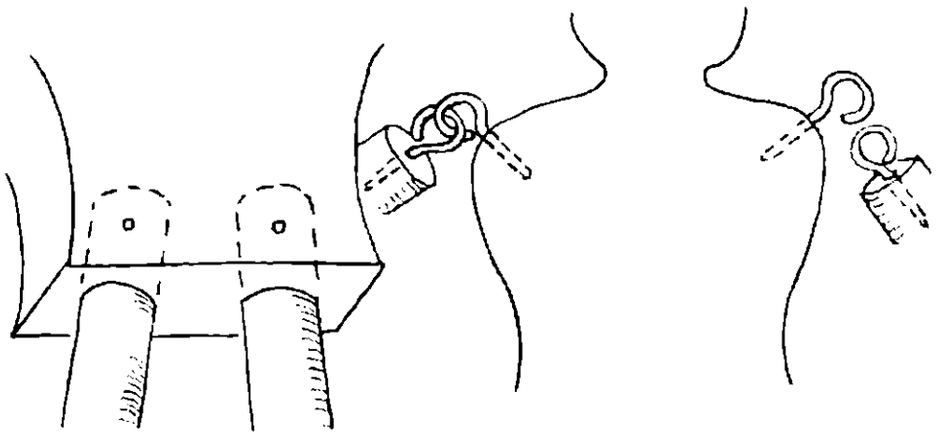


6. Cut two pieces of ½″ dowel rod 7″ in length for the legs. Cut two pieces 4″ in length for the arms. File the ends of the dowel rod. Sandpaper the dowel rods slightly.
7. Nail and glue the feet to the bottoms of the legs. Rub the glue into the end of the dowel rod. Nail the foot on with ½″ brads.
8. Glue the upper ends of the legs into the ½″ holes in the body. When this glue is set, ½″ brads may be driven through the body and into the dowel rod to prevent the dowel rod from turning.
9. Use a brad that is smaller in diameter than the shank of the screw eye to drill a hole into the end of the arm and into the shoulder. Cut off the head of the brad with wire-cutting pliers before inserting the brad in the hand drill. Open two screw eyes. Place the shank of the screw eye in the vise. Use the pliers to open the ring of the screw eye to form a hook. Screw these opened screw eyes into the shoulders of the doll. Put closed screw eyes in the arms. Hook the arms onto the shoulders. Use the pliers to close the screw eyes.
10. Paint the features on the face and the shoes and socks on the feet with show card colors. Divide front of head with horizontal and vertical lines. Eyes should be close together on horizontal line.



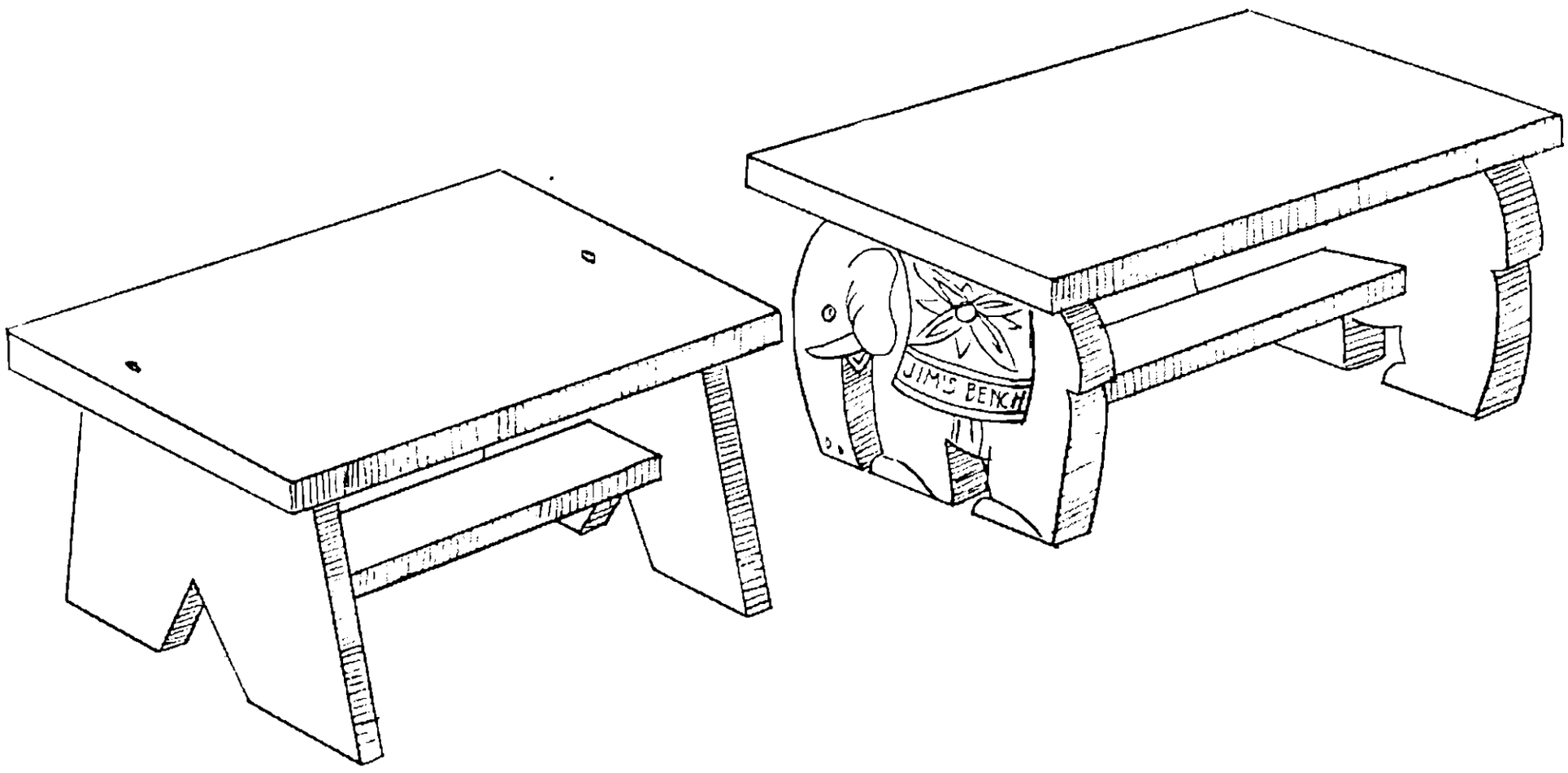
11. Finish with one coat of shellac and one coat of varnish.
12. Use a piece of felt or other non-raveling material, measuring 1″ x 3″, to make the wig. Cut strands of yarn 2″ long. Sew these across the 1″ end of the piece of felt. Sew by hand or use the finest stitch on the sewing machine. Cut many strands of yarn 12″ long. Place these over the felt so that when stitched down the middle to make a center part, the hair will be of equal length on each side. After stitching down the center, stitch along each of the 3″ edges.





13. Glue and nail the wig on the doll. Use ½″ No. 19 brads. Trim the bangs. Braid the hair on each side and tie the end of the braid with the bow.
14. Dress the doll. See pages 256–259 for directions for making doll clothes.

A STURDY BENCH



To THE CHILD this is real furniture. The bench is large enough and strong enough to stand on, to sit on, or to use as a footstool. Fifth and sixth graders will enjoy making this useful item for the home. The upright ends may be designed by the child. Two possibilities are suggested here.

Materials Needed

1 pc. Pine, gum, basswood, or poplar, ⅞″ x 10″ x 36″
1 pc. Wood to match the wood chosen above, ⅞″ x 3″ x 15″
10 Flat head steel or brass screws, 1¾″ No. 10

Tools Needed

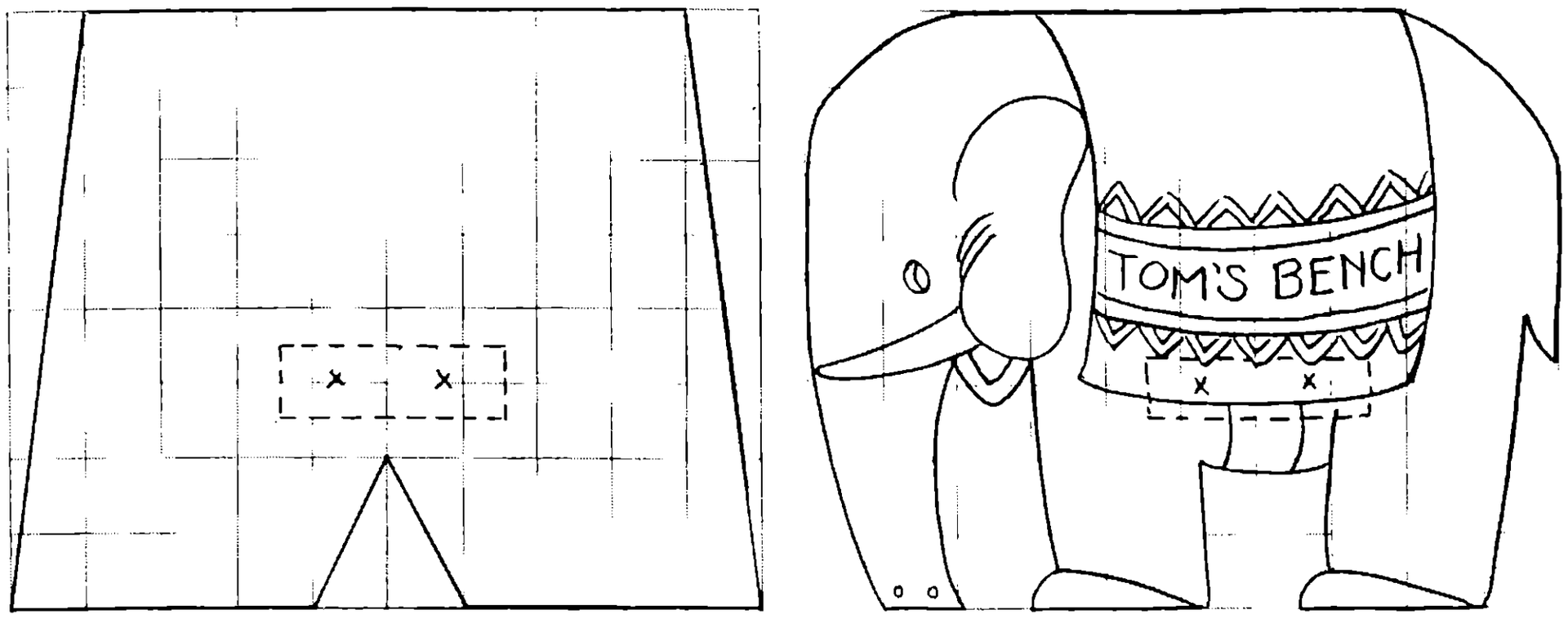
Ruler
Try square
Cabinet saw
Coping saw
V board
File
Vise
Hand drill
⅛″, 3⁄16″ Twist drills
Screw driver

Skills Used

Measuring
Sawing
Filing
Sandpapering
Drilling
Screwing
Gluing
Finishing

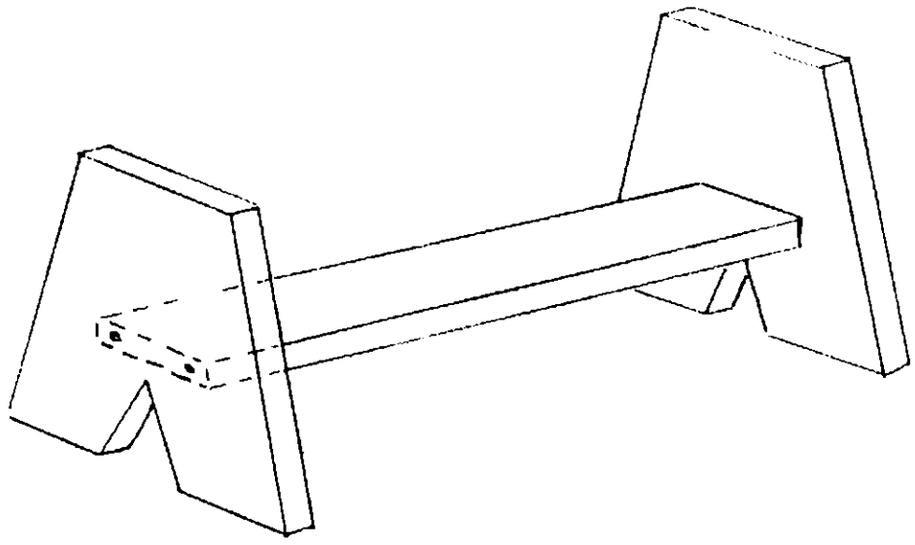
PROCEDURE

1. On the ⅞″ x 10″ x 36″ piece of wood, measure off three lengths—one of 18″ and two of 8″—to make the top and upright ends of the bench. Cut with the cabinet saw.
2. Trace the end designs on the ⅞″ x 8″ x 10″ pieces.
3. Saw out the end designs with the coping saw.
4. Cut the brace from the ⅞″ x 3″ x 15″ strip. Make it 14½″ long.
5. If you have a plane and the child can use it, plane the edges of the top and the brace. These edges may be filed instead of planed if the child has not developed the skill to use a plane.
6. File the edges of the end pieces.
7. Sandpaper the edges and surfaces of all four pieces.
8. Mark the points for drilling holes in the end pieces as shown in the pattern. These holes are up 3″ from the bottom and are 1½″ apart. Drill these holes with a 3⁄16″ twist drill.

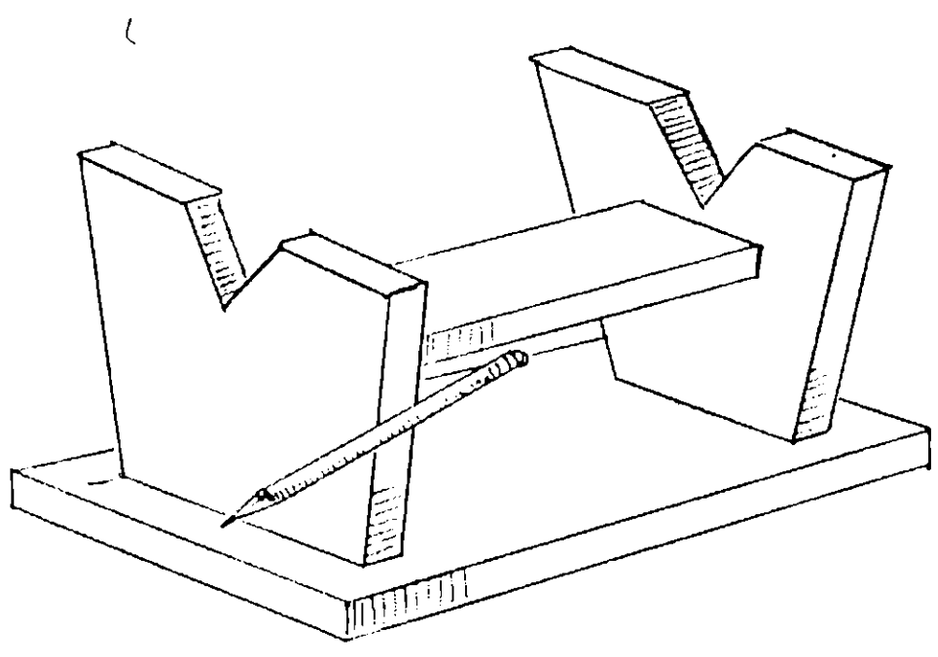


Quarter-size patterns

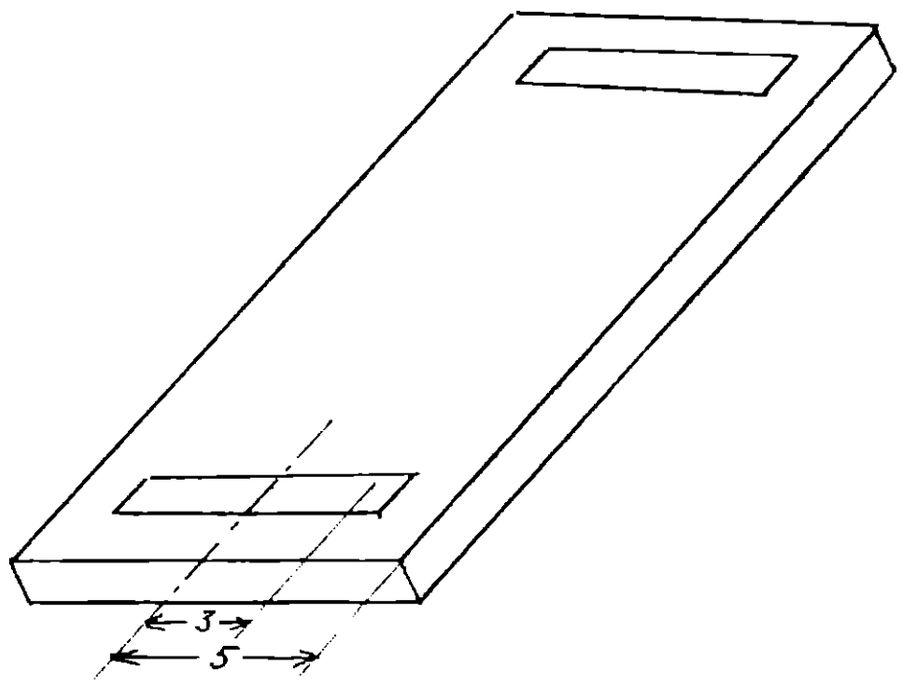
9. Drill two ⅛″ holes 1½″ apart in each end of the brace.
10. Rub glue into the ends of the brace. Screw the upright ends of the bench onto the brace.



11. Turn the top of the bench upside down. Turn the lower part upside down on the top piece and center it. Mark pencil lines on the top piece on either side of the end pieces.

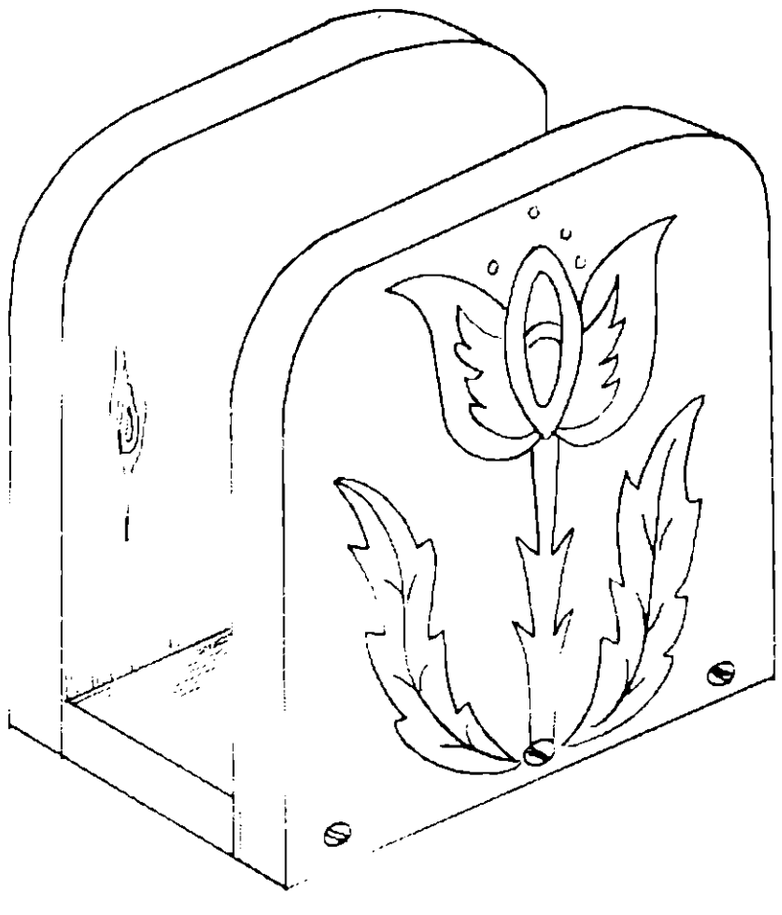


12. Mark holes for drilling between these pairs of lines on the top piece. Center one hole. Drill the other two holes 3″ on each side of the center hole. Use a 3/16″ drill.
13. Place the bench right side up and set the top piece in position. Mark the location of holes. Drill screw holes in the tops of the end pieces, using a ⅛″ twist drill.

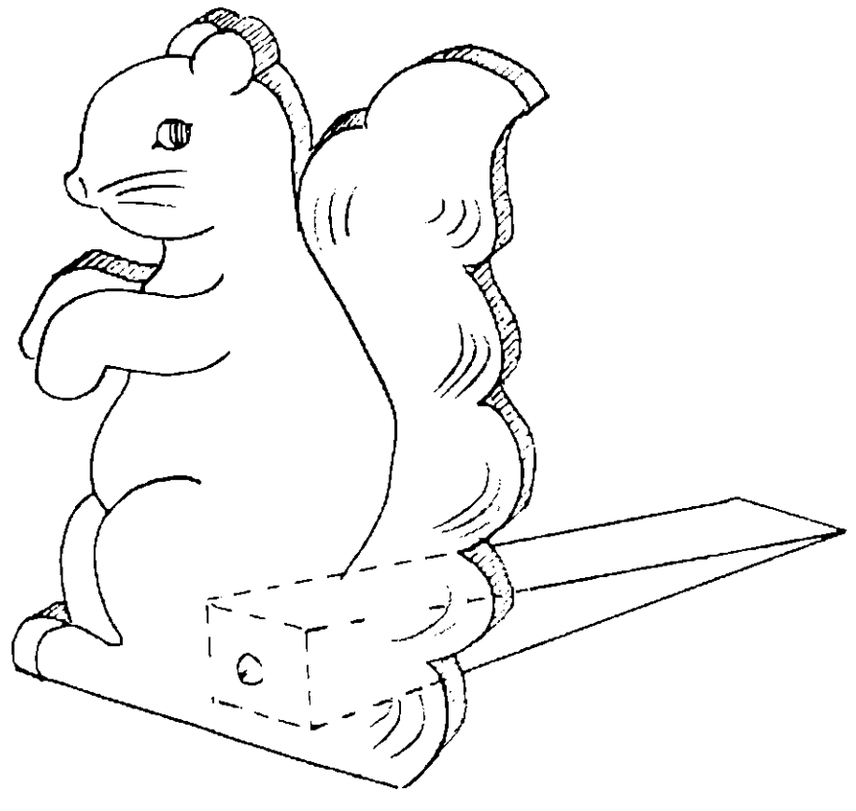


14. Rub glue into the tops of the end pieces. Screw the top in place.
15. Finish the bench. Decorate with show card colors or with a woodburning pencil and finish with one coat of shellac and one coat of varnish; or stain the bench and finish with varnish; or finish with two coats of enamel.

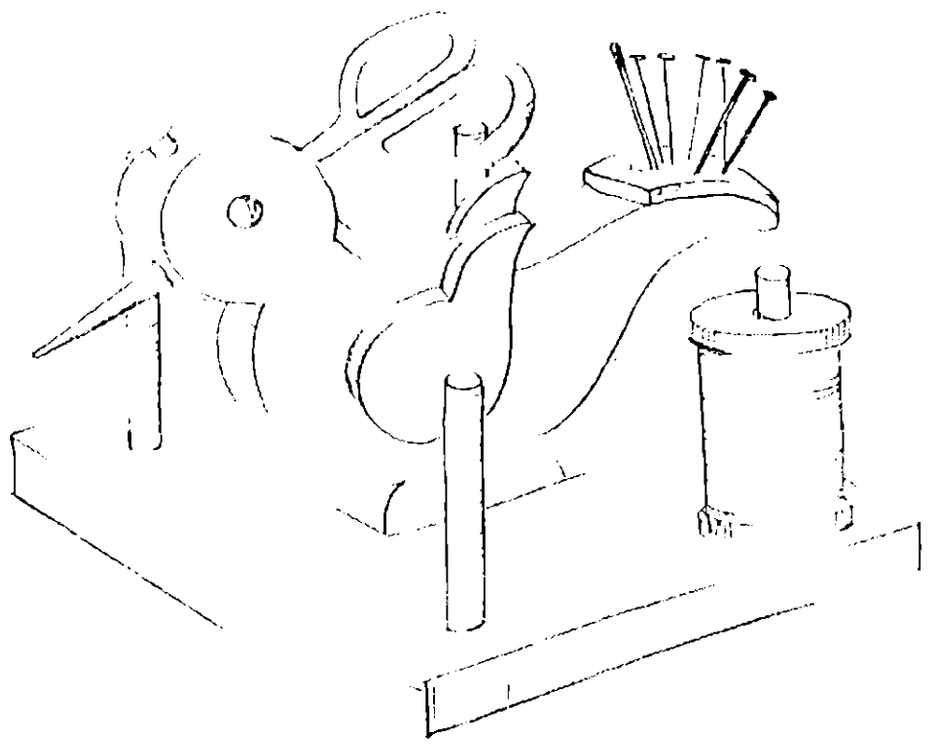
OTHER INDIVIDUAL PROJECTS



Paper napkin holder. Upright pieces are ⅜" x 5" x 5", screwed to a base ½" x 2½" x 5".

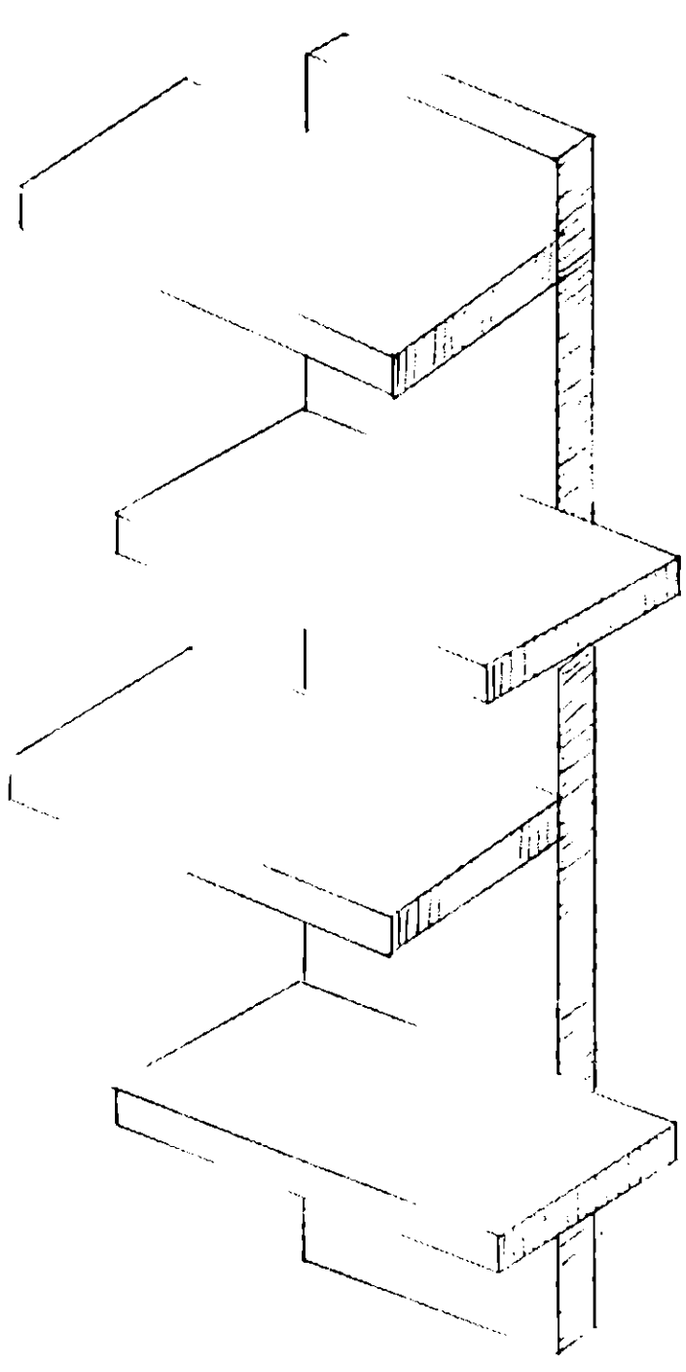


Doorstop. Cut out figure from ½" wood glued and screwed to a wedge.

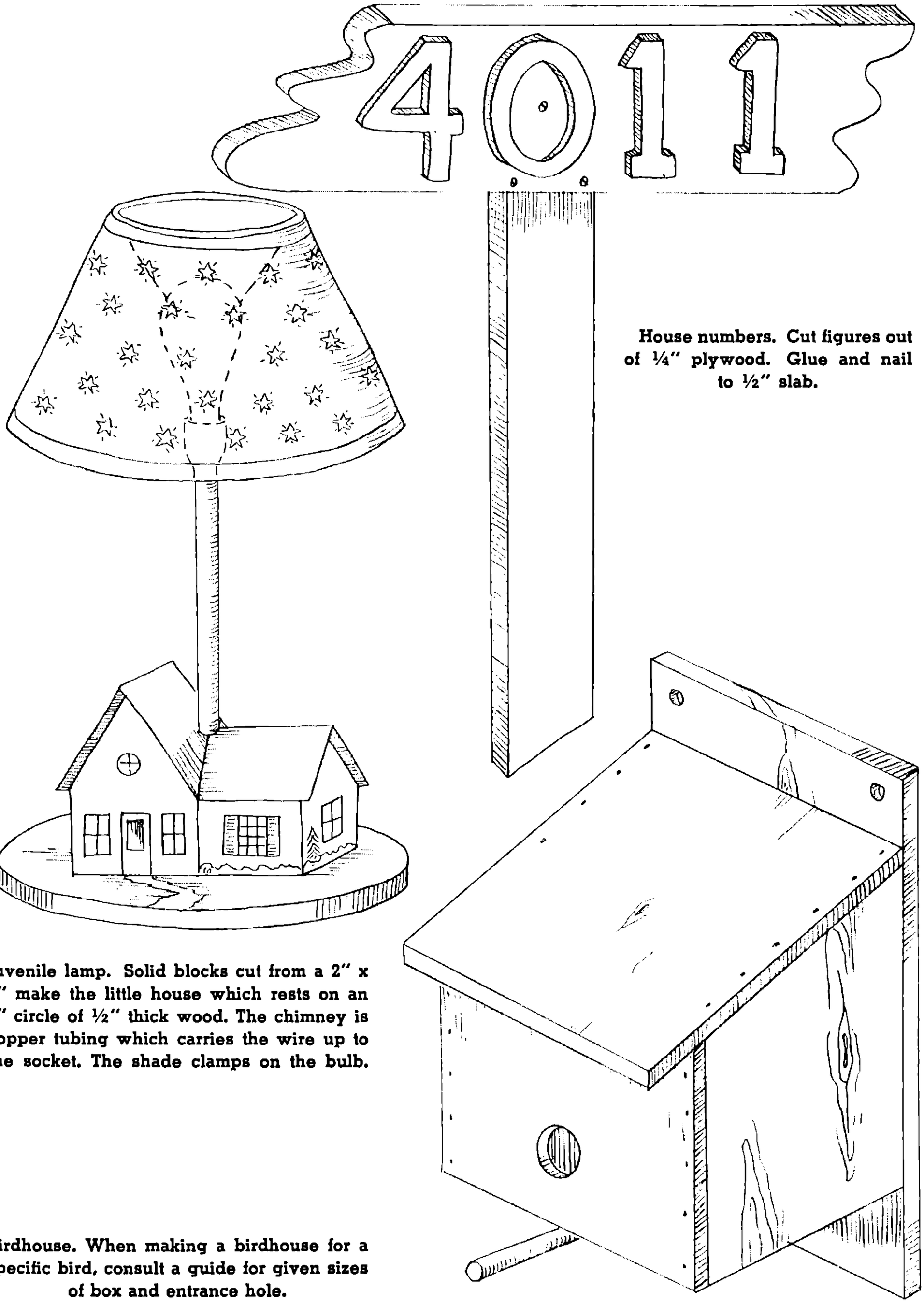


Sewing bird. Thimble is placed on dowel rod top-knot. Scissors go through hole in head to make beak. Pins and needles are stuck in cork glued on tail. Thread is kept on spool pegs.

NUMEROUS OTHER PROJECTS may be made of wood. Napkin holders, doorstops, wall shelves, sewing birds, juvenile lamps, lawn figures, house numbers, kites, and birdhouses are all worth-while projects to consider. The tool techniques explained for the previous projects are the same as those needed in the construction of the wooden articles pictured.



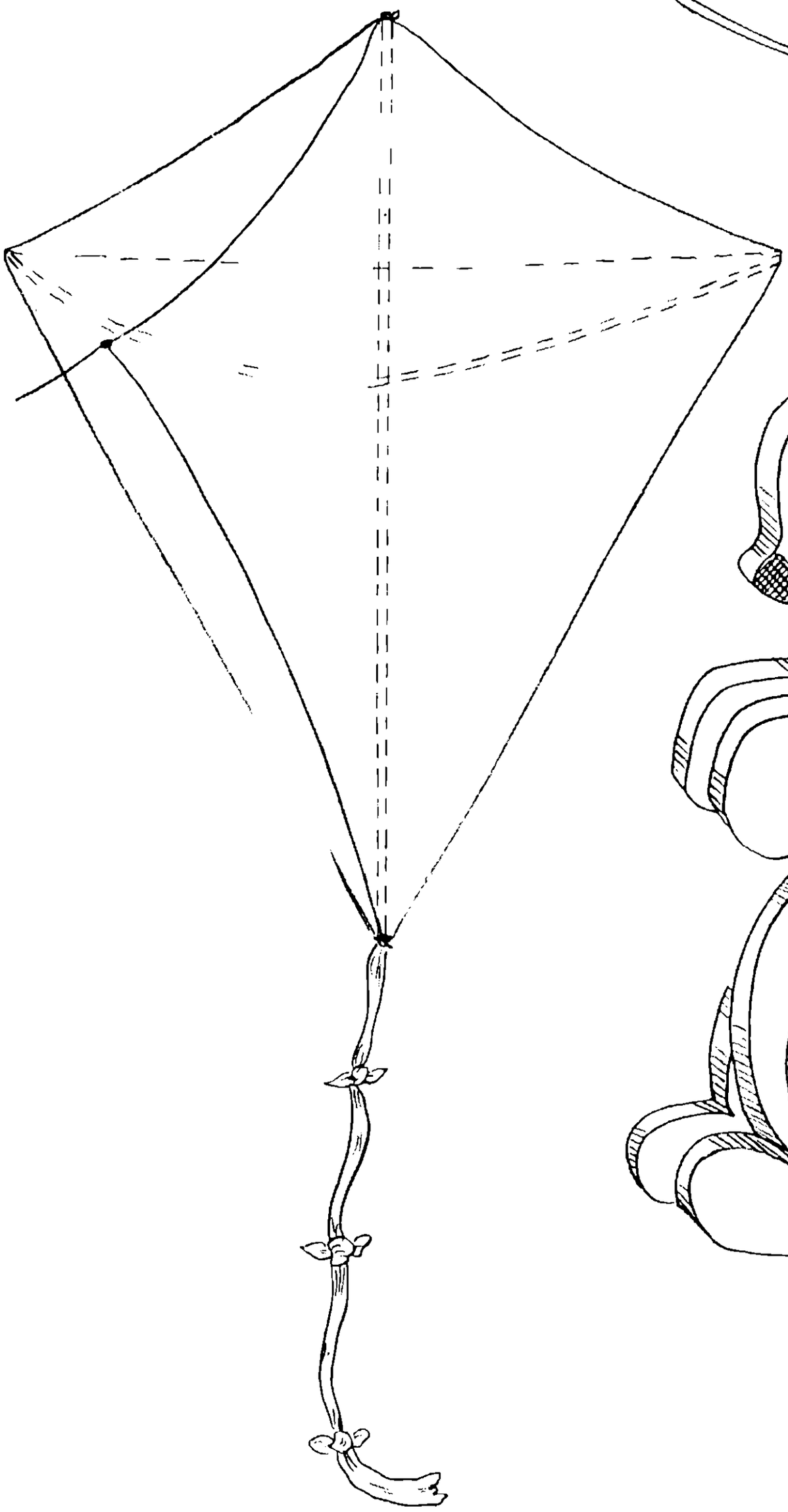
Modern wall shelf. Shelves are ½" x 4" x 8" glued and screwed to a back strip ½" by 4" x 18".



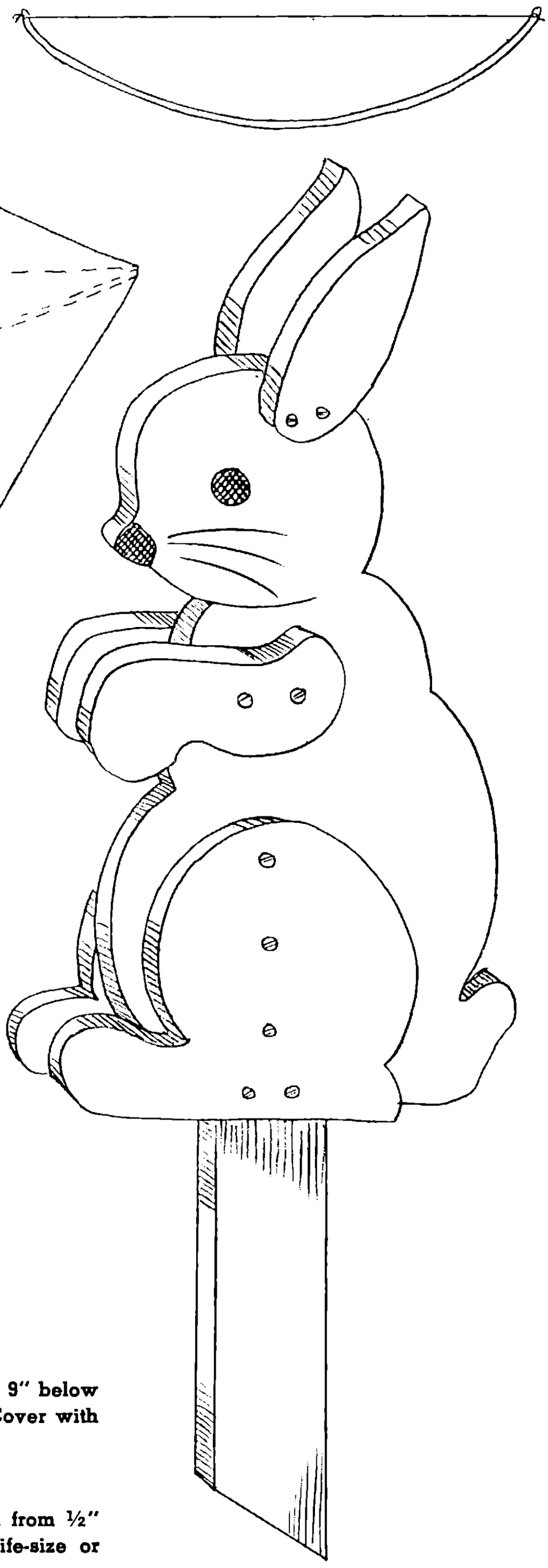
House numbers. Cut figures out of ¼" plywood. Glue and nail to ½" slab.

Juvenile lamp. Solid blocks cut from a 2" x 4" make the little house which rests on an 8" circle of ½" thick wood. The chimney is copper tubing which carries the wire up to the socket. The shade clamps on the bulb.

Birdhouse. When making a birdhouse for a specific bird, consult a guide for given sizes of box and entrance hole.

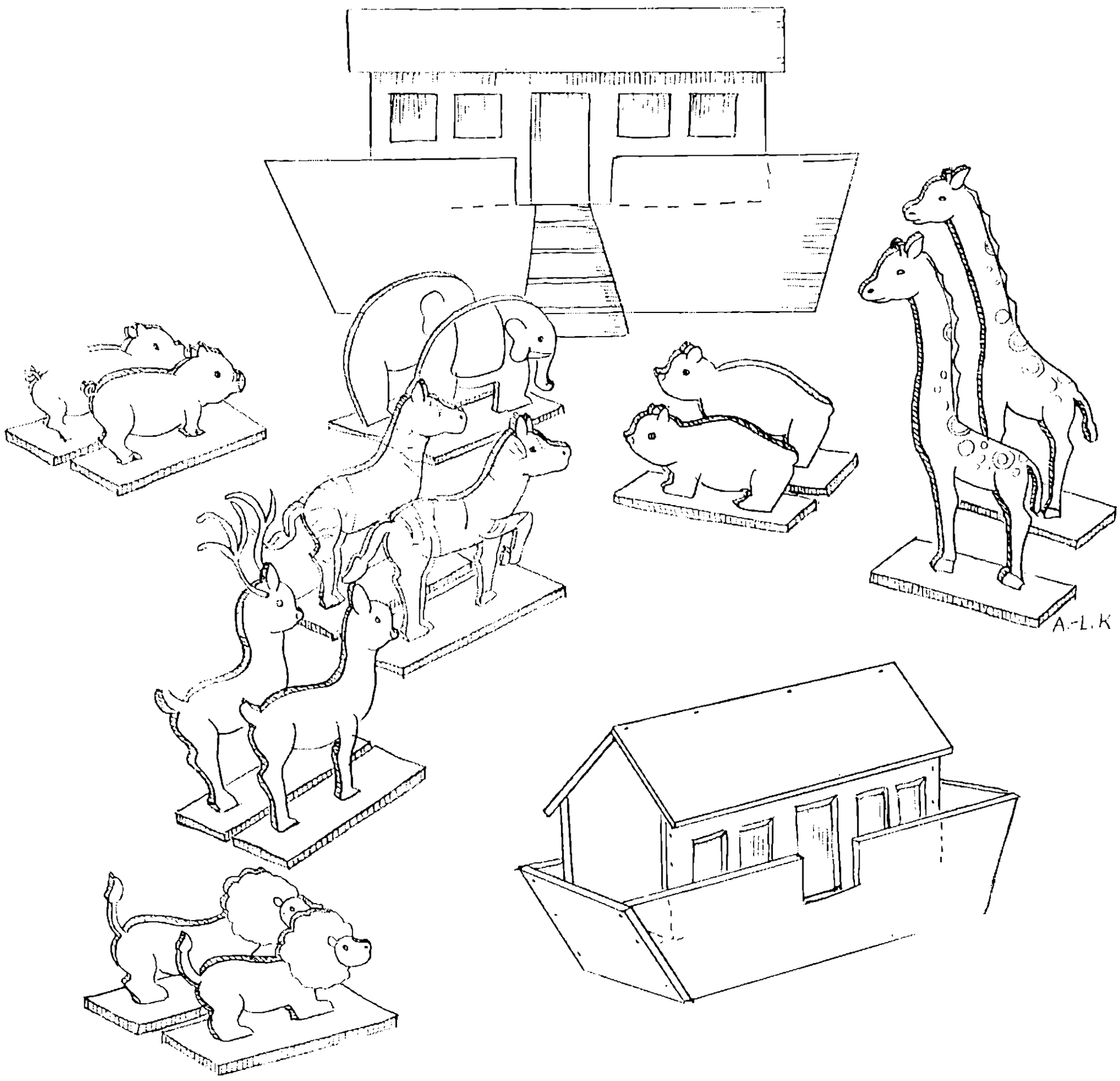


Kite. Use two sticks ¼" x ½" x 36". Cross sticks 9" below top. Bow the cross stick by pulling string tight. Cover with paper and add rag tail.



Lawn figure. The body and applied parts are cut from ½" wood and glued and screwed together. Make life-size or larger.

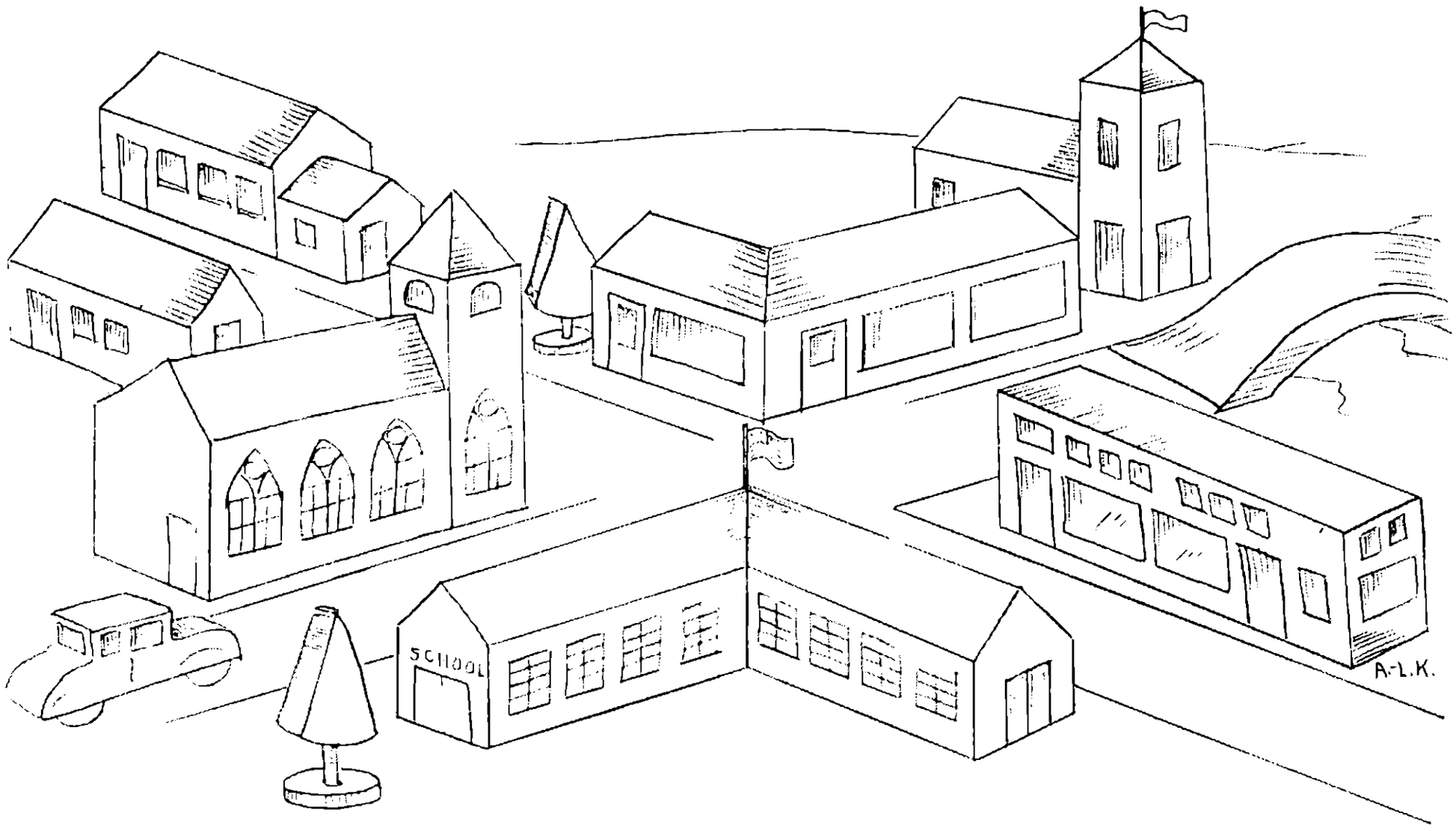
GROUP PROJECTS



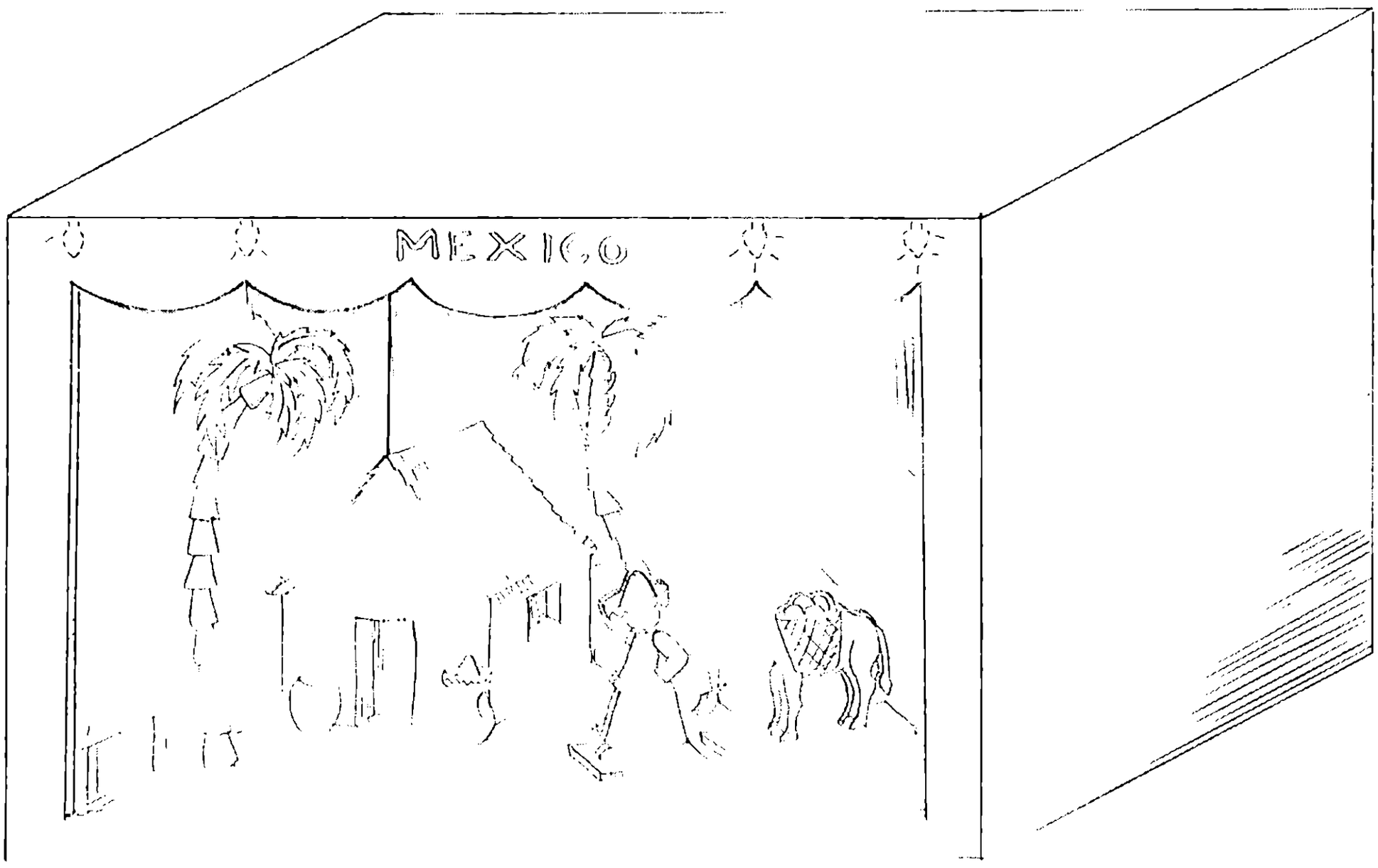
Noah's Ark. Single-thickness animals on stands march two by two toward the ark. A group might construct the ark while other children work in pairs to make the animals.

INDIVIDUAL PROJECTS may be so planned as to become a part of a group project. For example, a circus parade or a "Noah's Ark" may be made up of a series of individual units. Making animals in pairs will make it possible for twice as many children to work from a given number of patterns. Any one of these unit animals might be an individual project.

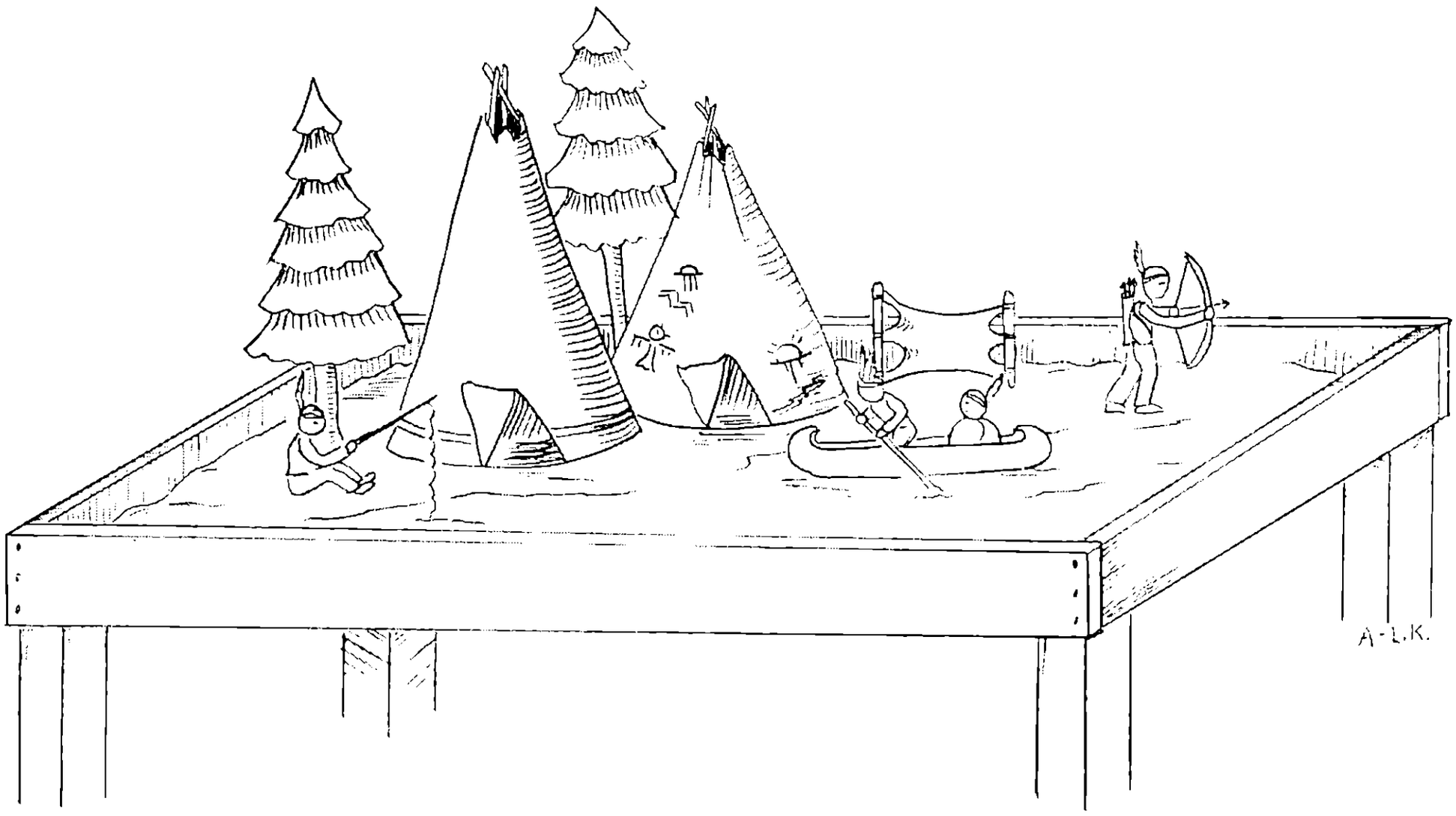
Doll houses, miniature farms, toy villages, party favors, dioramas, and sand table scenes depicting facts learned in history, science, geography, or literature may be constructed. Musical instruments for a rhythm band, birdhouses for the schoolyard trees, toys for the kindergarten, or kites for a sale may be the basis of group projects.



Toy Village. Houses, churches, stores, schools, and bridges are cut out of solid blocks of 2" x 4". Trees, cars, busses, and streetcars are cut out of ⅞" thick wood. Details are painted.



Diorama. Within a miniature stage, lighted with Christmas tree lights, a scene from the pages of history, geography, science, or literature may be depicted.



This sand table illustrates how the Indians lived.

SUGGESTIONS FOR FURTHER READING

Boehmer, Susan E., and Chris H. Groneman, *Making Things Is Fun, Book II.* Austin, Texas: Steck Co., 1946.

Dank, Michael C., *Creative Crafts in Wood.* Peoria, Ill.: Manual Arts Press, 1945.

de Lemos, Pedro J., *Creative Art Crafts.* Worcester, Mass.: Davis Press, Inc., 1943.

Design and Project Guide for Industrial Arts Teachers. Cleveland, Ohio: Board of Education, 1951.

Handcraft Teacher's Guide for Elementary Schools. Cleveland, Ohio: Board of Education, 1950.

Johnson, Ben W., *Coping Saw Work.* Peoria, Ill.: Manual Arts Press, 1930.

Newkirk, Louis V., *Integrated Handwork for Elementary Schools.* New York: Silver Burdett Company, 1940.

Newkirk, Louis V., and LaVada Zutter, *Your Craft Book.* Scranton, Pa.: International Textbook Company, 1946.

Parisi, Tony, *Craftsman's Instruction Handbook.* Sandusky, Ohio: The American Crayon Company, 1949.

Siepert, Albert F., *Bird Houses Boys Can Build,* Revised Edition. Peoria, Ill.: Manual Arts Press, 1936.

Van Tassel, Raymond, *Woodworking Crafts.* New York: D. Van Nostrand Company, 1947.

Zarchy, Harry, *Let's Make More Things.* New York: Alfred A. Knopf, 1943.

CHAPTER 9

Art Metalcrafts

Metal as a Craft Material

To further the interests of boys and girls in handcrafts, the authors are including this chapter which deals with several different metals. Working with metal should not be attempted below the sixth grade except with pupils who have an exceptional background and talent for working with tools. Some fifth-grade pupils can work satisfactorily with metals. Before working with metals, pupils should have experience in working with wood, since practically all woodcraft skills are basic to metalcrafts.

Metals like copper, brass, aluminum, colonial brass, and nickel silver are beautiful in their refined and finished state. A great many simple articles can be fashioned of these metals by the average elementary school pupil with inexpensive tools and equipment. A copper foil plaque or a nickel silver bracelet made for Mother will never be forgotten. A pair of copper book ends or napkin rings for the family are lifetime favorites.

Kinds of Metal Recommended

Metals such as copper foil, brass foil, and aluminum foil are used in making decorative plaques or pictures. Boys and girls in all elementary grades beginning with grade one can do simple art metalwork of this kind. Copper foil is about the thickness of heavy paper and is easily worked with blunt or sharp wooden tools. These tools can be lollipop sticks, pen-holders, or orange sticks pointed to work out designs as shown on page. 222. The approximate thickness of foil metal is .005 of an inch or five one-thousandths of an inch.

Metals such as copper, brass, aluminum, colonial brass, and nickel silver are available in many thicknesses. These thicknesses are ordered by Browne and Sharpe (B & S) gauge in thicknesses as follows:

36-gauge foil is .005 inches thick

24-gauge metal is .0201 inches thick or approximately 1/64″

20-gauge metal is .0319 inches thick or approximately 1/32″

18-gauge metal is .0413 inches thick or approximately 3/64″

16-gauge metal is .0508 inches thick or approximately 1/16″

The 18-gauge thickness is suggested for use in making the articles or projects described in this book. Confusion may result if several thicknesses of metal are on hand. The authors suggest 18-gauge as the standard thickness for elementary schools.

Ordering Metals

Metals should be ordered in the specific quantities needed for articles or projects to be made. Each metal is ordered according to specifications. Examples of specifications follow:

Foil. 10 lineal feet—copper foil, 12″ wide, 36 gauge. (Use the same

specifications for brass and aluminum.)

Other Metals.

12 pieces—soft sheet copper, 18 gauge, cut into 12″ squares

12 pieces—soft sheet colonial brass, 18 gauge, cut into 12″ squares

Having pieces cut into 12″ squares is a help to the teacher, since the squares are more easily handled than a roll of copper 12″ wide and several feet in length.

Nickel silver is usually ordered in pieces 6″ wide. The specifications for nickel silver are as follows:

10 lineal feet—nickel silver, 18 gauge, cut 6″ wide

Some metals may be purchased cut to the size needed for specific projects. For example, nickel silver bracelet blanks may be ordered as follows:

1 dozen—nickel silver blanks, 18 gauge, cut to ½″ x 6″

1 dozen—nickel silver blanks, 18 gauge, cut to 1¼″ x 6″

Blanks for bracelets, napkin rings, book ends, and other articles can be accurately cut with large foot-power shears. In some cities it is possible to have the blanks cut to proper size in a high school industrial arts department which has equipment for cutting metals. Or the tinsmith in any town or village would have such a shear and would do the cutting of squares into blanks for little or no cost.

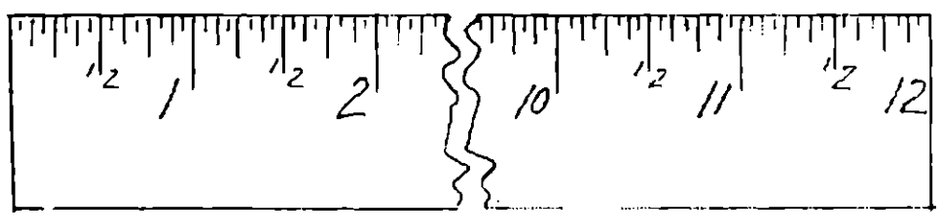
An inexpensive bench shear which can be operated by the teacher is described later in this chapter. The bench shear, however, is too cumbersome to be used by pupils. There is a slight element of danger connected with this tool. Caution must be practiced.

Metals should be stored in convenient shelves or cupboards. Pupils will learn to recognize different metals if labels are pasted on the edges of the shelves to designate the kinds of metals. Neatly stack the 12″ squares as well as any blanks already cut to size. Indicating the sizes on the labels is also good practice.

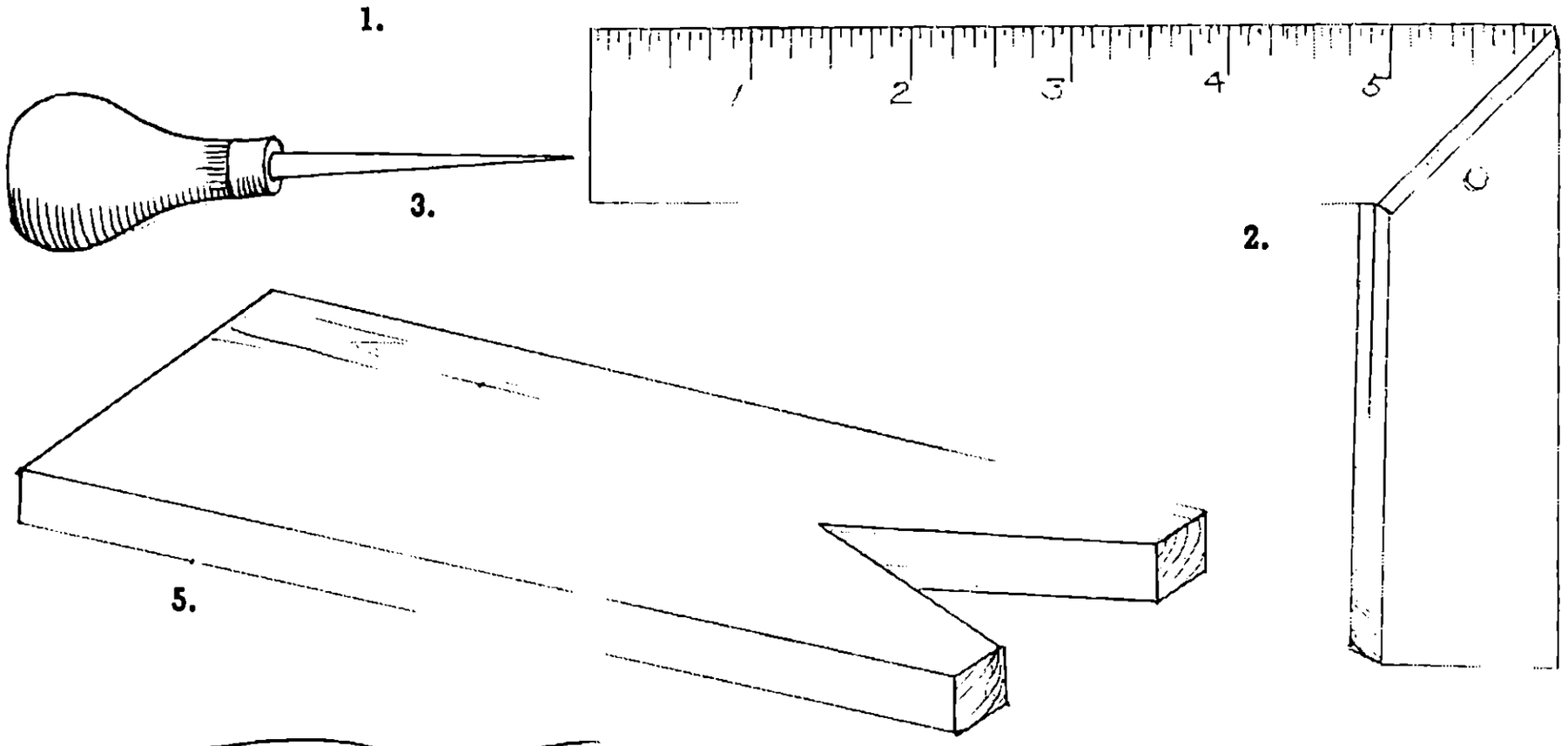
Tools for Art Metalcrafts

The kind and number of tools needed for metalcrafts, of course, must be determined by the program in the school. For a group of ten pupils, the tools listed below are adequate for most purposes. All tools listed appear in the complete list on page 36. Tools marked with an asterisk (*) are used for wood and other crafts as well as for metalcrafts. The tools are illustrated on pages 214–215.

1. 5 each—Rules, metal 12″
*2. 10 each—Squares, try 6″
3. 10 each—Scratch awls
4. 1 each—Bench shear, 6″ cut
*5. 10 each—V boards (½″ x 3″ x 12″ maple with V slot)
6. 1 each—Mallet, rawhide, 1½″ diameter
*7. 1 each—Punch, center
*8. 1 each—Hand drill, ¼″ chuck
*9. 2 each—Twist drills, 1/16″, ⅛″, 3/16″, ¼″
10. 1 each—Metal countersink
11. 2 each—Hammers, ball pein, 4 oz.
12. 10 each—Saw frames, jeweler's, 5″ deep
13. 10 each—Files, 8″ mill, smooth
14. 10 sets —Files, Swiss needle, cut 2, 5½″ long (round, half-round, flat, oval, knife, and square)
*15. 2 each—Cleaner, file
*16. 5 each—Vises, metalworking, 3″ jaw
*17. 5 each—Scissors
18. 1 each—Knife, stencil
*19. 2 each—Compass, pencil
20. 1 each—Dividers, 6″ wing

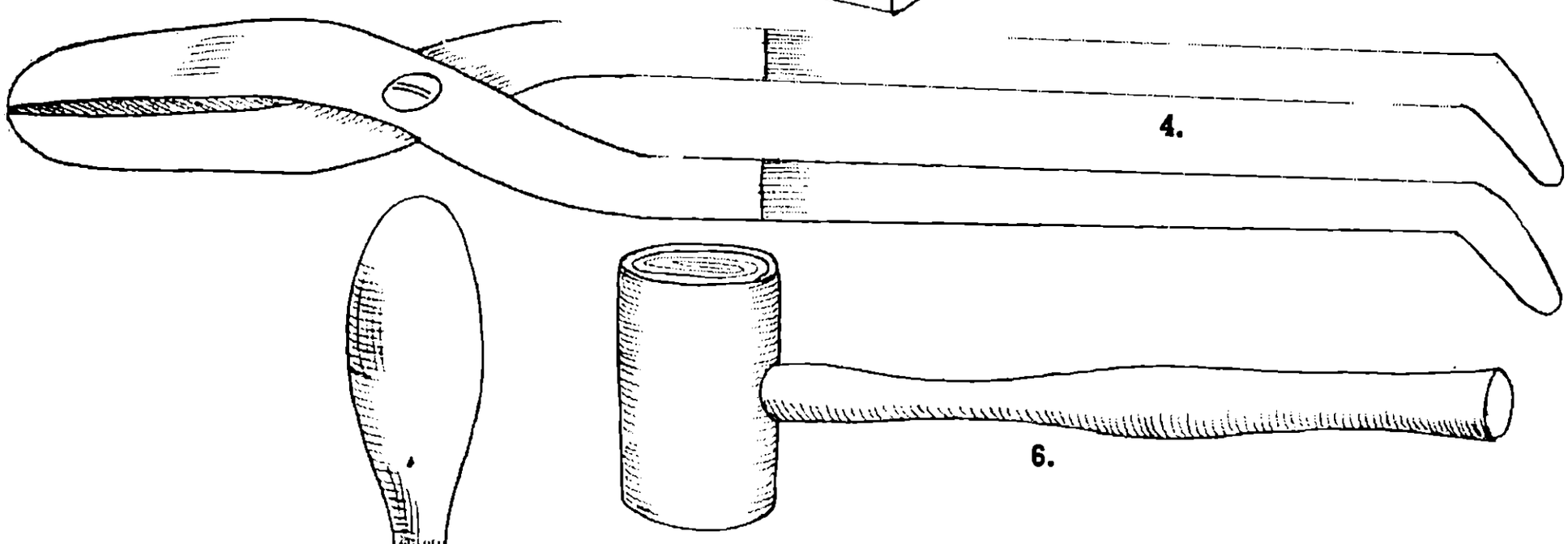


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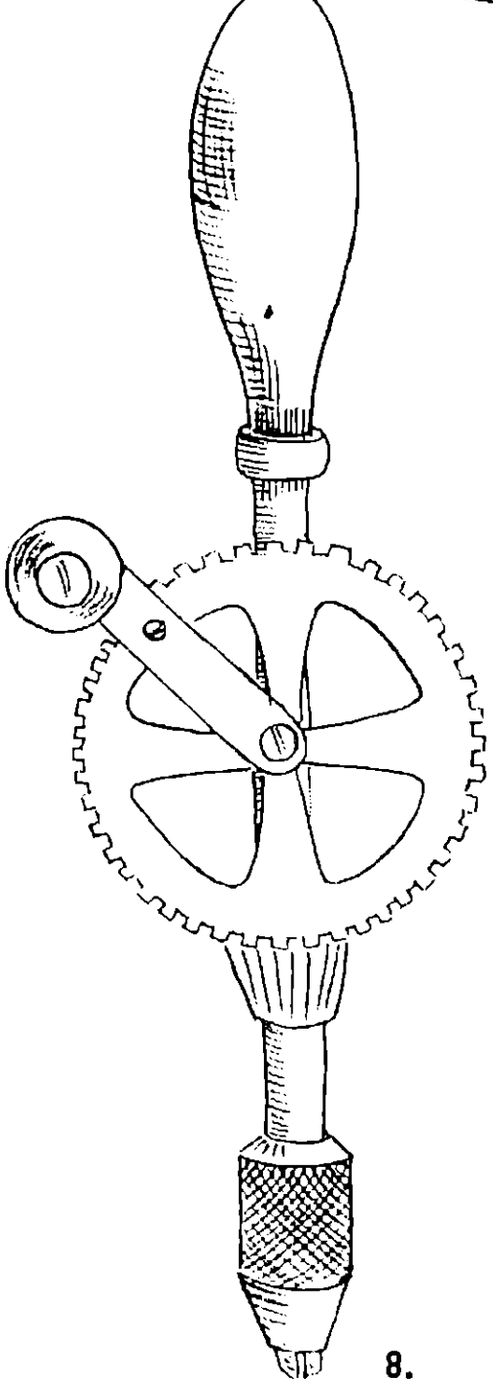
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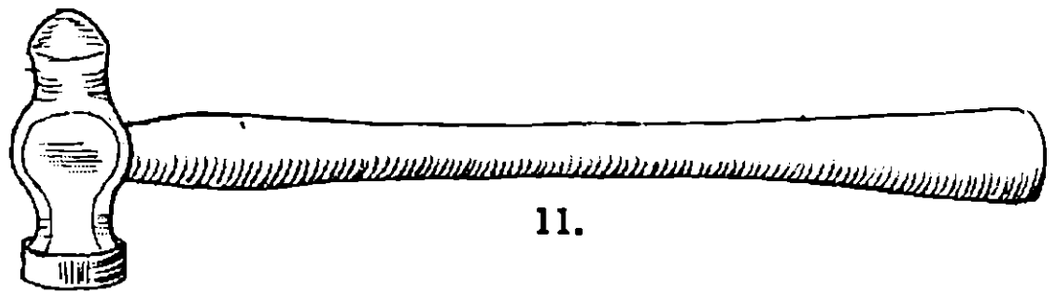


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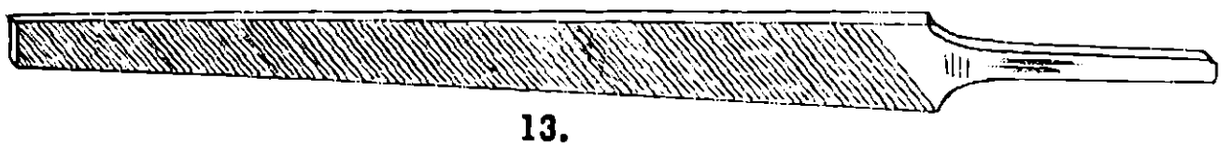


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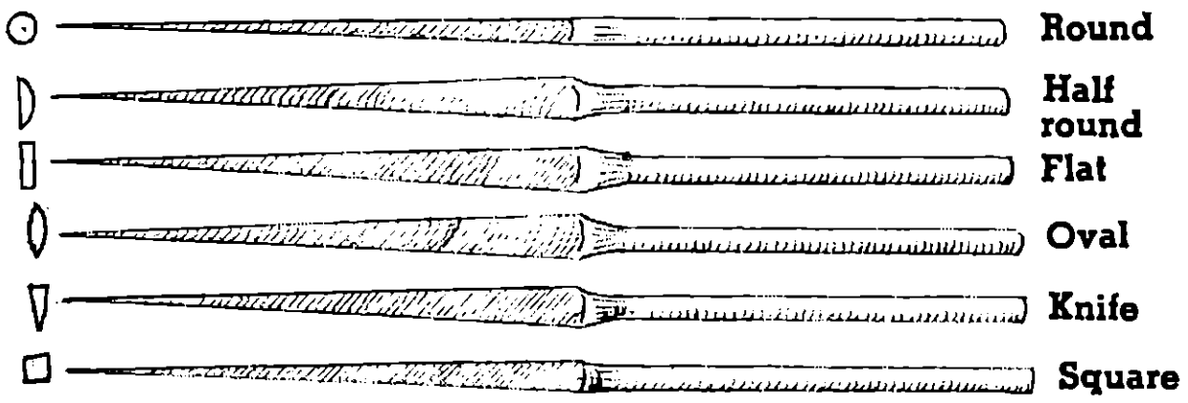
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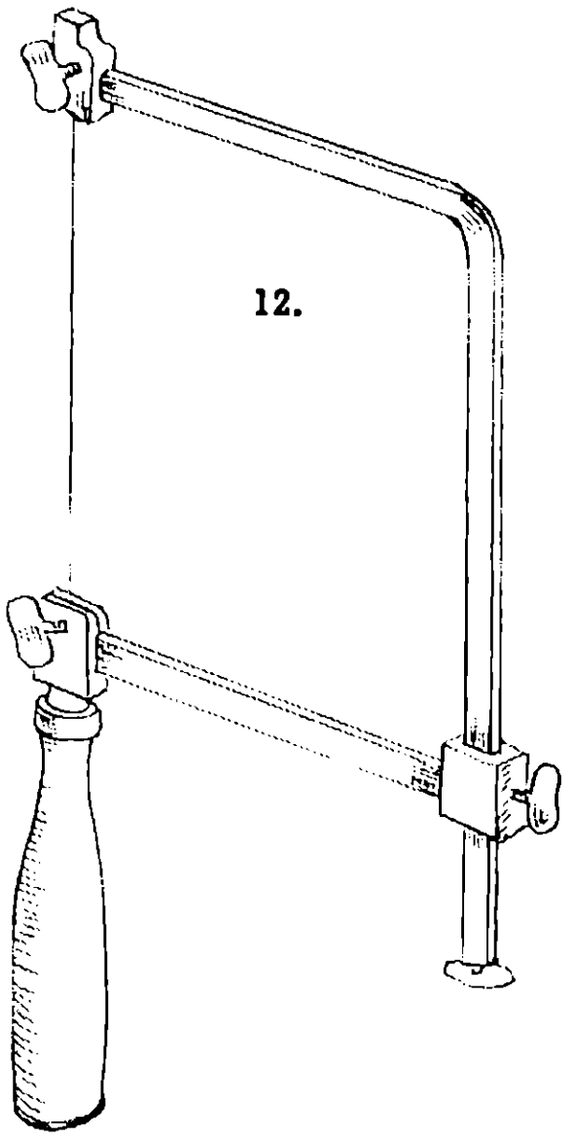
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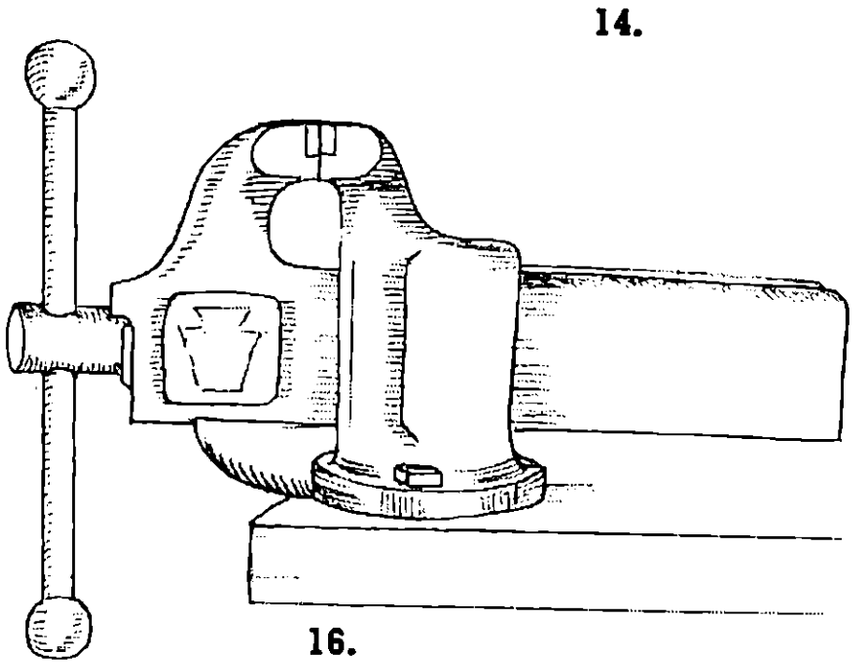
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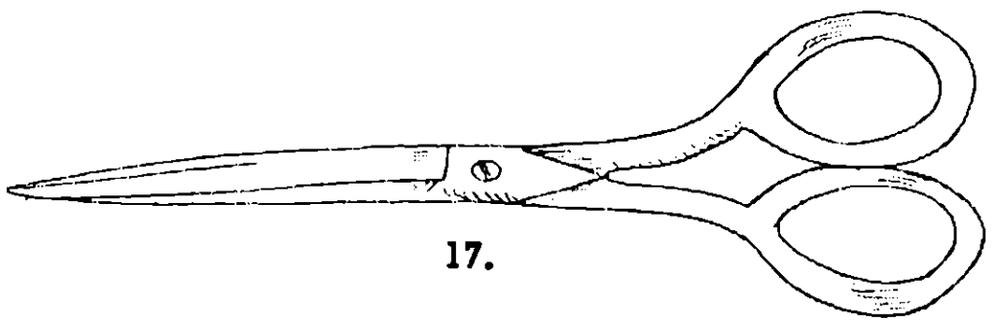
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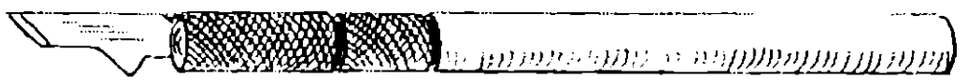
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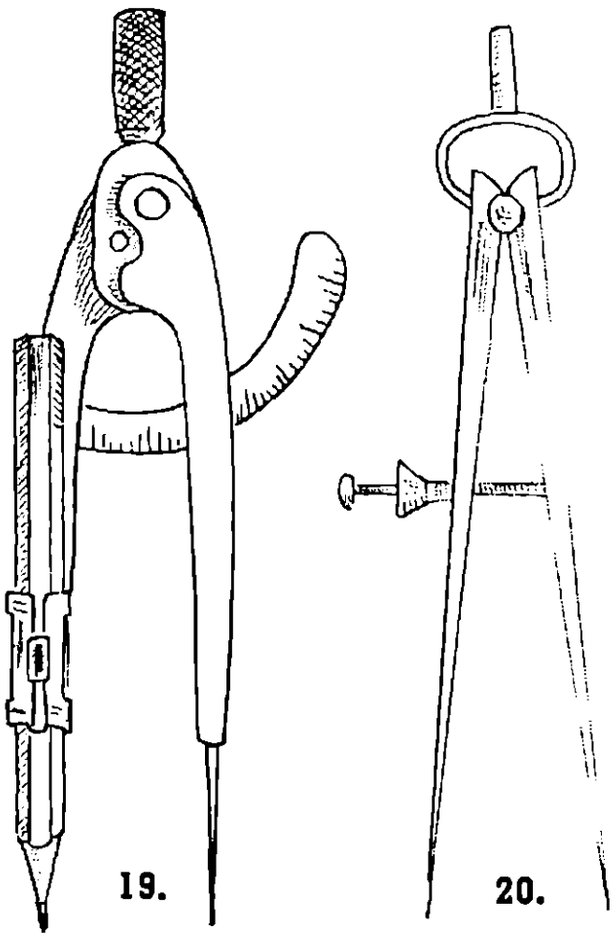
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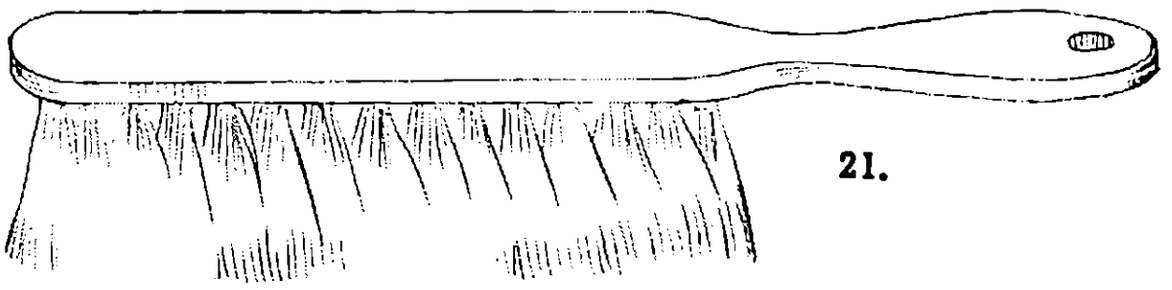


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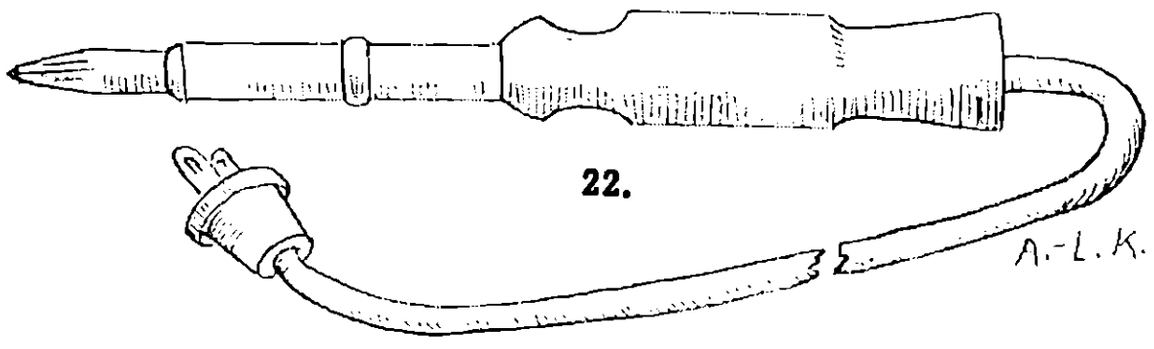


19.

20.



21.



22.

*21. 10 each—Brushes, counter or bench
22. 1 each—Soldering copper, electric, ¼″ tip (optional)

Brief paragraphs about each of the twenty-two tools used for art metalcraft follow:

1. *Metal rule.* This rule is used to measure off accurate sizes of metal to be cut. Metal rules are more accurate than wooden rules.

2. *Try square.* Try squares are used along with metal rules to mark off square edges or ends of projects. This tool is constantly used to square ends of bracelets, book ends, or any article that must be square and true.

3. *Scratch awl.* This is a sharp pointed tool used to mark off lines on metal. It is used with the rule and try square.

4. *Bench shear.* The bench shear is so called because it is held in a bench vise while being used. The piece of metal is held with the left hand while the lever is operated up and down with the right hand. The bench shear is used to cut large pieces of metal into smaller sizes. It will cut up to 18-gauge metal by hand. It is not difficult to use; but the teacher or custodian should use it, not the pupils. Ordering metal cut to size eliminates the use of this tool; however, metals cut to size are more costly than metals bought in standard sizes.

5. *V boards.* The V board is the same board used for working with wood. It should be made of hardwood such as maple. A convenient size is ½″ thick, 3″ wide, and 12″ long. A V slot is cut in one end and two screw holes are drilled to use when fastening the board to the bench or work table. Using flat head wood screws makes a flat working area on the V board. The board should extend 4″ over the edge of the bench.

6. *Rawhide mallet.* The rawhide mallet is used to flatten curved pieces of metal without leaving marks on the metal. Metals often become curved out of shape when cut. The mallet is also used to beat metal into desired shapes.

7. *Center punch.* The center punch is a sharp pointed tool used with the ball pein hammer to mark centers of holes that are to be drilled with a twist drill.

8. *Hand drill.* This is the same tool used in woodcraft. Holes are drilled in metal by holding the wood handle in the left hand and turning the wheel by the knob in the right hand. Very little pressure or force should be used, or small drills will be broken. Holes must be drilled in bracelets, cutout designs, or any pierced design so the jeweler's saw can be inserted.

9. *Twist drills.* For art metalcrafts the authors recommend the use of high speed steel drills rather than carbon steel. If a ¼″ hole is needed in a piece of metal, it is much easier to first drill a ⅛″ hole, next a $\frac{3}{16}$″ hole, and then finally a ¼″ hole.

10. *Metal countersink.* This tool is used in the hand drill to cut a tapered hole in metal so that a flat head screw is flush with the surface of the metal. The countersink used in woodcrafts is not satisfactory for metalcrafts.

11. *Ball pein hammer.* A ball pein hammer has one flat surface and one ball surface. The flat surface is used for flattening curled edges of metal and the ball surface is used in hammer marking metal surfaces. The ball pein hammer is also used in shaping simple trays. The center of the tray is depressed by hammering it into a wood or metal form.

12. *Jeweler's saw.* This tool is similar to the coping saw used in woodcrafts. The

blades are very fine. The sawing of metal is done exactly as the sawing of wood with a coping saw except that the saw cut proceeds much more slowly.

13. *Mill file.* This is a fine-toothed file used to finish long edges of metal. The project should be held in a vise while edges are filed. The edges of bracelets, napkin rings, book ends and other projects should be filed with a mill file.

14. *Swiss needle files.* These files are available in many shapes. They are designed to fit most any shape required by craftsmen. The shapes recommended for elementary schools are round, half round, flat, oval, knife, and square. Filing of metal designs should not be done in a vise. Filing should be done on a V board with the file being moved in an up and down motion while held in the hand.

15. *File cleaner.* The file cleaner is a wire brush used to clean out the teeth of files. It is used for wood or metal files. The file cleaner should be rubbed across the file in the direction of the teeth. The cleaner should not be rubbed up and down the length of the file.

16. *Metalworking vise.* These vises should be of the most inexpensive type available. Vises are used to hold bench shears when metals are being cut to size. They are also used for holding flat metals during filing, for holding angle iron for bending book ends, and for holding iron water pipe for bending bracelets.

17. *Scissors.* Scissors are used to cut out paper patterns for sizes and designs for metal. Sharp-pointed scissors are recommended.

18. *Sharp-pointed knife.* A sharp-pointed knife with a razor edge is invaluable for cutting out paper patterns of designs to be cut out of metal. Such a knife is far superior to scissors. The pupil should cut through the paper placed on a piece of wood.

19. *Pencil compass.* The pencil compass is used to design perfect circles on paper for patterns used for art metalcrafts. This would apply to complete circles or parts of a circle used on many projects.

20. *Dividers.* Dividers are like compasses except circles or parts of circles are scratched on metal instead of drawn with a pencil line. A circle made with a pair of dividers on metal is much more accurate than a circle made in pencil.

21. *Counter or bench brush.* Pupils should be taught to keep workbenches clean and orderly. Brushes are supplied for this purpose.

22. *Electric soldering copper.* Electric soldering coppers are important for joining metal pieces together but are not absolutely essential in an elementary craft program. The copper illustrated is heated electrically (like a curling iron) and will melt soft solder to make a lasting joint. A copper with a ¼″ tip is appropriate for art metalcraft.

Soldering

Soldering metals may seem to be a highly technical procedure, but it is comparatively simple if attention is given to fundamental details. The main secret of successful soldering is to have the soldering copper and the pieces to be soldered absolutely clean. Another important point is to use a good quality solder suited to the kinds of metals to be soldered. String solder ⅛″ in diameter is a convenient form to use.

Metal pieces may be cleaned by rubbing them with steel wool until they are bright. Care should be taken not to touch the cleaned places with the fingers. Oily

perspiration will prevent solder from sticking.

Repeated heatings of the copper corrodes the soldering point. The point must be cleaned frequently to avoid this corrosion. To clean a corroded copper use an old file and file down to the bright copper. The soldering iron must next be "tinned." This is simply coating the tip of the copper with solder. Rub the point of the heated copper on a piece of tin coated with solder and the copper will be tinned. The copper will pick up a quantity of solder when touched against a coil of string solder. Frequent wiping of the copper helps keep it in good condition. An electric soldering copper should not be connected for too long a time or it will become too hot and begin to corrode. Carefully watch the tip of the copper to see that it is not getting too hot.

Soldering paste is available in small cans. Soldering paste must be applied to all surfaces being soldered. The paste helps keep the metal from becoming corroded during the soldering process.

Soldering requires practice. The authors suggest using other means of joining metal pieces unless the teacher has had experience with soldering. A fair substitute for a soldered joint is a joint made with one of the many commercial plastic cements.

Finishing Metal Projects

The materials used for finishing metals are emery cloth, steel wool, wax, and clear lacquer or fingernail polish.

Rubbing metal surfaces with emery cloth and steel wool produces a satin finish. To produce a highly polished surface it is necessary to rub the metal with a fine abrasive such as rouge or talc. Because metals such as copper and brass corrode when exposed to the air and when handled, the finish is usually protected by applying a coat of clear lacquer or nail polish.

Shadows of lights and darks on foil metals may be obtained by coating the metal with a water solution of liver of sulphur. Brush on the solution, allow it to dry, and then use steel wool to emphasize the lights and darks in the design.

Suggestions for finishing are given with the instructions for making the projects which follow.

Grade Levels of Metalcraft Skills

With an experienced teacher, children in grades three and four can work successfully with copper, brass, or aluminum foil. Art metalcrafts are not ordinarily done by children in grades one or two. The simple skills involved in making a foil plaque are the only metalcraft skills within the usual ability range of children in grades three and four. These skills include designing, measuring, cutting foil with scissors, modeling foil, nailing, polishing with steel wool, highlighting with liver of sulphur, waxing, and lacquering.

Children in grades five and six who have had experience in woodcrafts should have little trouble working with 18-gauge metal. The skills used are often the same as in woodcrafts or very similar. These include sawing with a jeweler's saw, filing, and drilling. New skills include bending metal to desired shape, forming sheet metal in a mold by hammering, and soldering. Because these skills are somewhat exacting, the teacher will need to give instructions carefully. Also, metalcraft work must be supervised closely.

Metalcraft Projects

In general, metalcraft projects have more appeal to older children than to children in the primary grades. As a

matter of fact, metalcraft is an excellent hobby for adults. Metal is an ever-challenging craft medium, and the possibilities for creating new metalcraft articles are unlimited.

In the following pages of this chapter are given specific suggestions for making a few metalcraft projects. These projects are ones which children have enjoyed making and which they have made with consistent success. As mentioned earlier, the metal foil plaque is the only type of metalcraft project suggested for children below grade five.

FOIL WALL PLAQUES



THE WALL PLAQUES shown on pages 221 and 222 can be made of copper, brass, or aluminum foil. Metal foils are very easy to work with. Foils are about the thickness of heavyweight paper and can be fashioned with simple homemade tools.

The lines of the design are depressed in the foil with a blunt wooden tool. All pressing of lines and shaping of foil should be done on a padding of newspapers or paper toweling. Large areas, the body of the fish for example, can be raised by rubbing the back side of the foil with a smooth blunt wooden tool or with the rounded part of a nut-pick. If any part of the picture is raised more than $\frac{1}{8}$", the underside of the raised portion should be filled with plastic wood. This will protect the raised surface from damage when exposed to pressure.

Background areas in the design may be given interesting textures by stippling

with a nail or with wooden tools. Hold the point of the nail or tool against the foil and tap it lightly with a hammer. Move the tool after each tap so as to develop the background desired.

The foil should be mounted on a background of wood that will not warp. Plywood, ⅜″ thick, is recommended. The plywood should be larger than the foil picture and it should be finished with shellac before the picture is mounted. Escutcheon pins (round head brass nails), ⅜″ in length, are used to fasten the picture to the plywood background.

Pupils should be encouraged to create their own designs. The designs illustrated will suggest numerous possibilities.

Materials Needed

Copper, brass, or aluminum foil (5″ x 7″ suggested)
Carbon paper
Newspapers or paper toweling
Walnut plywood (⅜″ x 6½″ x 8¾″ suggested, cut to size)
Escutcheon pins, ⅜″
Steel wool
Liver of sulphur
Sandpaper
Wax, lacquer, or shellac
Plastic wood
Picture hanger
Polishing cloth

Tools Needed

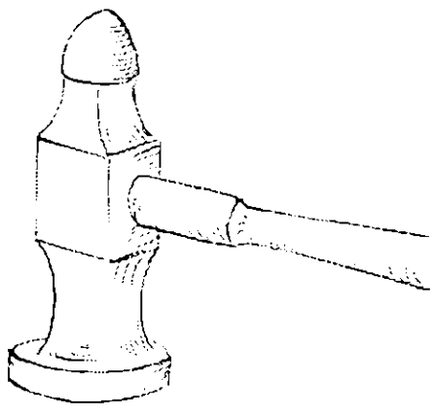
Try square or carpenter's square
Scratch awl
Scissors
Ruler
Lacquer or shellac brush
Tools for shaping foil—orange sticks, penholders, lollipop sticks, nutpicks
Tools for stippling background—nails or blunt wood
Ball pein hammer

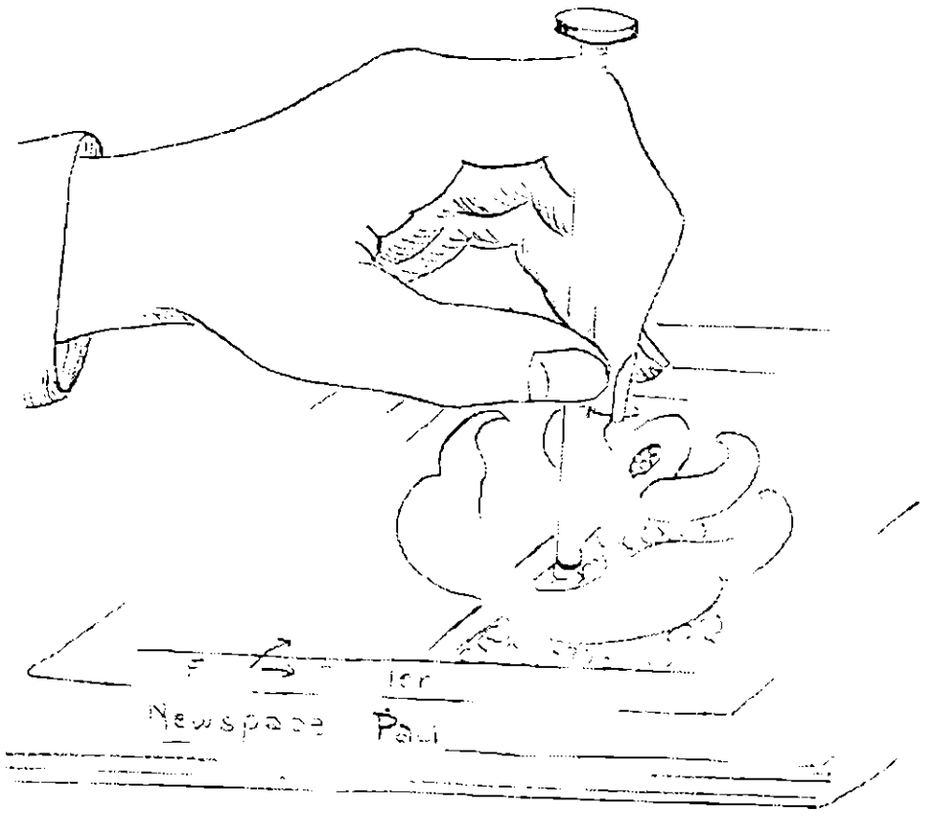
Skills Used

Designing
Measuring
Cutting
Shaping and modeling
Mounting
Finishing

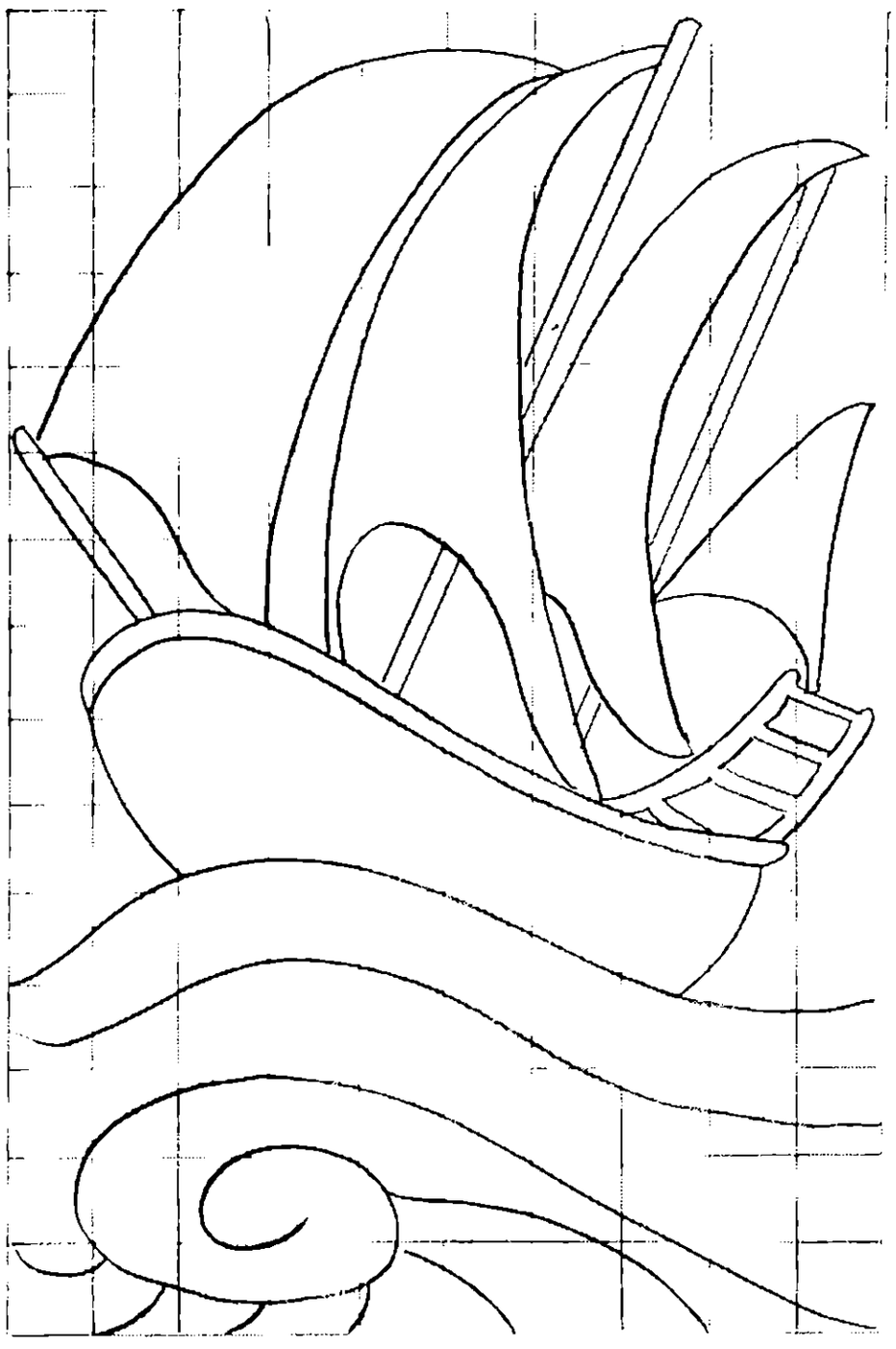
PROCEDURE

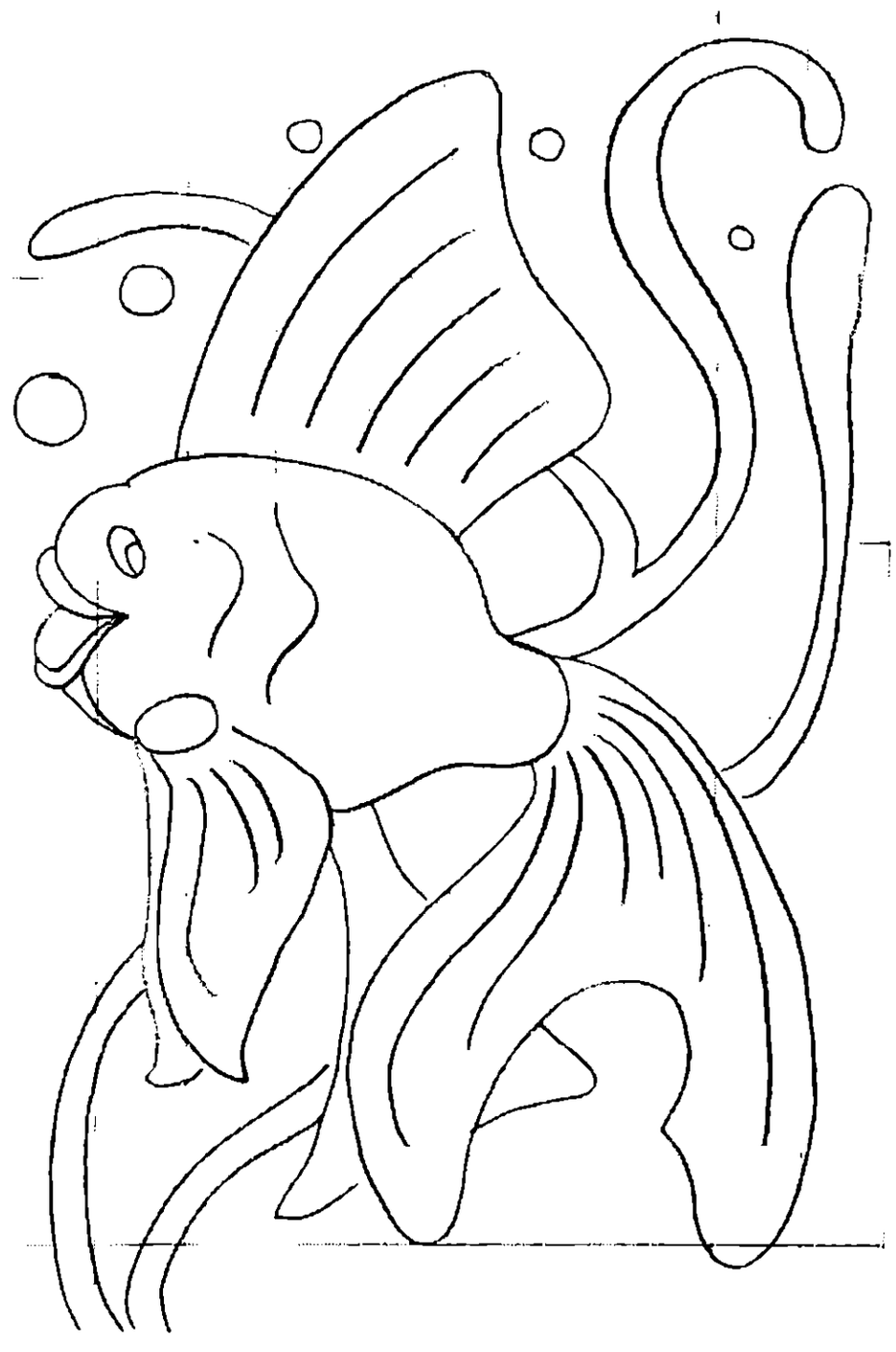
1. Decide upon size of plaque.
2. Draw design.
3. Measure size of foil.
4. Cut foil with scissors.
5. Transfer design to copper foil with carbon paper.
6. Press all lines with blunt tool.
7. Develop background.
8. Model raised designs from back side.
9. Polish with steel wool.
10. Develop low and high lights, using liver of sulphur.
11. Mark off for escutcheon pins.
12. Fill back of raised design with plastic wood.
13. Position the foil on the plywood background and make pilot holes for the escutcheon pins. Push the point of the scratch awl through the foil and into the wood.
14. Drive escutcheon pins in place.
15. Polish foil with fine steel wool.
16. Finish with wax or lacquer.
17. Attach hanger.

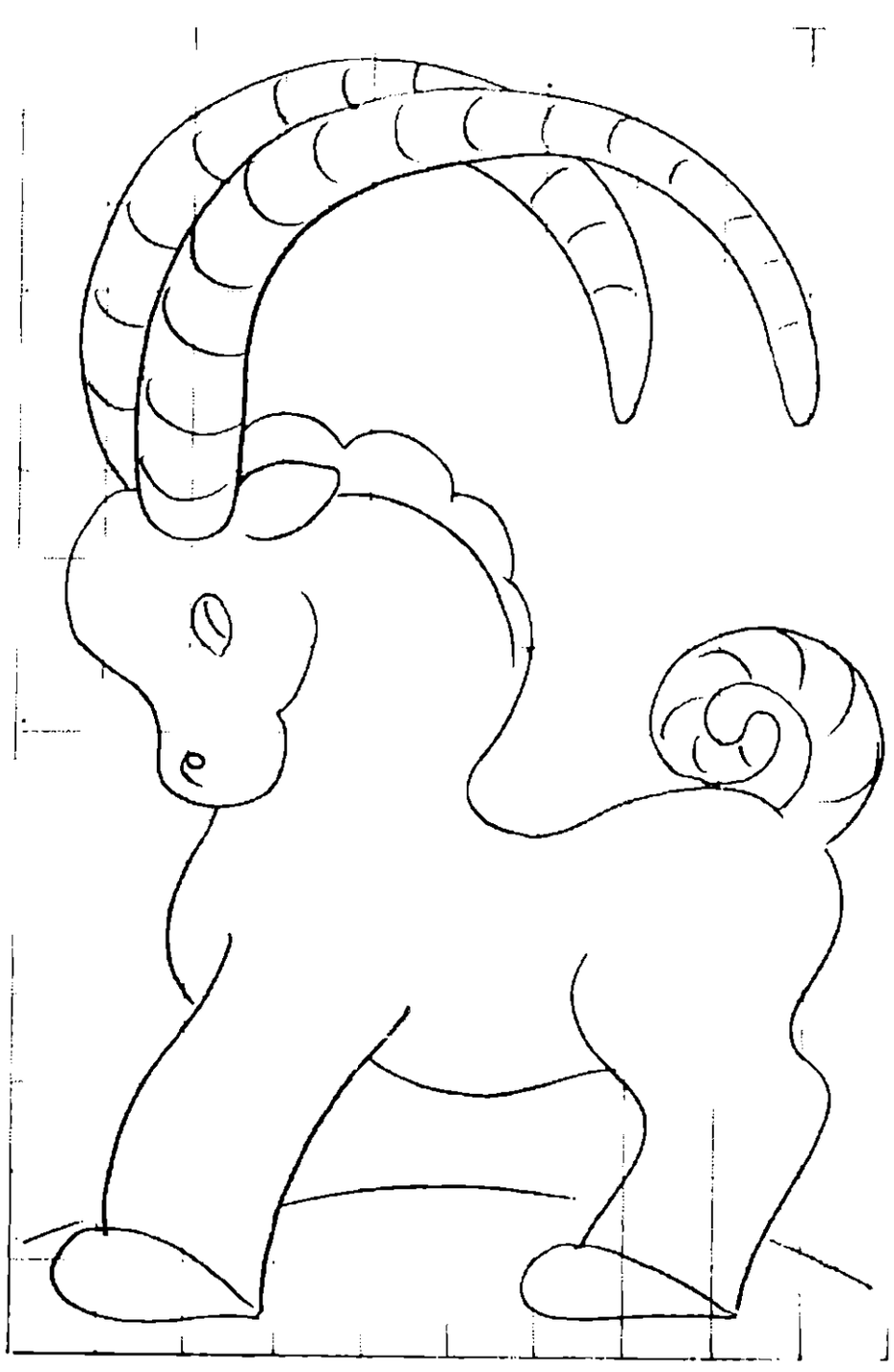








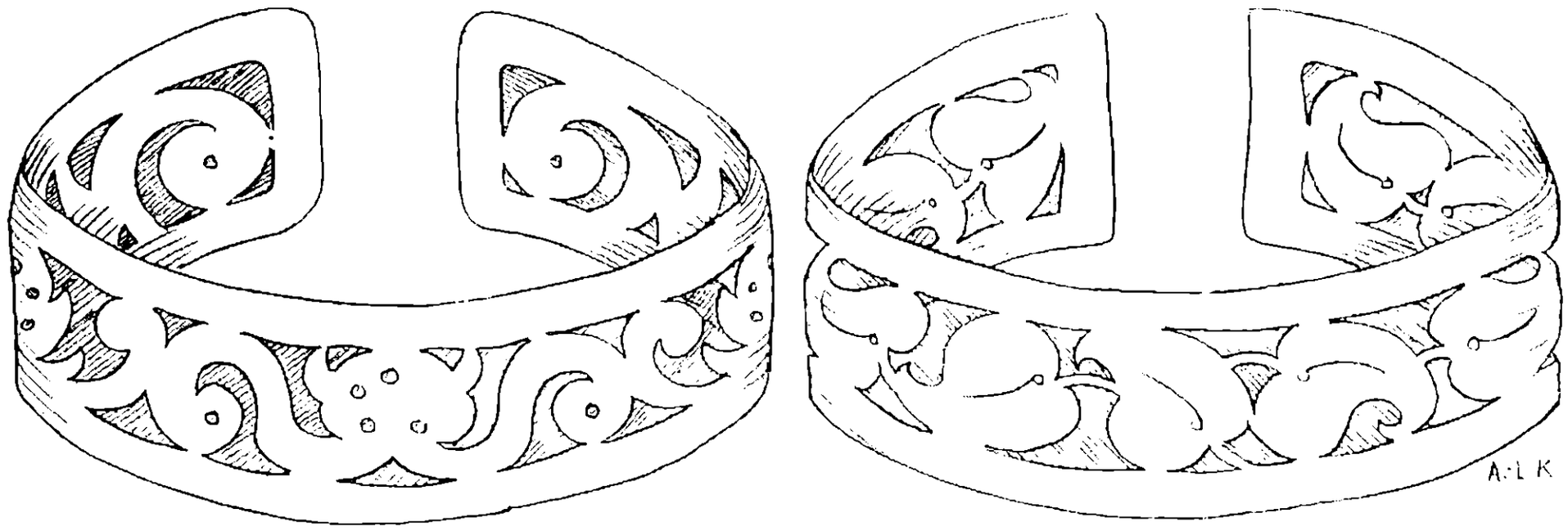






A.L.K.

BRACELETS



BRACELETS HAVE BEEN worn as adornments since the early beginning of time. Throughout history men, as well as women, wore bracelets. Today, however, bracelets are in demand only by the ladies. Boys get a real thrill in making a bracelet for mother or sister. Every girl enjoys making and wearing a bracelet she has designed by herself.

Pupils should be encouraged to design their own bracelets. Designs should be developed on ordinary bond paper. The first thing to do is to determine the length of the bracelet. This is done by placing a strip of paper around the wrist of the wearer and then cutting the paper one inch less than the distance around the wrist. A good width is 1″ or 1¼″ or 1½″. The youthful designer should accurately cut several blanks of bond paper to width and to length. Designs should be sketched on the blanks. Parts to be cut out should be blackened with a pencil. It should be noted that curved lines are used in the suggested designs. Straight line designs should be avoided. They are too difficult to be sawed accurately by the beginner.

The paper designs should be shellacked to the metal. The blackened parts of the design should be cut out with a sharp-pointed knife. The cutout pattern of paper gives the pupil a complete model of the finished bracelet.

Materials Needed

Nickel silver or colonial brass—18 gauge, cut to size of bracelet
Paper for pattern
Shellac
Emery cloth
Steel wool

Tools Needed

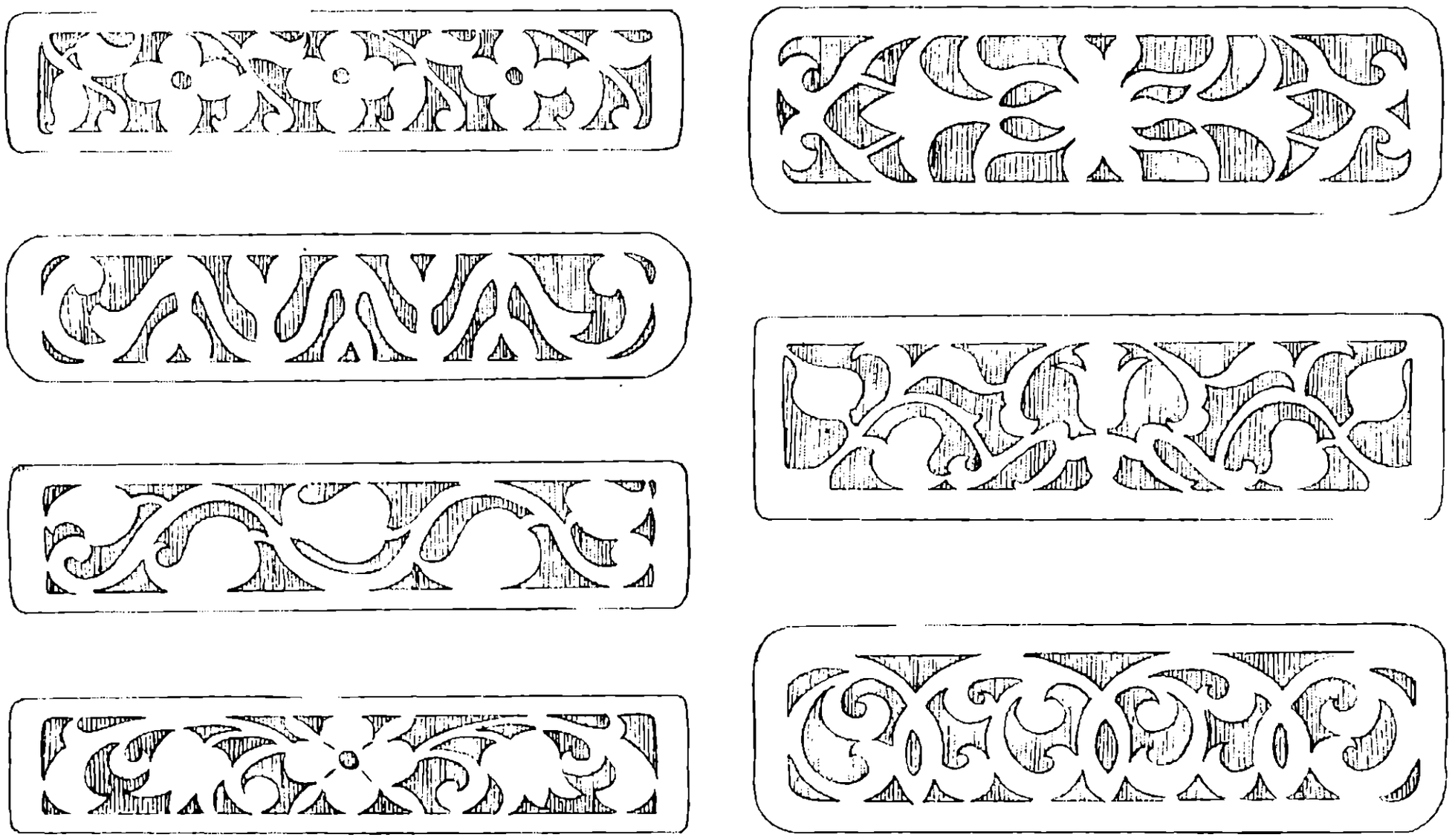
Ruler
Scratch awl
Try square
Bench shear
Scissors
Sharp-pointed knife
Center punch
Hammer
Hand drill
Twist drill, 1/16″
Jeweler's saw
Mill file, 10″
Needle files
Section of water pipe (1½″ diameter, approximately 3″ long)
Mallet

Skills Used

Designing
Measuring
Cutting metal to size
Filing metal to size
Drilling holes
Sawing with jeweler's saw
Filing with needle files
Polishing with emery cloth
Polishing with steel wool
Shaping bracelet to fit wrist

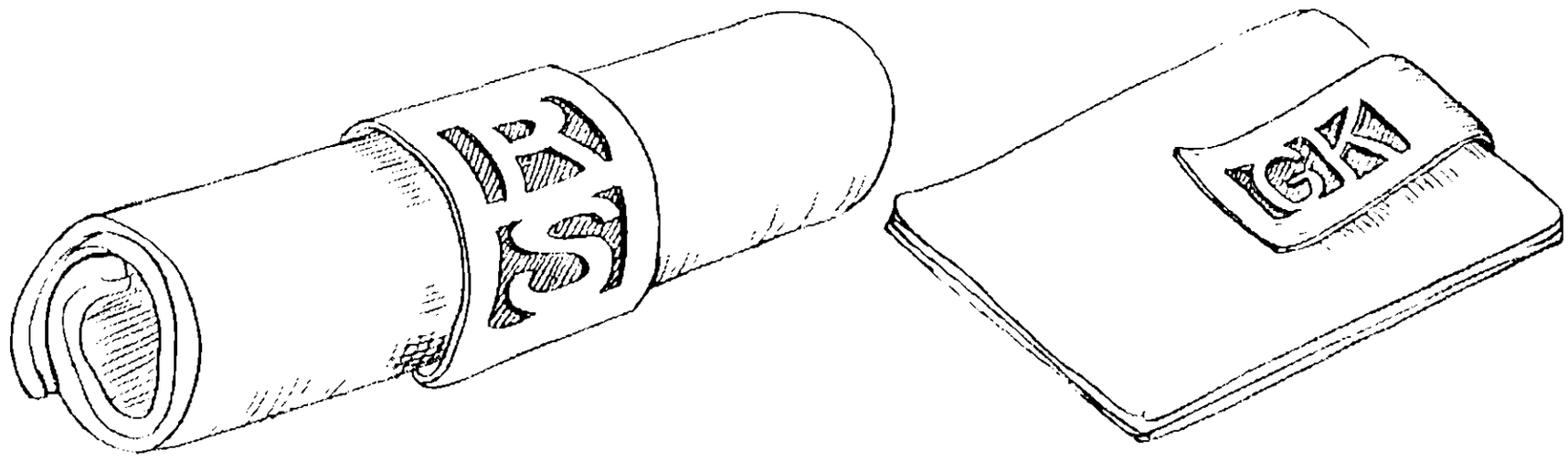
PROCEDURE

1. Determine size of bracelet.
2. Cut paper pattern to size.
3. Design bracelet. Blacken parts to be cut out with pencil.
4. Cut out blackened areas with scissors or a sharp-pointed knife.
5. Measure off size of paper pattern on metal. Use ruler, try square, and scratch awl. (Blanks cut to size eliminate the cutting.)
6. Cut metal to size with bench shear. Smooth cut edges with a 10″ flat metal file.
7. Straighten or flatten blank with hammer and mallet.
8. Fasten paper cutout pattern to blank bracelet. Put one coat of shellac on metal and allow ten minutes to dry. Apply second coat of shellac on metal. Press paper pattern on metal when shellac is sticky.
9. Use center punch to mark places where holes are to be drilled in cutout parts of the design. Use very light hammer taps.
10. Drill 1/16″ holes in center punch marks.
11. Insert jeweler's saw blade in holes and saw to lines. Lay bracelet on V board and saw up and down. Candle wax rubbed on the sides and back edge of the jeweler's saw blade will help reduce friction.
12. File cutout design to paper pattern. Use the best shaped needle file to fit the saw cut. File up and down while the bracelet is flat on the V board.
13. Remove the paper pattern. Soak the paper with alcohol and remove with steel wool.
14. Finish the flat bracelet. Steel wool should produce a finely polished surface on nickel silver. If the nickel silver has deep scratches, they should be removed first with emery cloth and then polished with steel wool.
15. Form the bracelet to fit the wrist. The bracelet is bent to shape over a piece of 1½″ water pipe held in the vise. Use a mallet so the bracelet will not be marked. Cover the water pipe with one thickness of cloth to prevent marring the finished metal.
16. Finish the bracelet by polishing the surface with fine steel wool. See methods of finishing metals on page 218.



Suggested designs for bracelets

NAPKIN RINGS AND HOLDERS

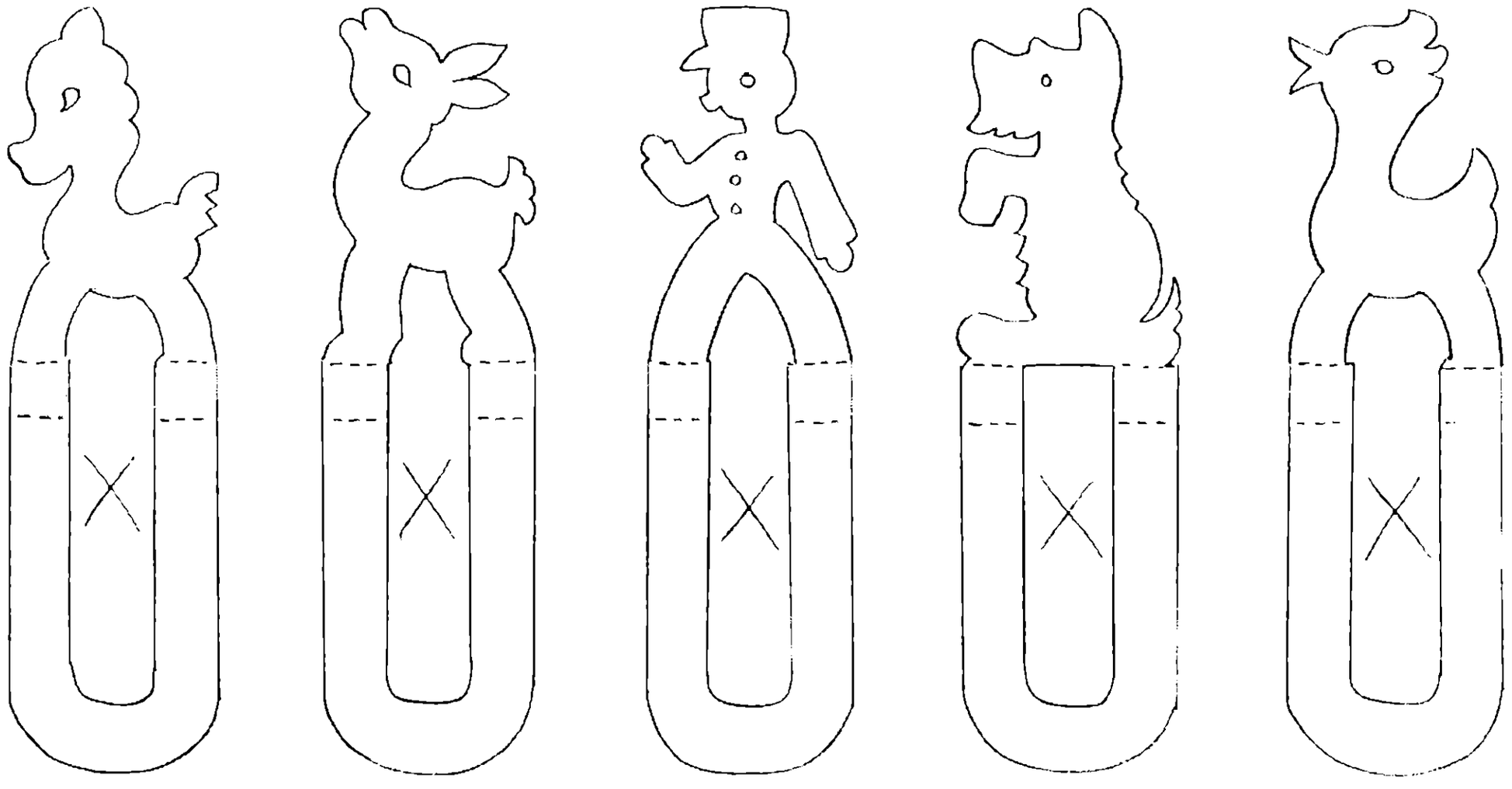


A NAPKIN HOLDER or ring with a distinctive design is a project children will enjoy making. They will want to develop original designs which characterize the interests of each person to whom the ring or holder is to be given.

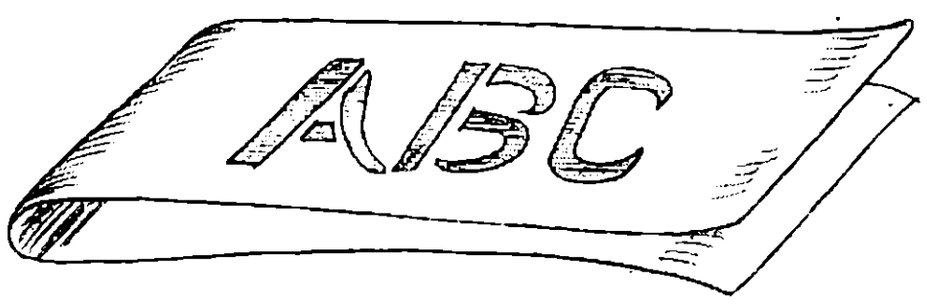
Napkin rings and holders often contain letters to represent initials. Certain of these letters must be carefully designed or they will fall out when they are being cut out. The letters which need careful attention are A, B, D, O, P, Q, and R. Possible designs for the letters A and B are shown in one of the suggested designs. Notice that the letter C does not need a special design. This is true of all the remaining letters of the alphabet.

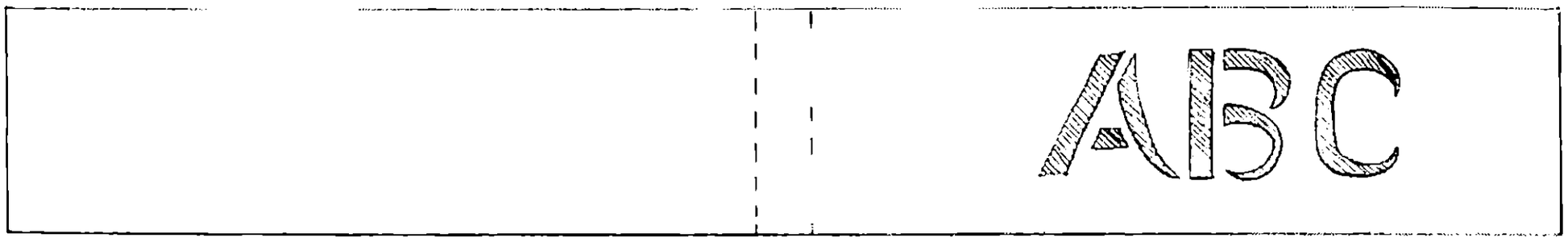
Napkin rings are shaped into perfect circles. Napkin holders are flat or U-shaped as shown in the sketch. These are shaped over a flat piece of metal or hardwood which has one edge shaped to fit the curve indicated by the dotted lines in the pattern. A slight curve at the end of the bottom part of the holder makes it easier to slip over the napkin. This is done over a round water pipe with a mallet.

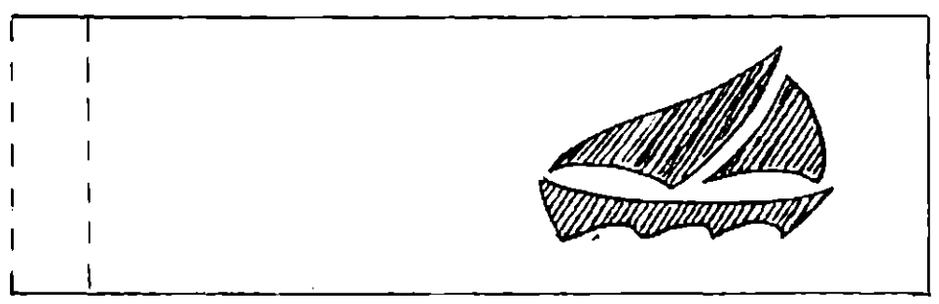
Eighteen-gauge nickel silver or colonial brass is the material used. The tools required and the procedure to be followed are the same as given on page 223 for making a bracelet.

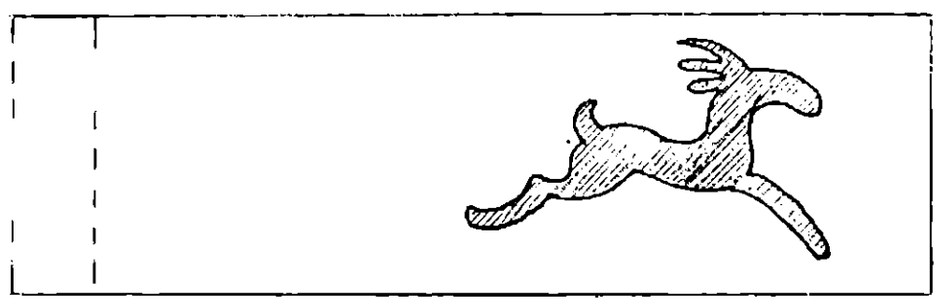


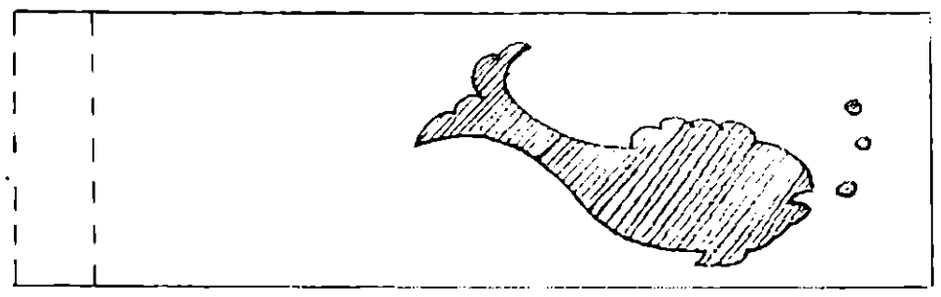
A few simple designs for napkin holders

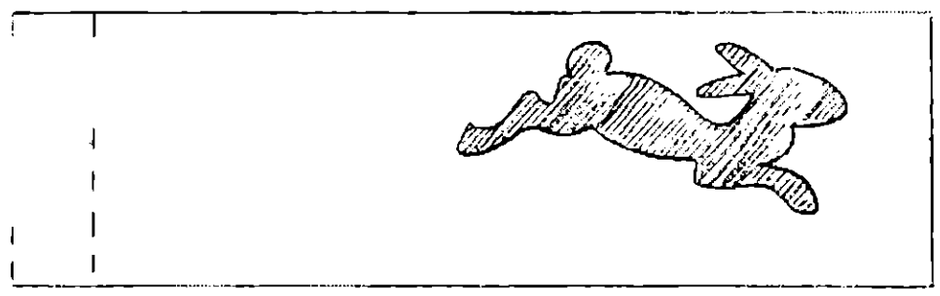


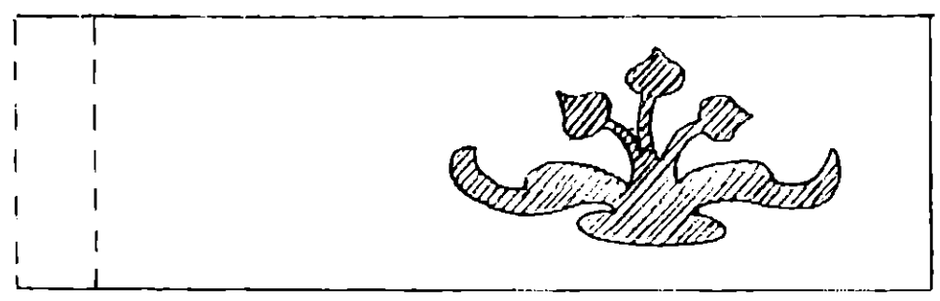


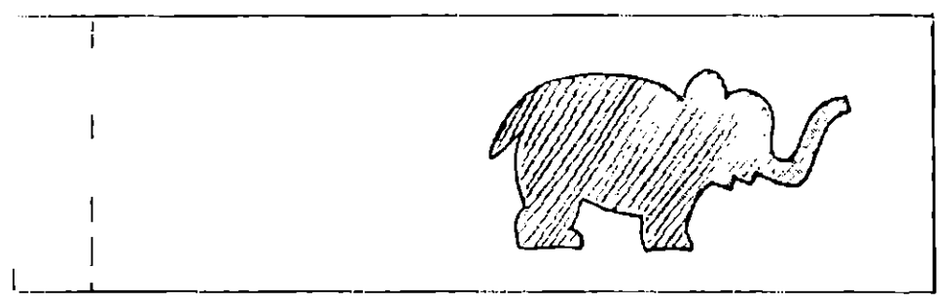




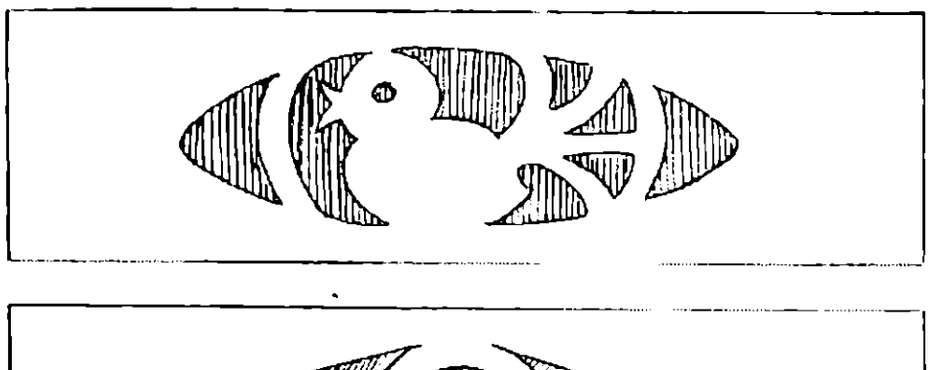


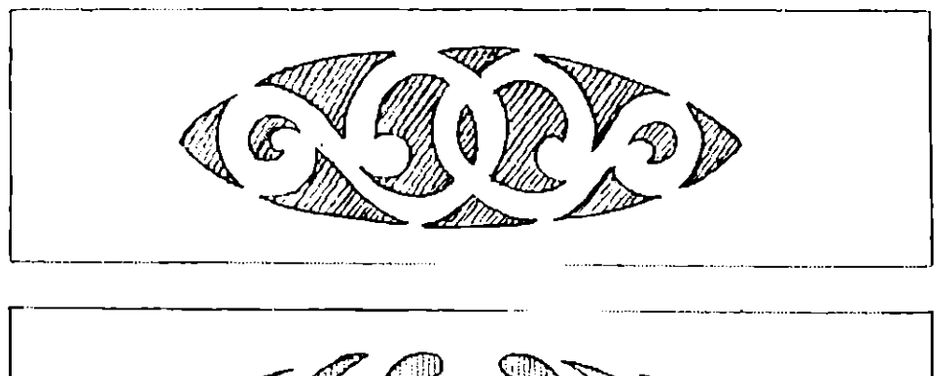


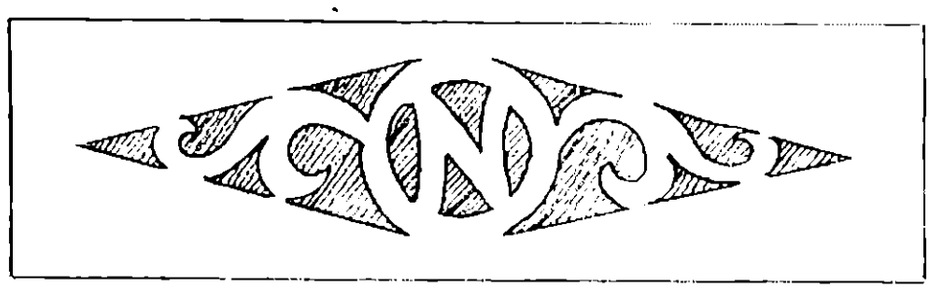


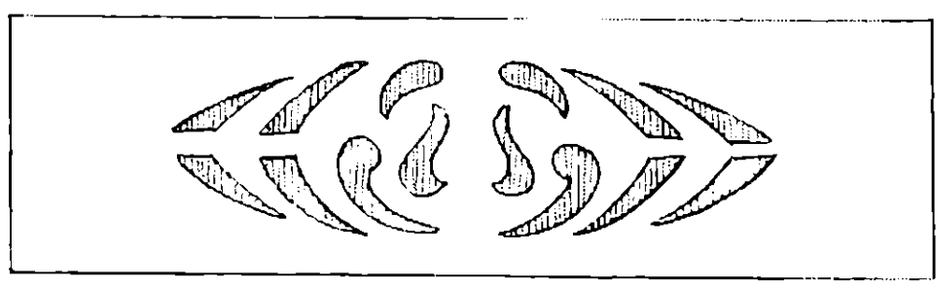


The shaded areas are cut out to make the design on these napkin holders. Special care is needed in designing and cutting letters.



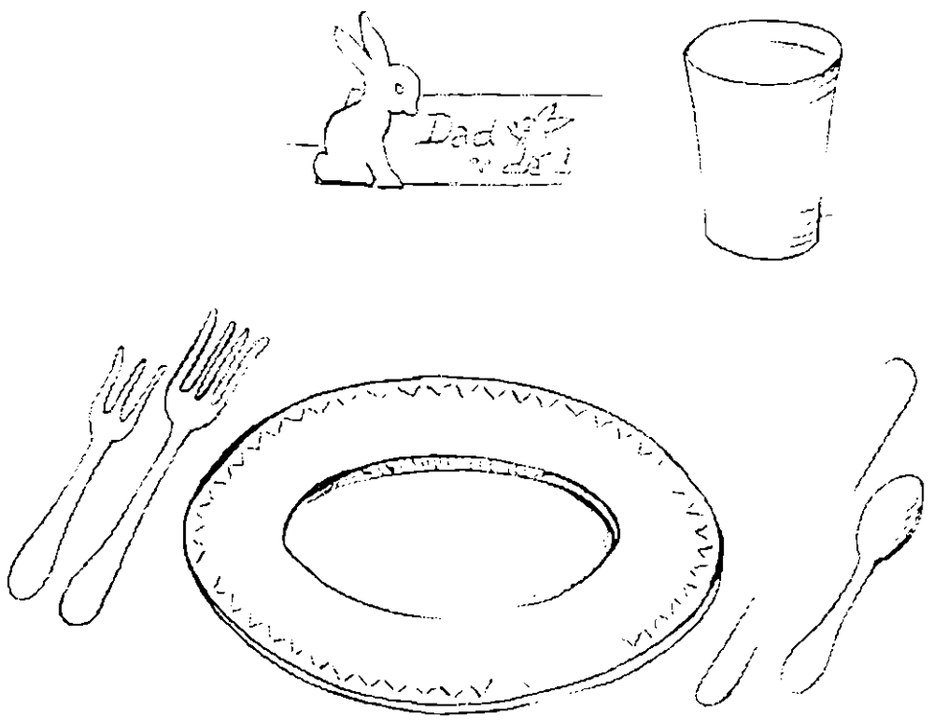




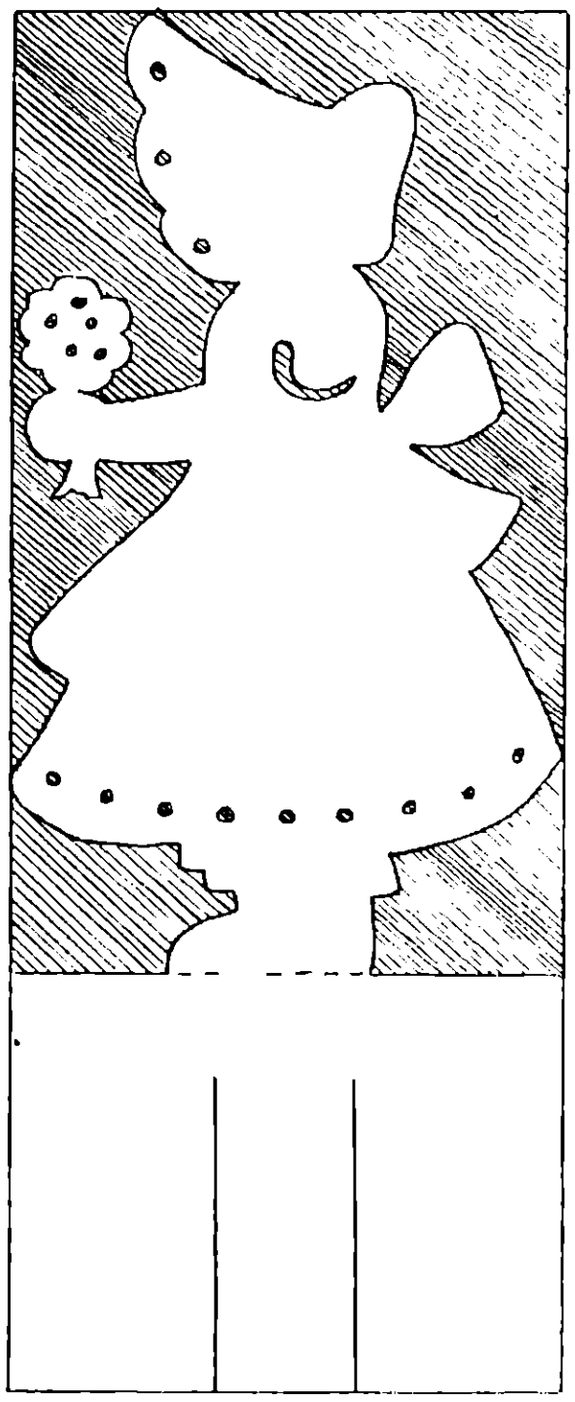


Suggested designs for napkin rings

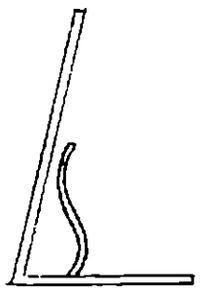
PLACE CARD HOLDERS



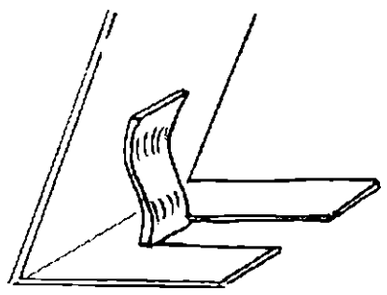
PARTIES ARE NICER and more festive when each child's place or each adult's place is marked with a place card. All one has to do is print the name of each guest on a 1″ x 3″ card and slip it into a holder. Eighteen-gauge aluminum is a good material to use for place card holders. The prong which holds the card against the design can be bent with the fingers. However, a pair of roundnose pliers makes the job a little easier.



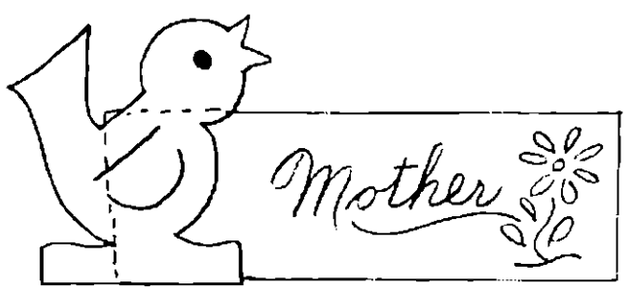
Place card holder pattern



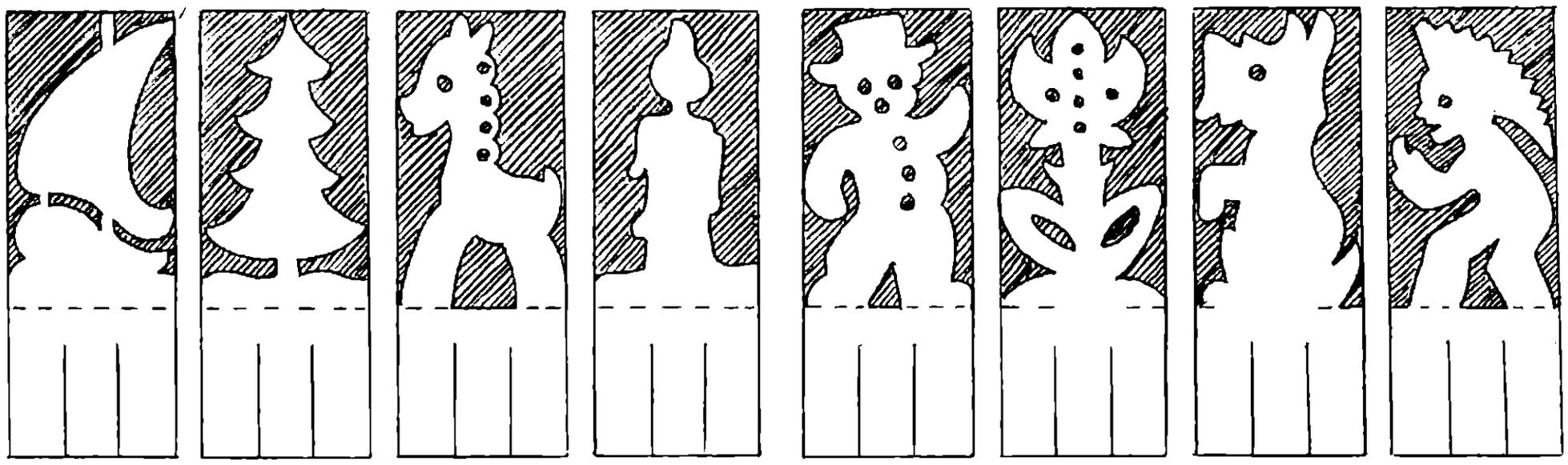
Side view



Detail of holder

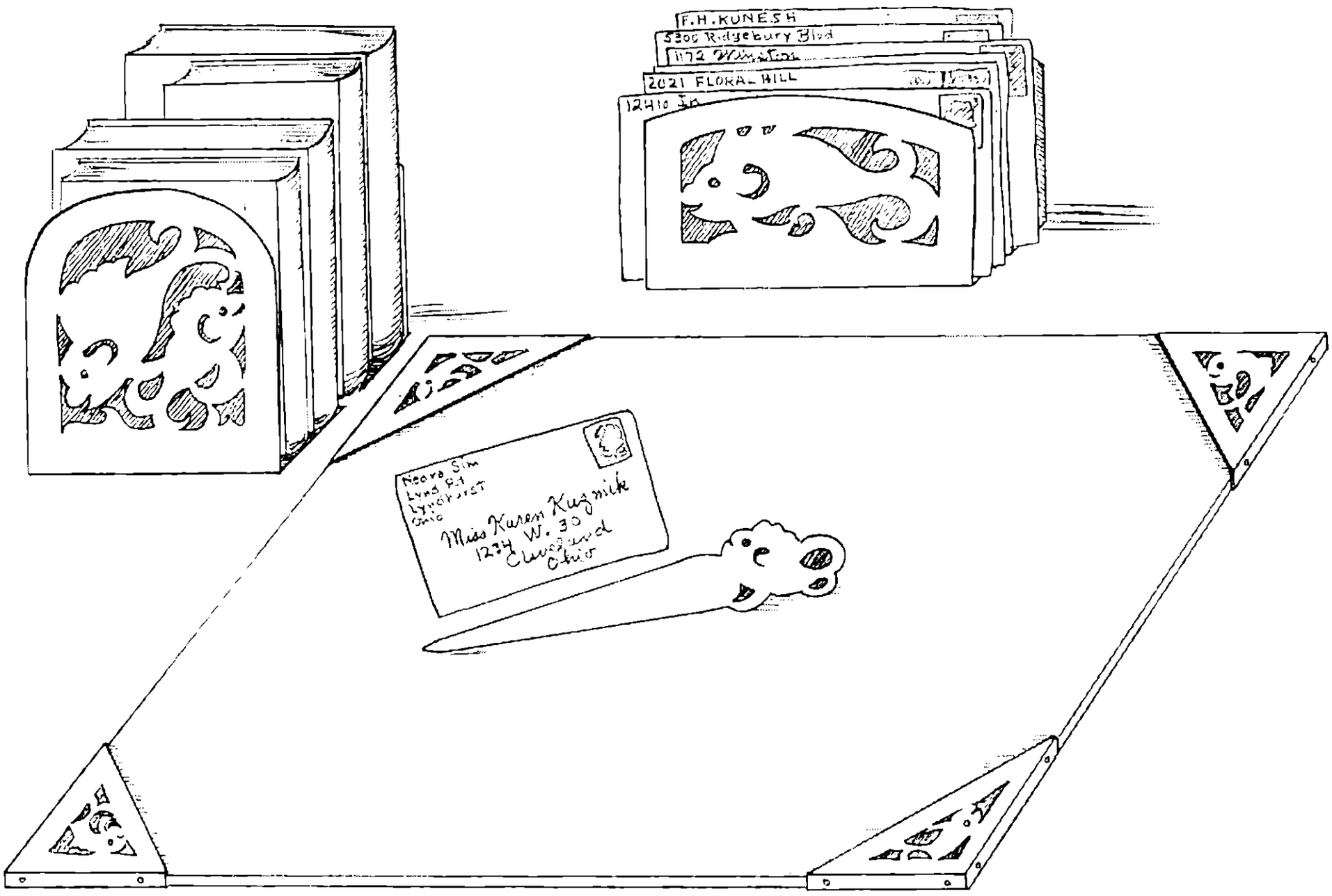


Holder with card



Suggested designs for holders

DESK SETS



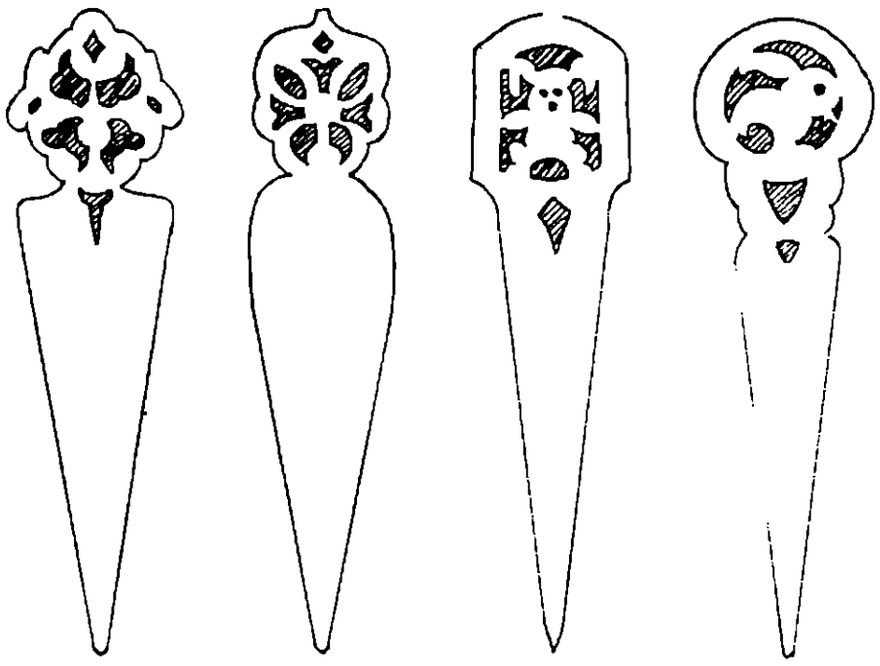
LETTER OPENERS SHOULD be made of a metal with strength. Copper letter openers would be too soft and would bend very easily. Half-hard metals such as nickel silver or brass are suggested. The tools needed and the procedure to be followed are similar to those discussed previously.

A matching set of letter opener, envelope holder, blotter corners, and book ends is a welcome gift to mother or dad for use on the desk at home. Or you may want to make the set for your own desk. The blotter corners are fastened to a ¼″ base of plywood or hardboard so they will stay in place. The corners are held in place with escutcheon pins.

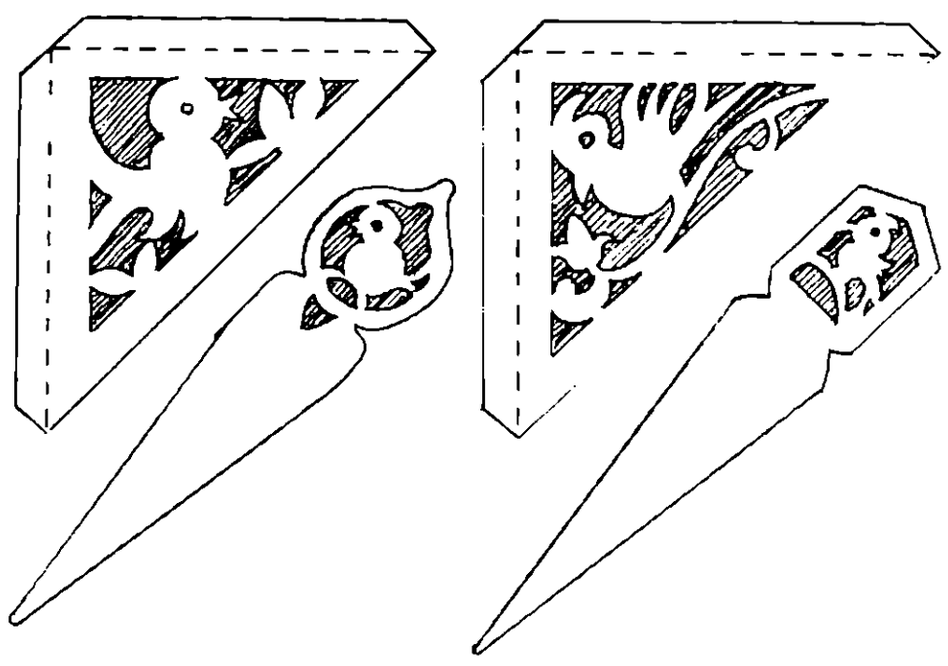
Eighteen-gauge copper, brass, colonial brass, or aluminum are suitable metals for desk sets. The ¼″ blotter base should be approximately 12″ x 18″ in size.

The authors suggest that the pupil make the letter opener first, the blotter corners second, the book ends third, and the envelope holder last.

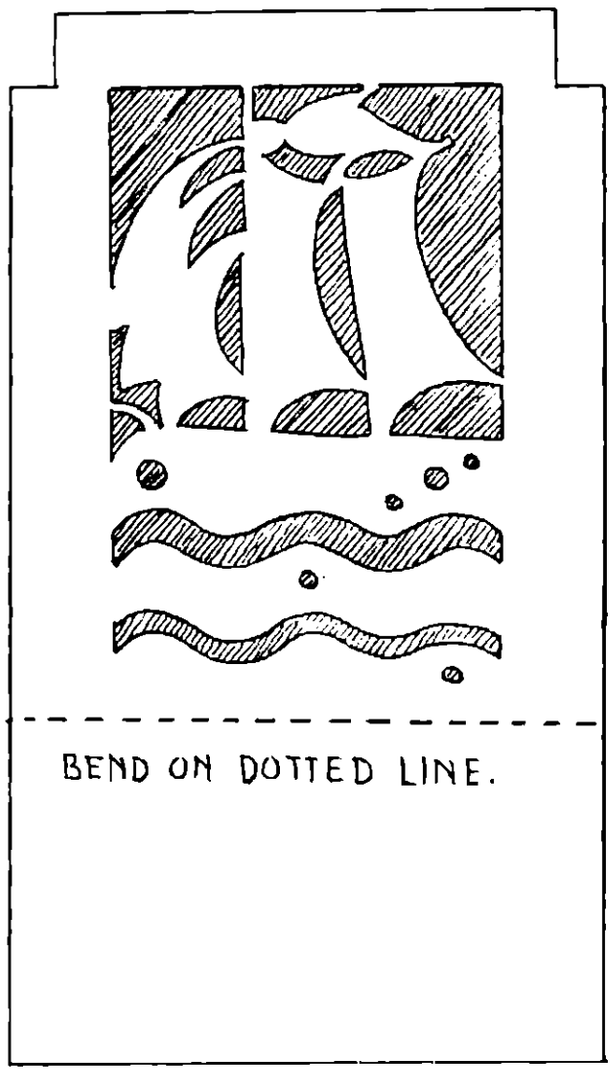
The blotter corners, the book ends, and the letter holder are bent by placing them between pieces of angle iron held in a vise as shown below. Bends are made at the places indicated by dotted lines in the drawings. The angle irons should be covered with a piece of cloth to protect the finish of the metal.

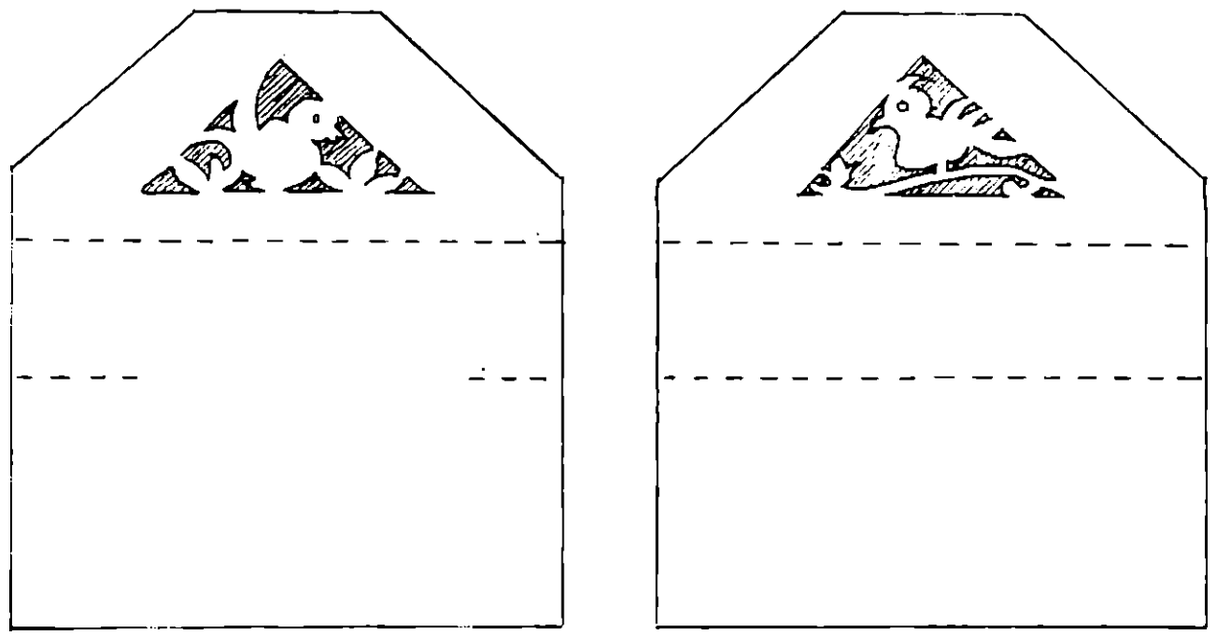


Letter openers



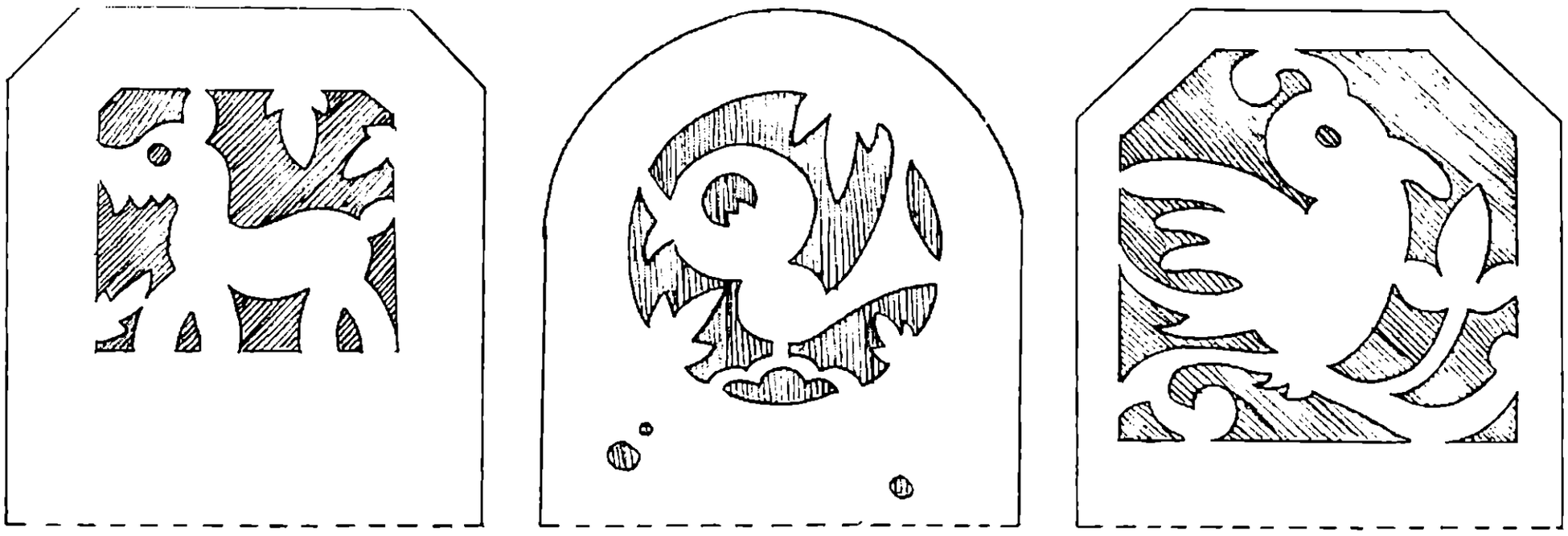
Blotter corners and matching letter openers



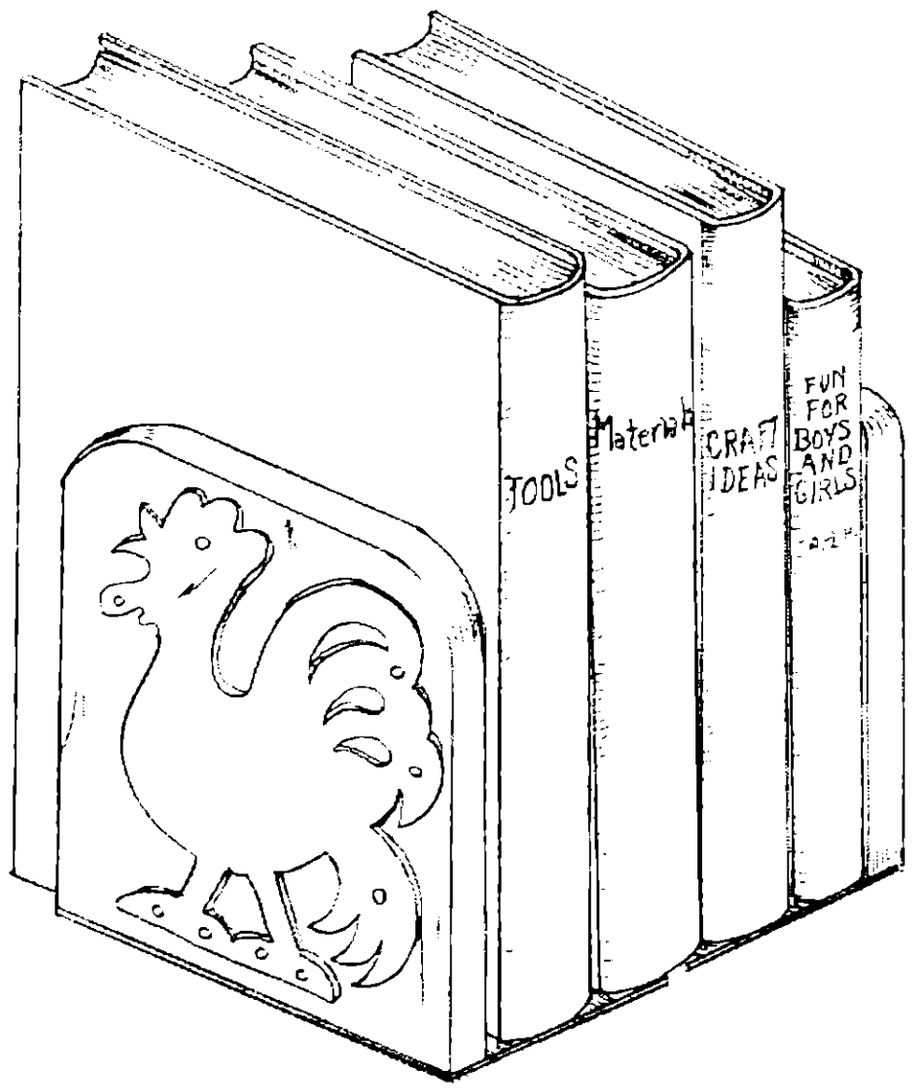


Envelope holders

Left and below. Book ends. Bend on dotted lines, forming a right angle, so that book ends will stand.



BOOK ENDS

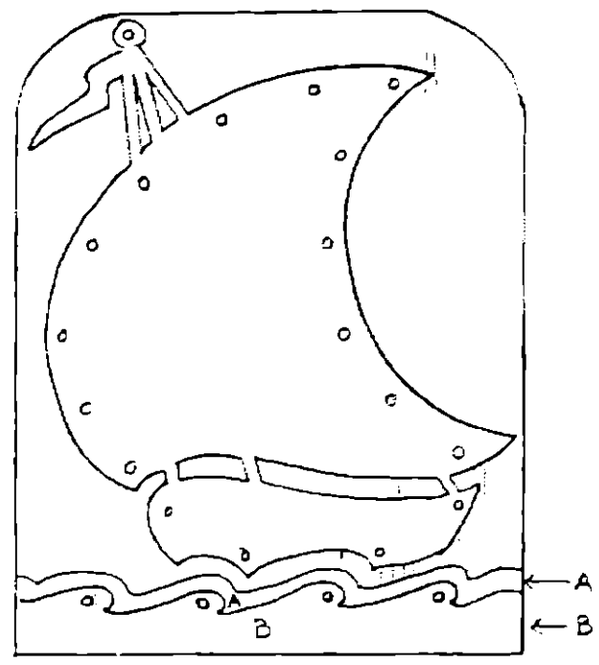


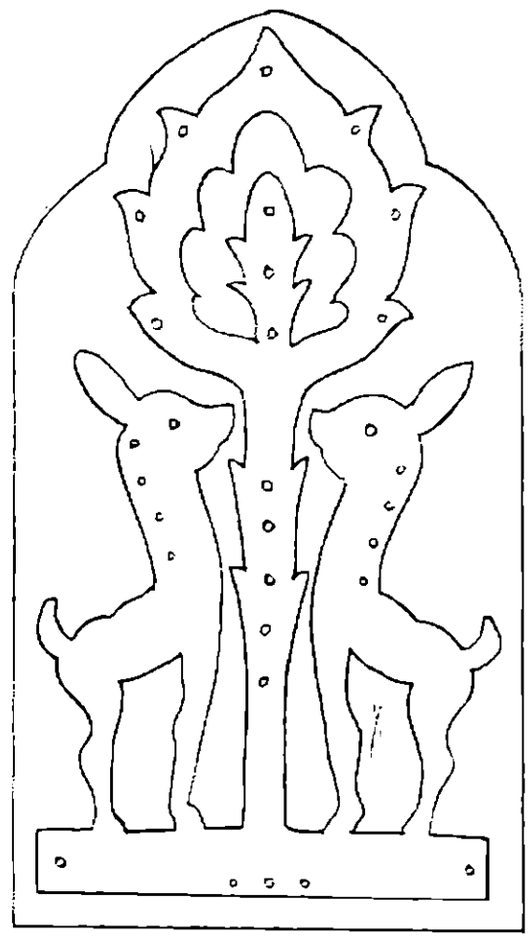
COMBINATIONS OF WOOD and metal make most attractive book ends. The wood can be poplar or gum wood or black walnut. The contrast of copper design mounted on walnut is very attractive. Any contrasts of metal on wood are ornamental and decorative. Creative designs should be completely sketched out before any work is begun.

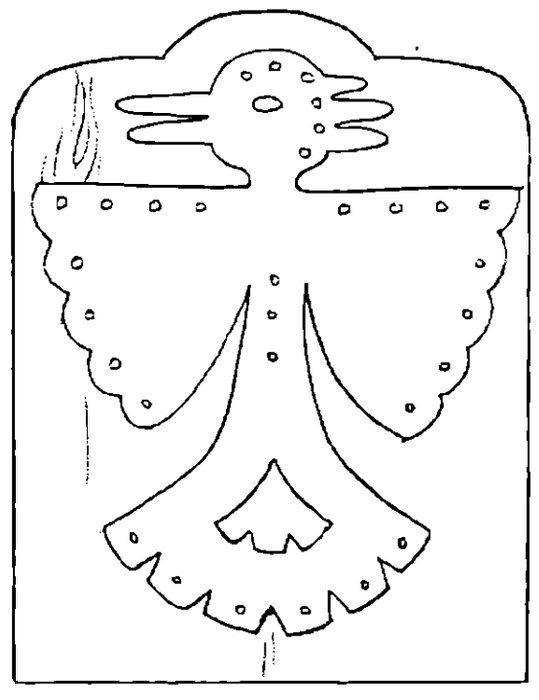
The metal is fastened to the wood with escutcheon pins. These pins should become part of the design of the metal on wood. The wood background should be completely finished with several coats of shellac and equipped with a metal base before the decorative metal design is mounted. The metal design should also be completely finished.

To drill holes for the escutcheon pins, first make a mark with the center punch and then use a $\frac{1}{16}$" drill. Before hammering the escutcheon pins in place be sure to make a pilot hole with a sharp scratch awl or ice pick.

The procedure for fastening the metal base to the wood is described on page 197.







Suggested designs for book ends

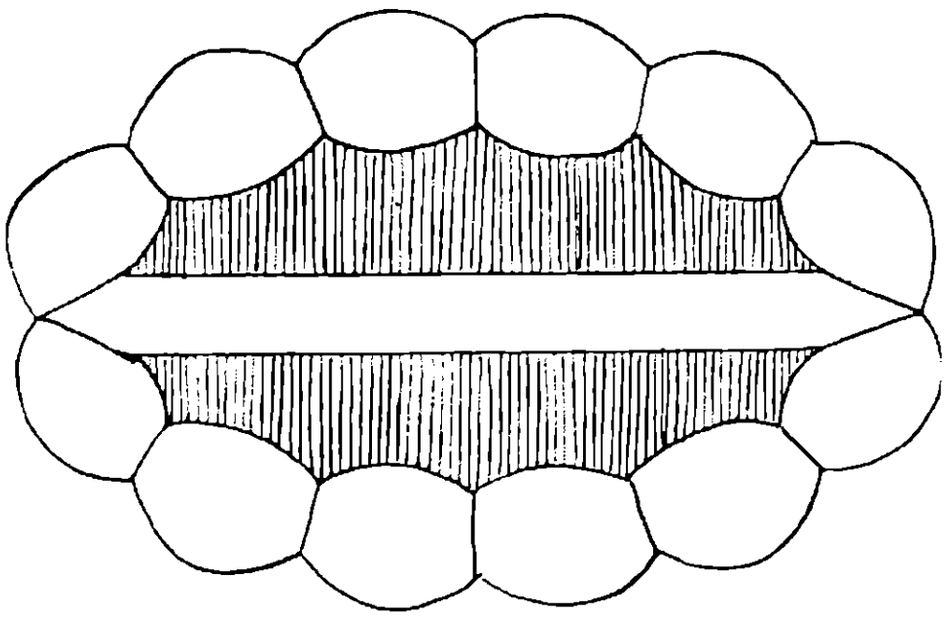
CLOTHING ACCESSORIES AND JEWELRY



HERE IS A collection of art metalcraft projects which have a special appeal to girls. In making clothing accessories and jewelry, originality of design is of great importance. The designs shown are suggestive only, although some girls may wish to copy them.

The materials required, the tools needed, and the construction procedures for all these projects are similar to those for making the projects previously described in this chapter. For that reason, those details are omitted here. In the making of some kinds of pins, however, additional processes are introduced. Details will be found on page 236.

KERCHIEF HOLDERS

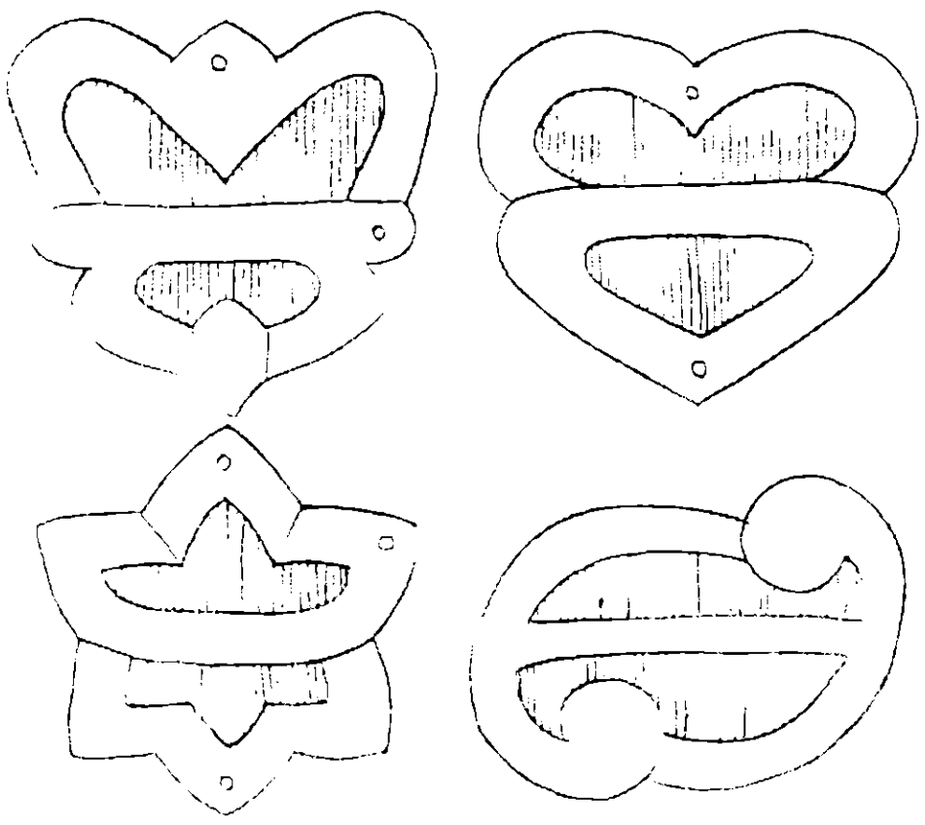


Full-size pattern

Girls will want one of these holders to fasten head scarves or babushkas. Boys of the Cub Scout age will want one to hold their neckerchief in place.

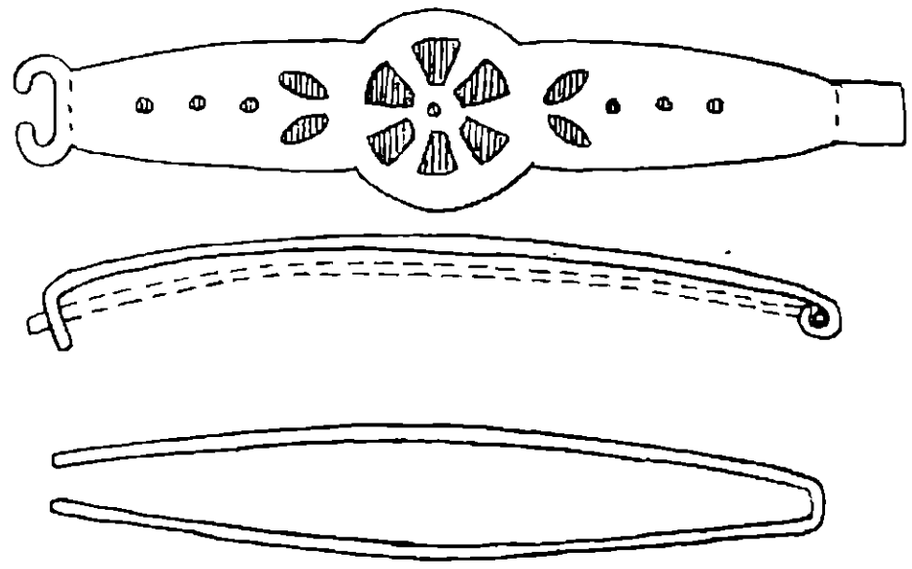
Kerchief holders should not be flat. They should be cupped or curved with a mallet as shown on page 236. The straight line decorations shown in the suggested designs can be easily put on the metal with a knife-edged file. The center bars should have rounded edges so the kerchief will not be torn. These bars should be smooth.

Eighteen-gauge nickel silver, copper, colonial brass, or aluminum scraps are the material required.

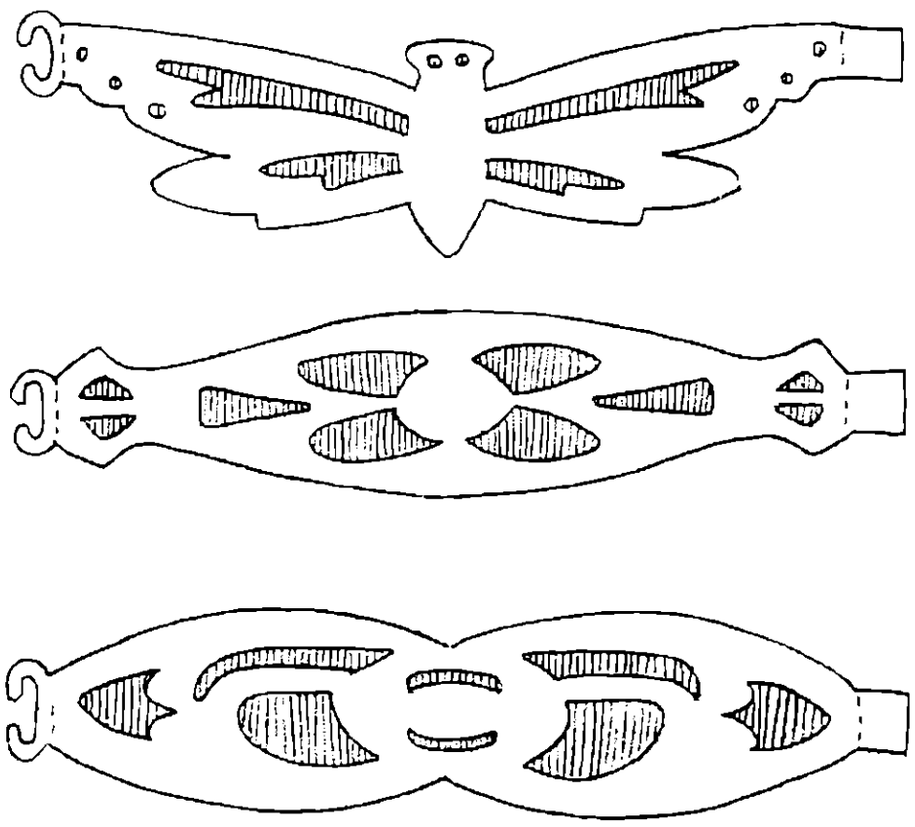


Several designs are possible

BARRETTES



A barrette and wire, showing how they are fastened together



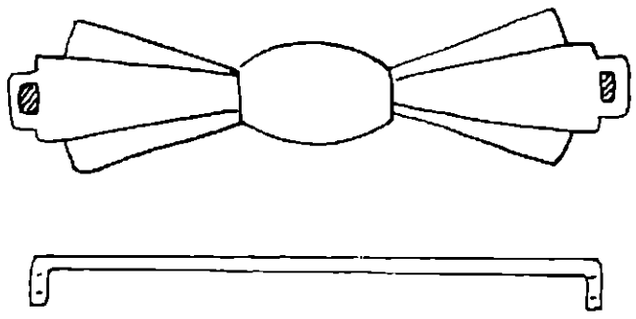
Designs for barrettes

Barrettes are very much in demand by young girls and teen age girls to hold strands of hair in a decorative fashion. They may be designed in any length or width.

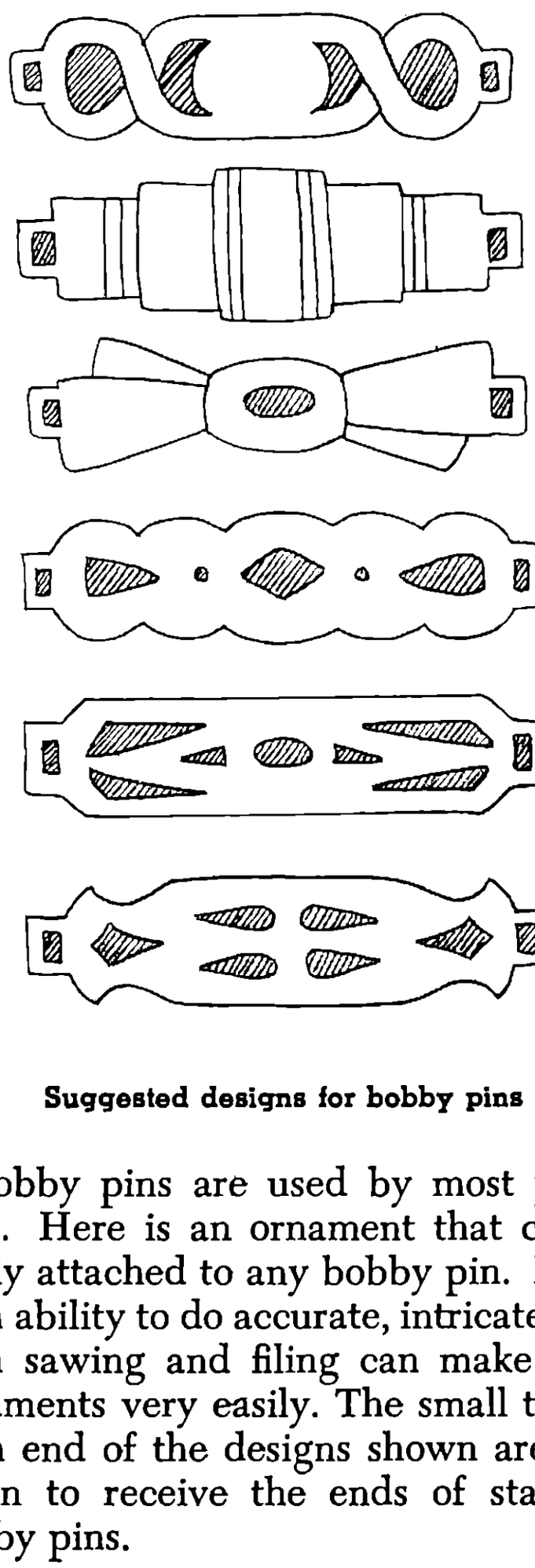
In addition to nickel silver, copper, colonial brass, or aluminum, 18-gauge wire is needed to make a barrette. Copper, brass, or aluminum wire may be used. The wire can be shaped with the fingers or with roundnose pliers.

Notice that the right side of the barrette is curled to hold the wire. Also notice that the left side is bent to receive the wire pin. Pliers are used to make these bends.

BOBBY PIN ORNAMENTS



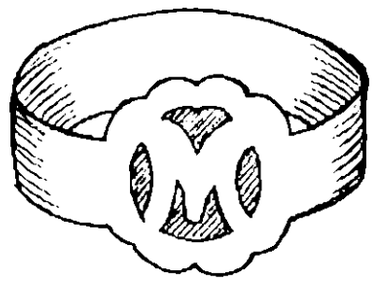
Full-size pattern



Suggested designs for bobby pins

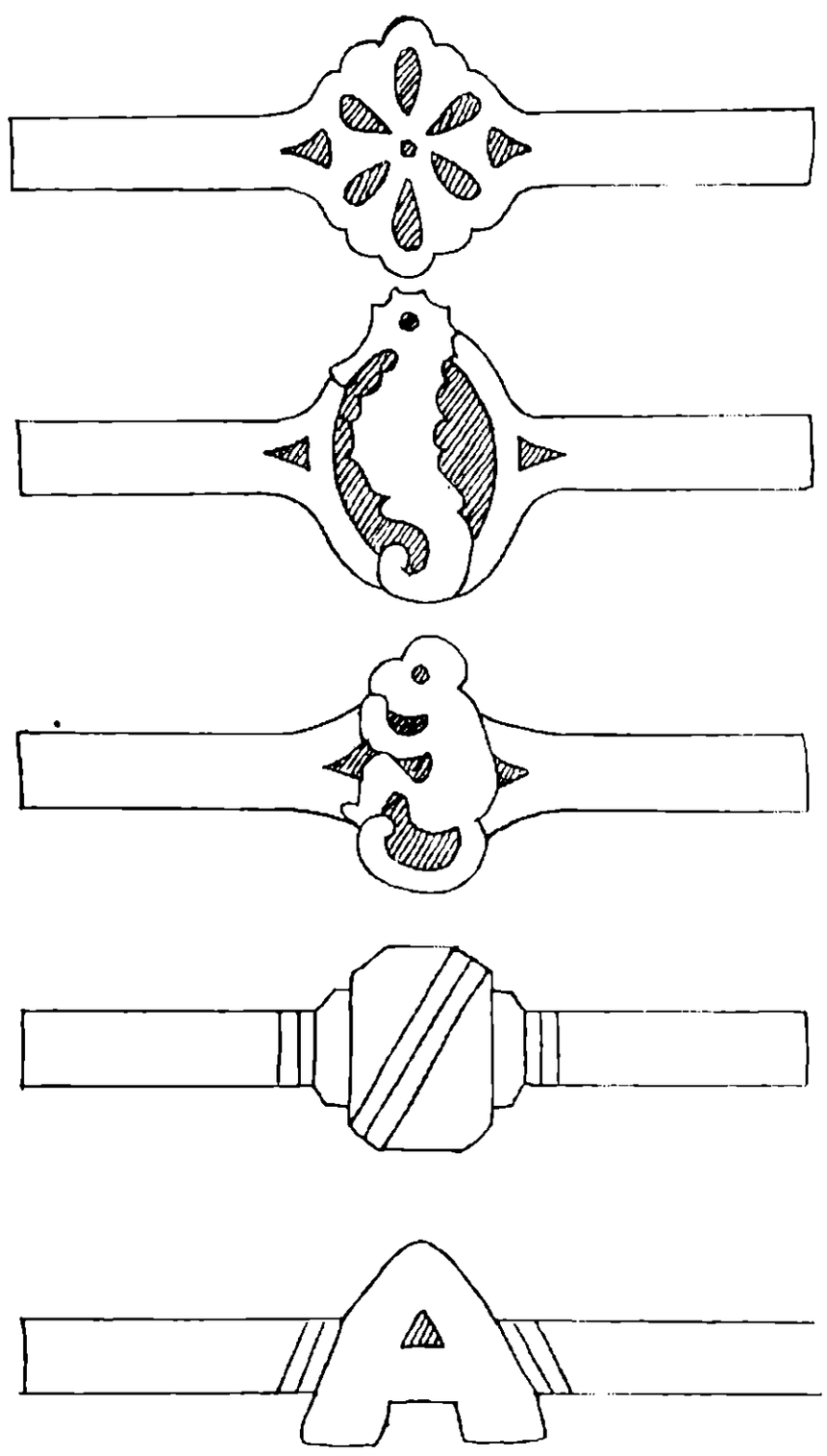
Bobby pins are used by most young girls. Here is an ornament that can be easily attached to any bobby pin. Pupils with ability to do accurate, intricate work with sawing and filing can make these ornaments very easily. The small tabs at each end of the designs shown are bent down to receive the ends of standard bobby pins.

RINGS



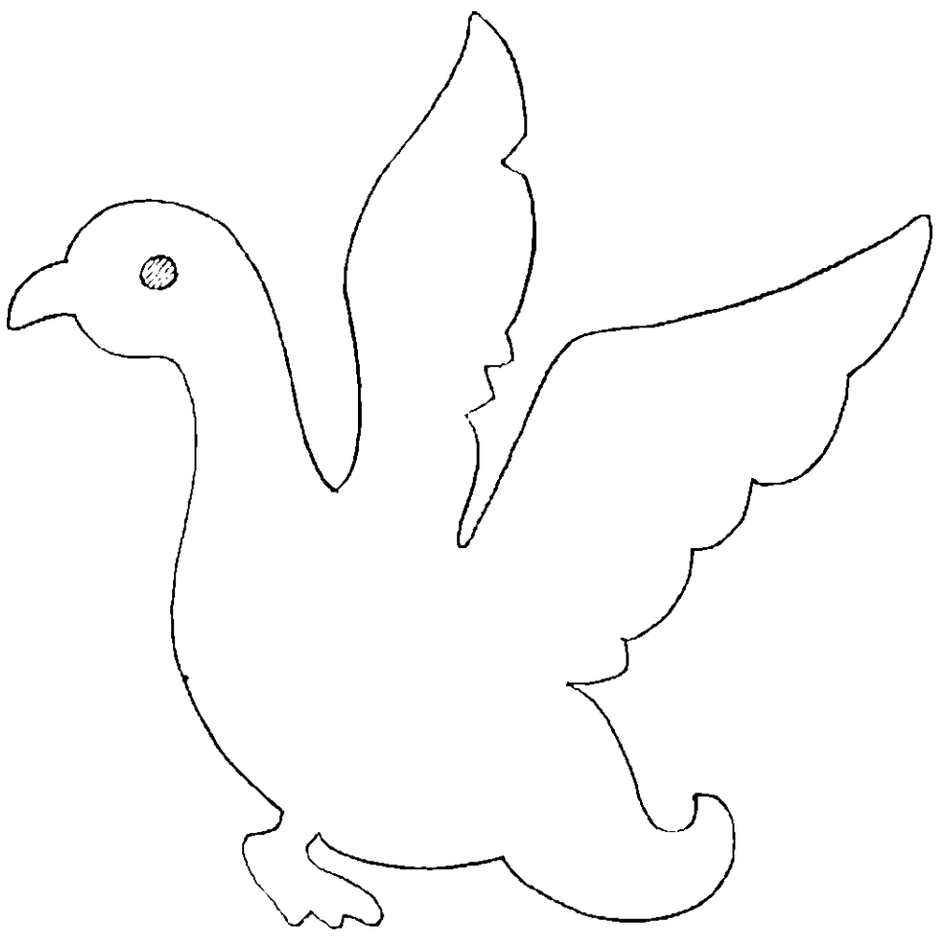
Very simple rings can be made by pupils with talent and outstanding abilities. The ring requires intricate, accurate workmanship. Very little filing can be done since the jeweler's saw does most of the finished design. Eighteen-gauge nickel silver is the metal used.

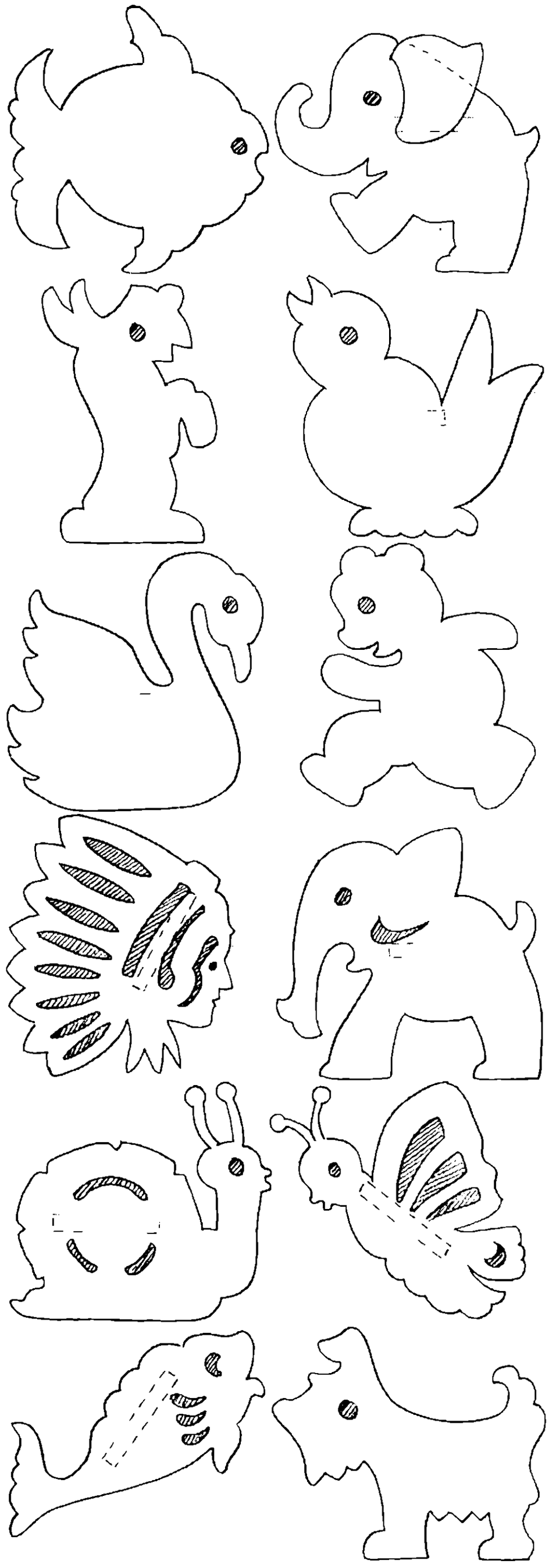
These rings are adjustable for size since they are not soldered. They are easily formed or bent around a piece of small gas pipe.



Designs for easily-made rings

LAPEL PINS



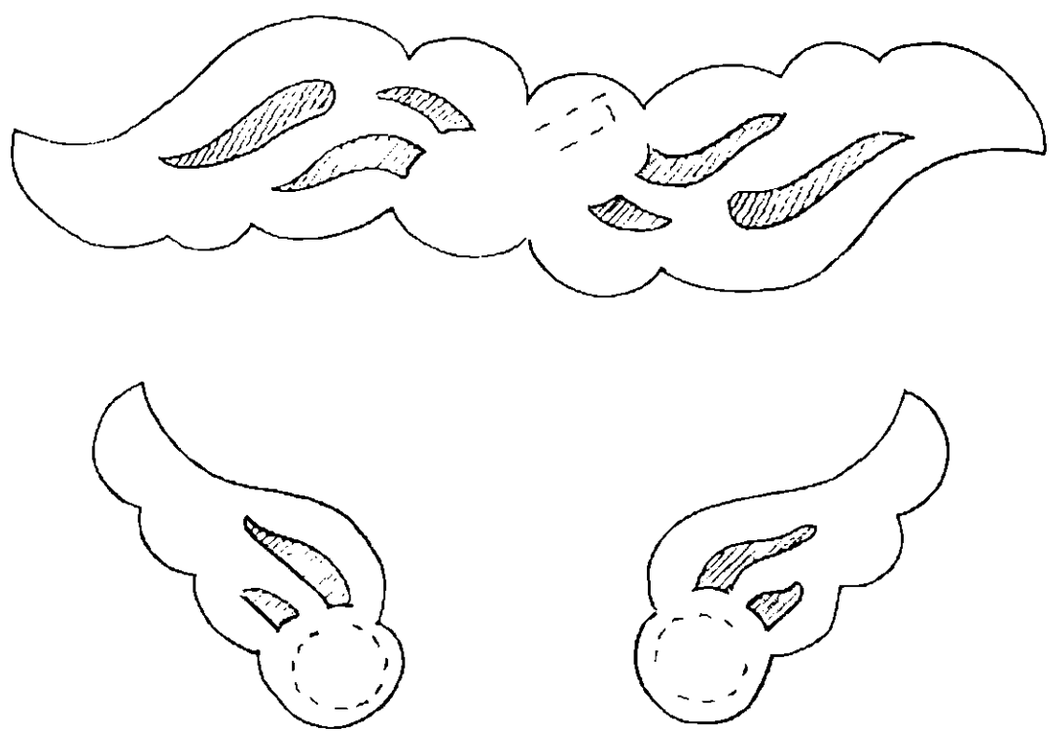


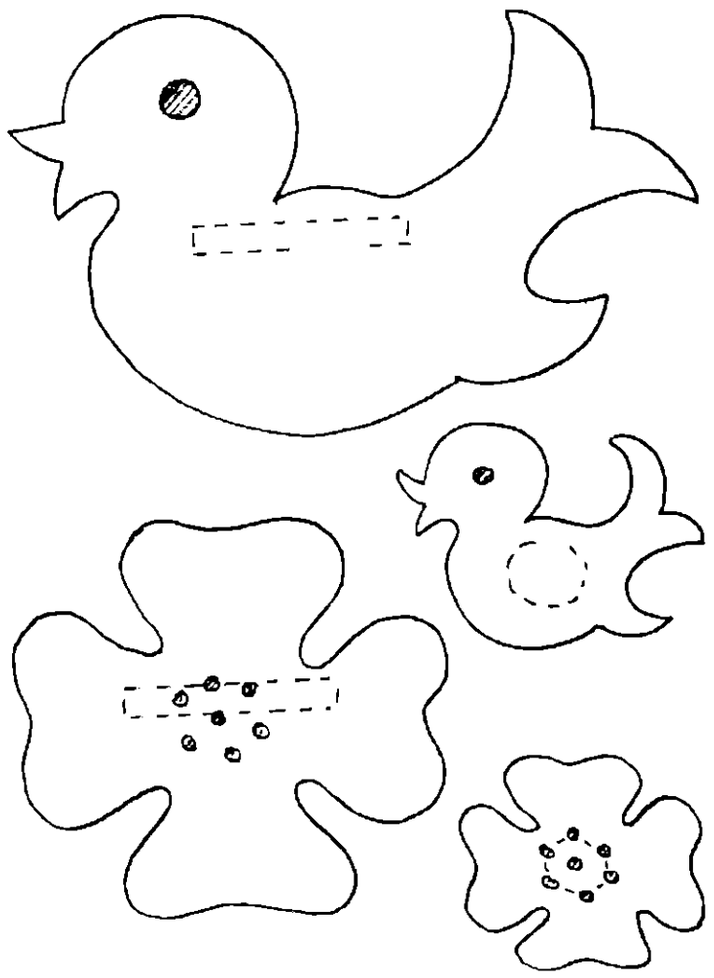
Lapel pins are always popular with young girls and older girls. Certain designs and colors of metal can be worn as costume jewelry by the young artisan. Designs of the child's own creation or variations of the designs in this book can be made into decorative lapel pins out of scrap pieces of copper or colonial brass.

Bar pins with safety catches can be purchased at very low cost. These may be had 1″ or 1½″ long. Use the size best suited to the size of the lapel pin. The dotted lines show the position of the bar pins. The bar pins can be fastened to the back of the lapel pin very easily with plastic cement obtained from a hardware store. The very best method of fastening the bar pins to the metal, however, is with solder. Steps in soldering are given in the following procedure.

Lapel pins are more interesting in design if they have a slight curved surface rather than a perfectly flat surface. This curvature is very simply done by laying the flat lapel pin over a block of wood with a curved depression and tapping the pin lightly with a round-tipped wooden mallet.

PIN AND EARRING SETS

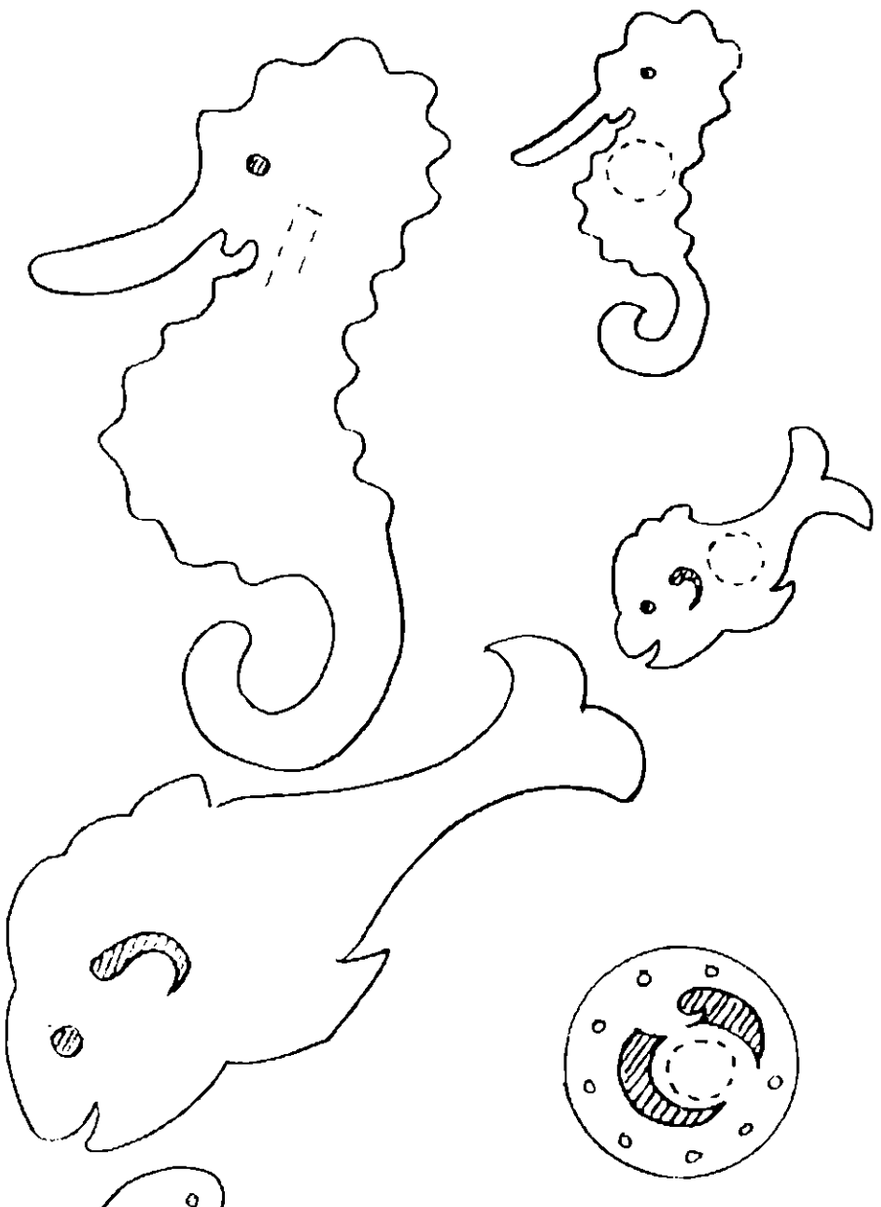




Pin and earring sets are popular articles of simple jewelry. They can be made easily by pupils who have previously made articles of metal. Scraps of 18-gauge nickel silver, copper, or colonial brass, bar pins, and earring cups are the materials needed.

Original designs are encouraged. Designs which appear in the book may be used. The dotted lines show the location of the bar pins and of the earring cups.

The earring cups are soldered to the earrings by first filling the cups with solder. Wire the cup filled with solder to the earring and heat over a gas flame.



DETAILED SUGGESTIONS FOR MAKING PINS

Materials Needed

Copper or colonial brass—18 gauge (scraps)
Paper for pattern
Shellac
Bar pin (1″ or 1½″)
Soldering paste } or plastic cement
Solder }
Emery cloth
Steel wool
Cement

Tools Needed

All the tools listed on page 223.
Soldering copper
Round-tipped wooden mallet
Block of wood with curved surface
Pliers (roundnose preferred)
Gas burner (hot plate or Bunsen burner)

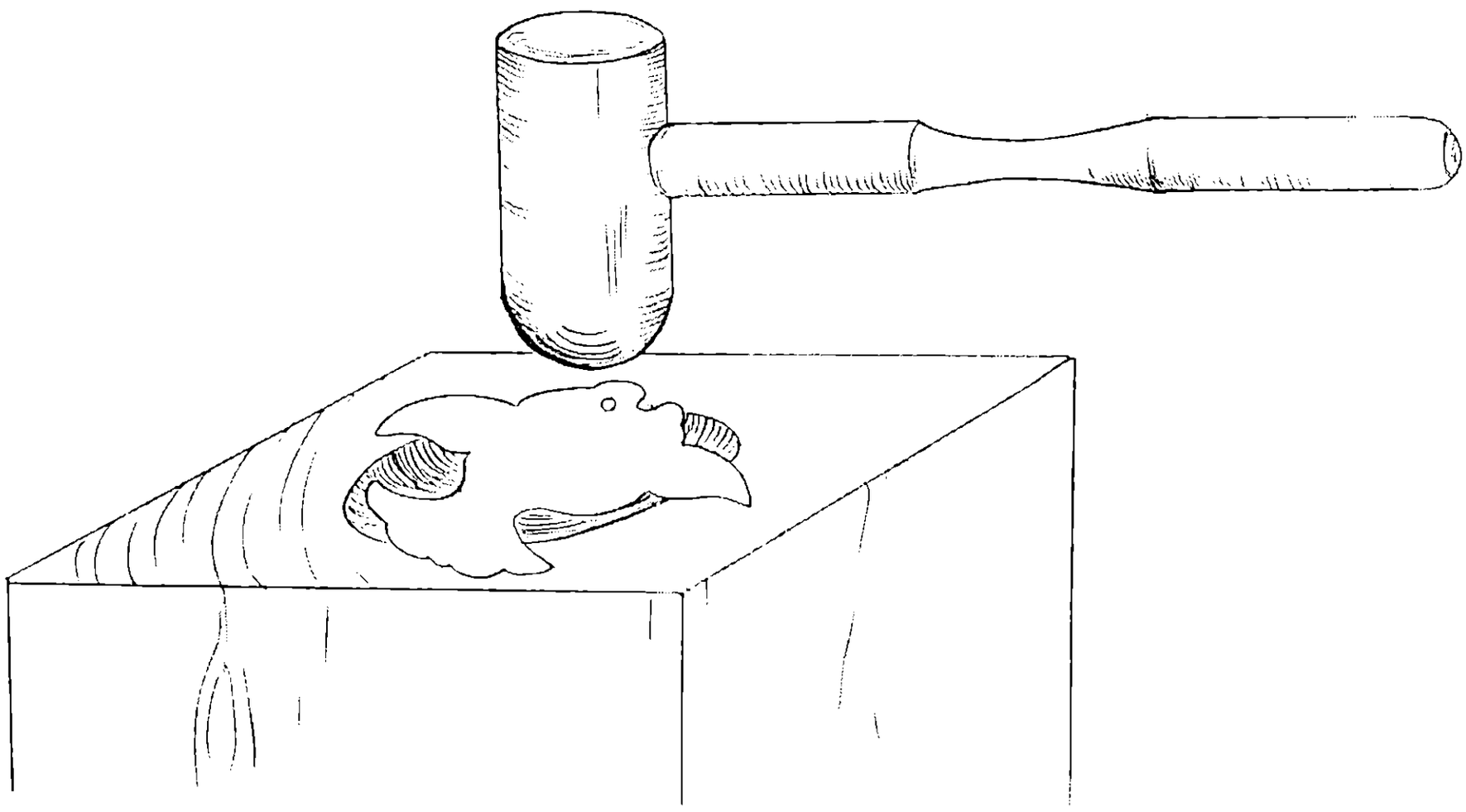
Skills Used

Same as listed on page 223.
Cupping metal
Soldering (or cementing)

PROCEDURE

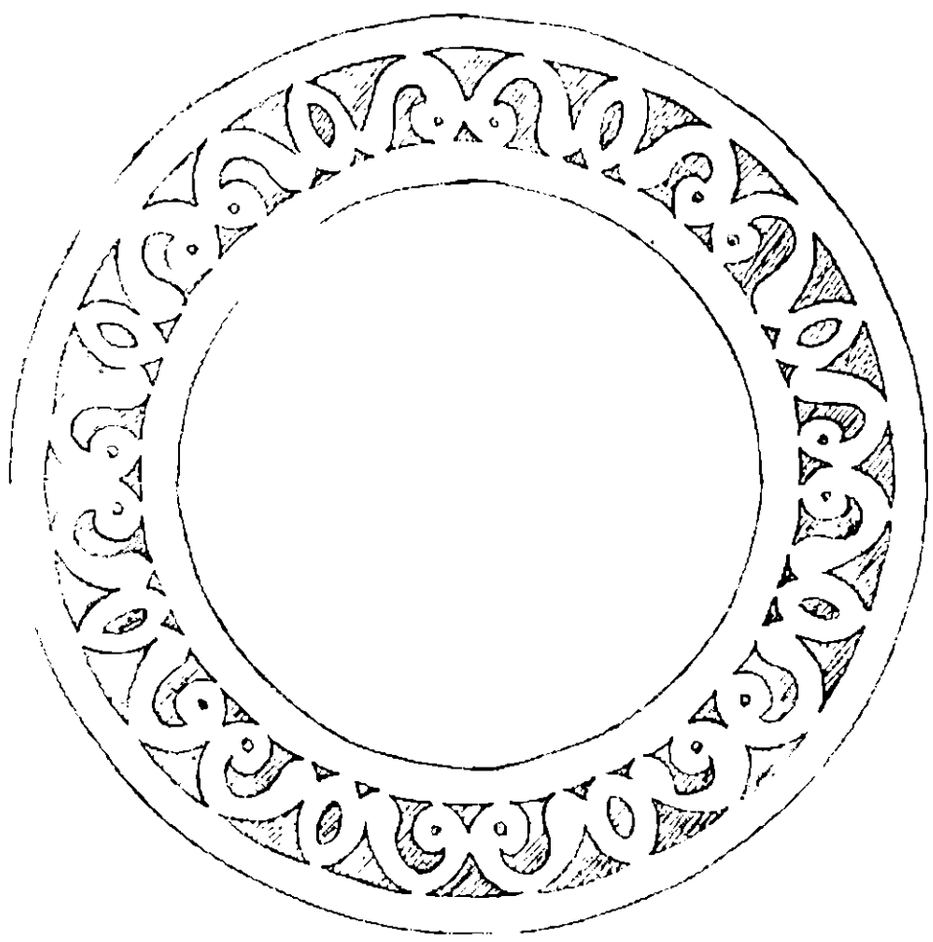
Same as for making bracelets, napkin holders, and place card holders, with these additional steps:

1. Curve or cup lapel pin by laying it over a curved depression in a wood block. Tap the pin lightly with a round-tipped wooden mallet.
2. If lapel pin has been shaped to a curve, shape the bar pin to fit.
3. Solder the bar pin in place.
   a. Put a thin coat of soldering paste on the bottom of the bar pin.
   b. Heat the soldering copper and tin the point with a thin coat of solder.
   c. Hold the bar pin with pliers and put a thin coat of solder on the bottom of the bar pin.
   d. When it is cool, clean bottom of bar pin with steel wool.
   e. Put a thin coat of soldering paste on back of lapel pin and place bar pin in place.
   f. With the pliers, hold the assembled pin 4″ above a gas flame until the solder melts onto the lapel pin. This is called sweat soldering. During soldering it is sometimes necessary to hold the bar pin in place with single strands of picture wire wound around the lapel pin and the bar pin. The picture wire is easily removed after the solder melts and becomes cold.
4. The lapel pin will become slightly discolored with the heat. It can easily be cleaned and polished with steel wool.



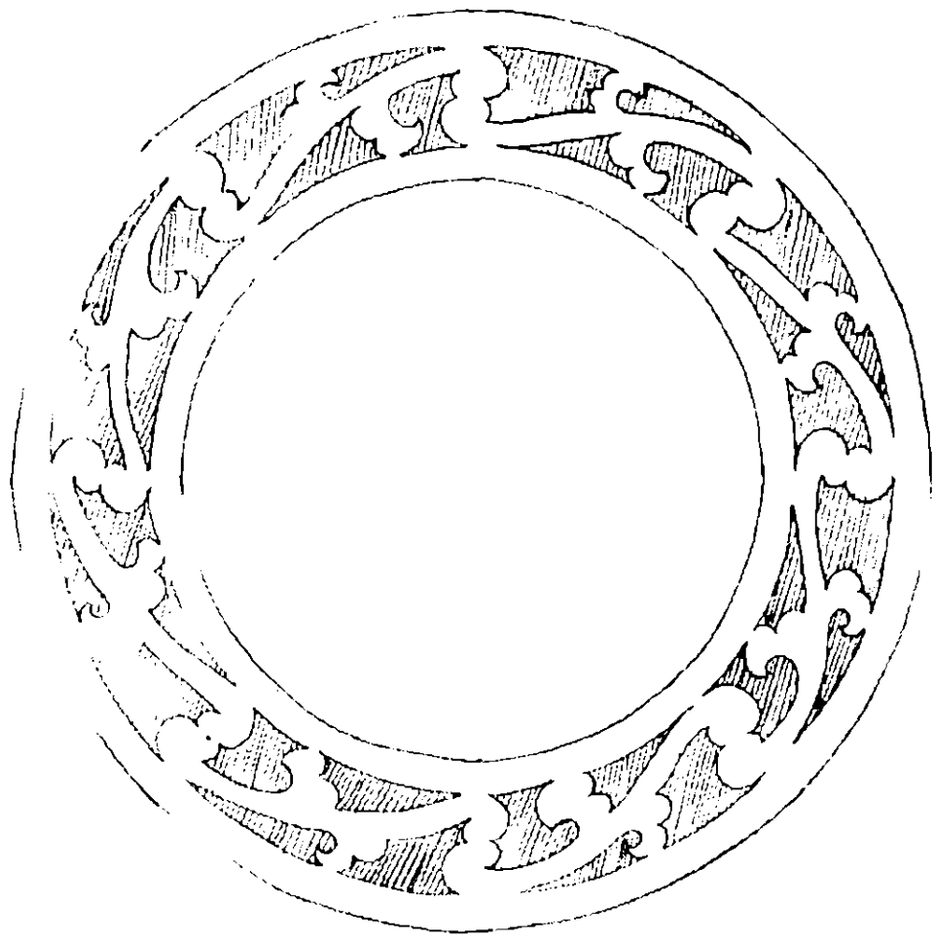
TRAYS





SIMPLE CALLING CARD trays can be formed easily by pupils who have had previous experience with metals. The trays are shaped in an iron or wood mold with a ball pein hammer. Iron molds which are available in many sizes are a great help in shaping the trays. The metal is hammered into the depression in the mold. Eighteen-gauge copper, colonial brass, and aluminum are suitable metals to use. Excessive hammering tends to harden the metal, so the elementary craftsman should not attempt to make a tray which is deep.

The design is cut out after the depression is made. Simply make a pattern of the design and fasten it to the bottom side of the tray with shellac. Then use a jeweler's saw and needle files to cut out the design.



SUGGESTIONS FOR FURTHER READING

Baxter, William T., and Henry C. Dake, *Jewelry, Gem Cutting, and Metalcraft.* New York: Whittlesey House, 1938.

Boehmer, Susan E., and Chris H. Groneman, *Making Things Is Fun, Book II.* Austin, Texas: Steck Co., 1946.

Dragoo, A. W., and Howard O. Reed, *General Shop Metal Work.* Bloomington, Ill.: McKnight & McKnight, 1947.

Hamilton, Edwin T., *Tin-Can-Craft.* New York: Dodd, Mead & Company, 1935.

Handcraft Teacher's Guide for Elementary Schools. Cleveland, Ohio: Board of Education, 1950.

Kronquist, Emil F., *Metalcraft and Jewelry.* Peoria, Ill.: Manual Arts Press, 1926.

Newkirk, Louis V., *Integrated Handwork for Elementary Schools.* New York: Silver Burdett Company, 1940.

Parisi, Tony, *Craftsman's Instruction Handbook.* Sandusky, Ohio: The American Crayon Company, 1949.

Payne, Arthur F., *Art Metalwork with Inexpensive Equipment,* Revised Edition. Peoria, Ill.: Manual Arts Press, 1929.

Petersen, Louis C., *101 Metal-Working Projects.* St. Paul, Minn.: Bruce Publishing Company, 1929.

CHAPTER 10

Textile Crafts



Textiles as a Craft Material

Sewing, weaving, and related textile crafts play an essential part in industry today. Even in the lives of the most primitive people, the weaving of fabrics is an important industry. Because of this and because of the many uses for textiles, the great variety of projects possible, and the ready accessibility of the tools and materials needed, textile crafts fit nicely into the curriculum of the elementary school.

The keynote of good design in textiles is simplicity. The design and its application should be fitted to the use of the project and to the material from which it is made. The ability of the pupils and their past experiences in this craft should be carefully considered.

The textile crafts that lend themselves most readily to elementary work are sew-

ing, weaving, dyeing, and beadwork. Of these, sewing is the least popular if presented as such. Children are not interested in learning to make stitches and seams unless they are needed to make a desired project. Therefore, on the elementary level textile crafts should not be considered as a method to teach sewing. Instead, textile crafts should be presented as a new field in which the child can work to express himself. Handled properly, textile crafts will hold as much appeal for the boy as woodcrafts hold for the girl.

The teacher should know what materials are available, what stitches and seams the child will need to know in order to make simple projects, and what projects are easy and interesting enough to appeal to the child. In the past, the pot holder was considered an excellent yearly project for elementary school children. A pot holder is difficult to make; it costs more to make one than to buy one, and very few children ever actually use a pot holder. There are far more interesting textile projects which require less time and skill.

Very often the use of textiles will be a part of a group or unit project. However, there is an unlimited number of individual projects that will interest children. Sewing is learned with greater enthusiasm when a boy is making a sail for a boat, a tent for a miniature circus, a rug for a log cabin floor, or when a girl is dressing a doll, making curtains for a playhouse, or making a costume for a puppet or for herself to wear in a play.

Many textile projects require little or no sewing. Felt may be glued together although this process is not as satisfactory as stitching it in place. Beadwork and weaving are almost entirely independent from stitchery. Dyed scarves may be fringed instead of hemmed.

Avoid labeling sewing for girls and woodcrafts for boys. Many girls do far better woodwork than the boys in their classes do. Boys will enjoy and excel in the textile crafts if they are not labeled as sewing.

The following pages list sewing skills, describe the necessary tools and materials, tell how and when to use various stitches, and suggest projects.

Notes on Materials and Tools

Art canvas. This is a coarsely woven material in which the threads form squares with spaces between. It is used for yarn work, cross-stitch, long stitches, and needlepoint when making purses, belts, cushion tops, and similar articles.

Beads. Indian seed beads are used for bead weaving, stringing, and embroidery. They are less than ⅛″ in diameter, they come in all colors, and they are very inexpensive. Wooden beads, ¼″ cubes in a variety of colors, may be woven into mats, tiles, belts, bags, and strings. They are also inexpensive.

Bleached muslin. A white cotton cloth, 36″ wide, bleached muslin is used for aprons, doll clothes, pillow cases, pinafores, and samplers. It is easily creased and easily stitched. It soils easily.

Burlap. Burlap is a coarsely woven, rough, heavy fabric. It comes in brown, green, and natural colors, and is used for bags, belts, boleros, mats, pillow tops, rugs, samplers, table runners, and wall hangings. The threads are easily drawn for reweaving, and they are easily followed for embroidery. Burlap frays easily.

Cambric. Cambric is a smooth, plain-weave cotton material in plain colors. It is used for such articles as bags, aprons, costumes, doll clothes, pinafores, and stuffed toys. It is easily creased and does not fray easily.

Cotton yarn. This is a coarse, heavy yarn of cotton. It is used for weaving, for pulling through burlap to replace threads, for knitting, and for heavy embroidery on coarse materials. This yarn is stiffer and less pliable than wool yarn.

Crash toweling. Crash toweling is a

coarse, linen toweling with or without a colored border. It is used for towels, samplers, chair sets, place mats, and bags. Its threads are easy to follow for cross-stitch.

Dimity. This is a thin, crisp, cotton material, all white or printed, with woven bars in stripes or checks. Dimity is used for aprons, pinafores, and doll clothes. It creases easily and does not fray.

Felt. Felt is a matted woolen material, heavy and durable, which comes in many colors. It is used for mittens, belts, doll clothes, boleros, beanies, lapel ornaments, suspenders, purses, and pen wipers. Felt does not fray, and its edges do not need finishing. New felt material is relatively expensive.

Huck toweling. This is a cotton or linen toweling woven with a raised pattern. The cotton type, with two threads raised, is best for weaving a pattern through these raised threads. It is used for towels, aprons, scarves, purses, belts, bags, and chair sets.

Needles. Needles come in various sizes and types to fit the work being done. Use No. 6 or 7 sewing needles for No. 40, 50, or 60 sewing thread. Use embroidery needles (long eyes) for San Silk. Use tapestry needles (blunt points) for yarn embroidery on burlap, felt, or other coarse materials.

Percale. Percale is a finely woven cotton fabric with a smooth, rather glossy finish. It comes in plain colors and printed patterns and is used for costumes, doll clothes, hot dish holders, appliqué pictures, pinafores, and aprons. It is easy to use.

Pongee. This is a cheap, all-silk material usually light tan or natural in color. It is used for tie dyeing, batik work, and block printing when making articles like scarves, wall hangings, and bandanas. Pongee frays easily and launders easily.

Raffia. Raffia is made from fibers of a palm that grows in Madagascar. It comes in natural and many colors, in strips about 1½ yards long and ½″ wide. It is used for weaving, for embroidery on burlap and art canvas, and for making novelty figures. Raffia is strong, light, and very pliable.

Reed. Round reed comes in one-pound hanks in natural color. It is used for weaving mats, baskets, and edges on trays.

San Silk. San Silk is a rather heavy, single-strand embroidery thread. It is used for embroidery on cotton materials and for weaving threads into huck toweling and other heavy materials. It is easy to thread in a needle and does not tangle easily.

Scissors. For needlework, scissors should be sharp and pointed. Large 10″ or 12″ scissors are necessary for cutting, and 5″ or 6″ scissors are used for embroidery work.

Sewing thread. Sewing thread should be chosen to fit the need. No. 50 or No. 60 cotton sewing thread is right for seams, hems, and gathers. San Silk or 6-strand embroidery thread is best for most decorative work.

Strand embroidery thread. Six-strand embroidery thread comes in a greater variety of colors than San Silk. It can be split into single, double, or triple strands. It is not as easy to thread as San Silk and is more apt to knot.

Thimbles. Thimbles are usually worn on the second finger of the right hand. They should fit the finger. They prevent pricking or bruising the finger when they are used to push the needle through the material.

Unbleached muslin. This is a rather coarse, cotton fabric, natural or unbleached in color. It is used for bags, costumes, aprons, wall hangings, luncheon sets, samplers, pillow tops, and hot dish holders. It is very inexpensive.

Wool yarn. This yarn is spun wool, and it is soft and pliable. It is used for knitting, weaving, making doll's hair, and embroidering.

Sewing Skills

In the following table are listed the various skills used in sewing. The suggested grade placement of each skill is based upon experience with children. The skills are cumulative so, if textile crafts are not started until grade three, for example, the sewing skills listed for grades one and two should be mastered by the pupils before they begin to learn the skills listed under grade three. The teacher should be prepared to demonstrate each skill whenever the children are about to begin work requiring that skill.

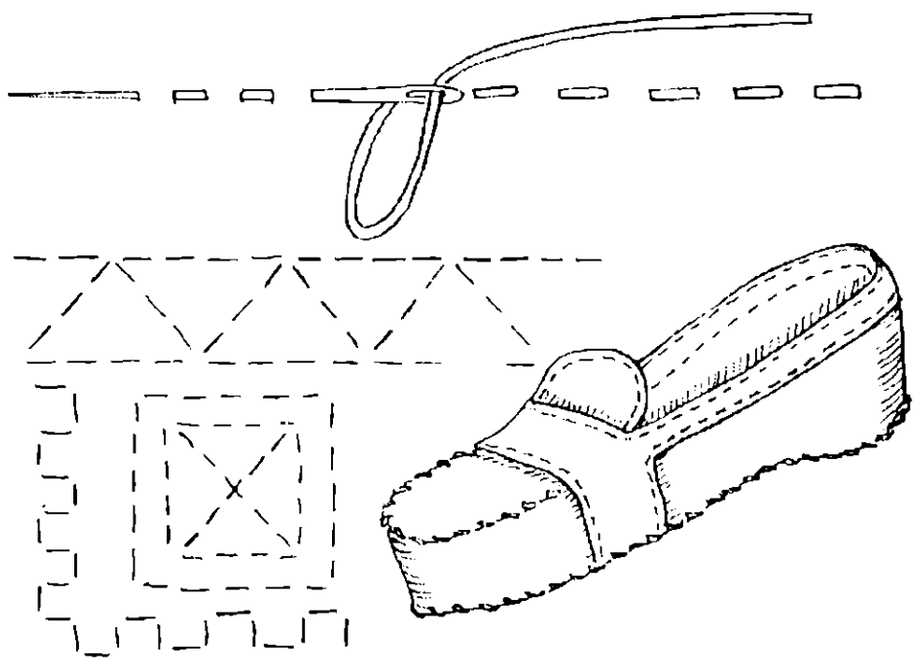
Suggested Grade Placement of Sewing Skills

GRADES 1 and 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Cutting thread to length	Knotting end of thread	Using thimble	Making and using marker	Drawing a thread
Threading the needle	Fastening the thread	Creasing material	Sewing on hooks and eyes	Applying bias tape rickrack lace
Using the needle (stitching)	Pinning material	Sewing on snaps	Tearing cloth	
	Cutting cloth	Measuring		
	Using a pattern	Dyeing		
	Stuffing with beans with cotton			
	Braiding			
	Bead weaving			

Stitches Needed for Various Projects

The stitches described here should be learned as the need for them arises. There is little value for the child in knowing how to make a dozen kinds of stitches. The true value is a desire to use stitches for sewing pieces of material together or for decorating material. Teach only those stitches necessary for the successful completion of the project being made.

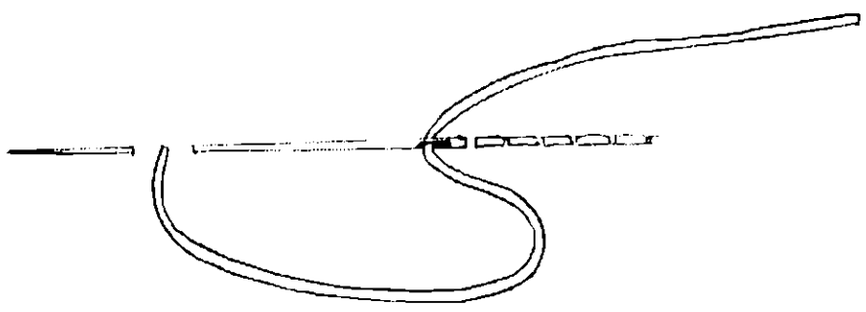
Running stitch. This is the simplest of stitches and the one children will use most often. Stitches should be of an even size. Two or three stitches may be taken on the needle at one time. Beginning students use the running stitch for seams. This is the stitch used in gathering. It is the simplest of the embroidery stitches.



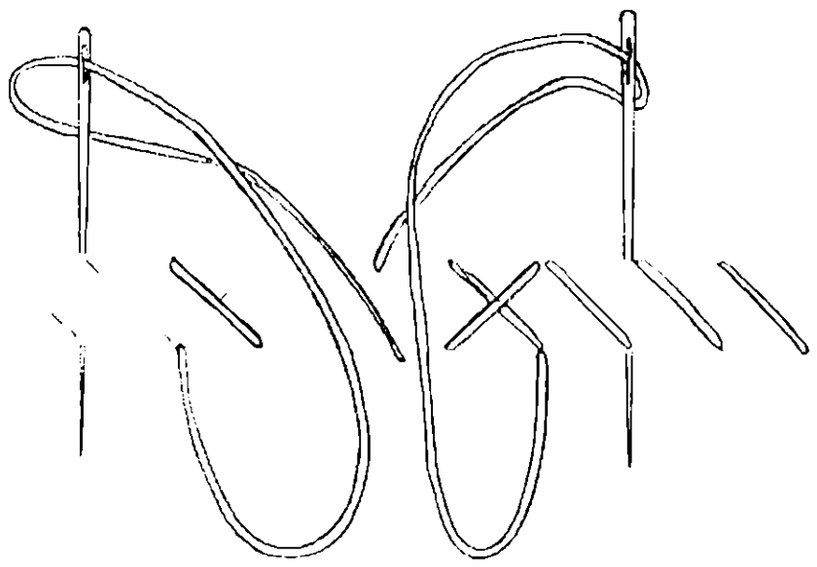
Basting stitch. This is an enlarged running stitch used for holding material in place until finer stitching is made or until the material is pressed. The basting stitch may also be used as a decorative stitch, as on the edge of the vest shown.

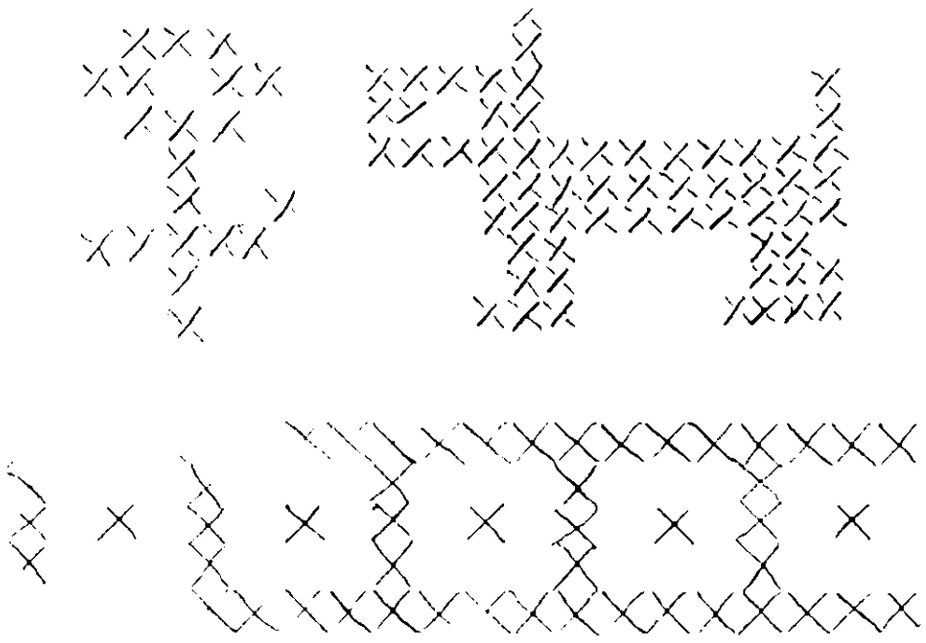


Backstitch. Use the backstitch for outlining designs and where exceptionally strong seams are required, as in rag dolls or stuffed toys. To make the backstitch, carry the thread forward on each stitch. Begin the new stitch by sticking the needle into the cloth in the hole made by the end of the last stitch. Then carry the thread under the cloth and forward again.

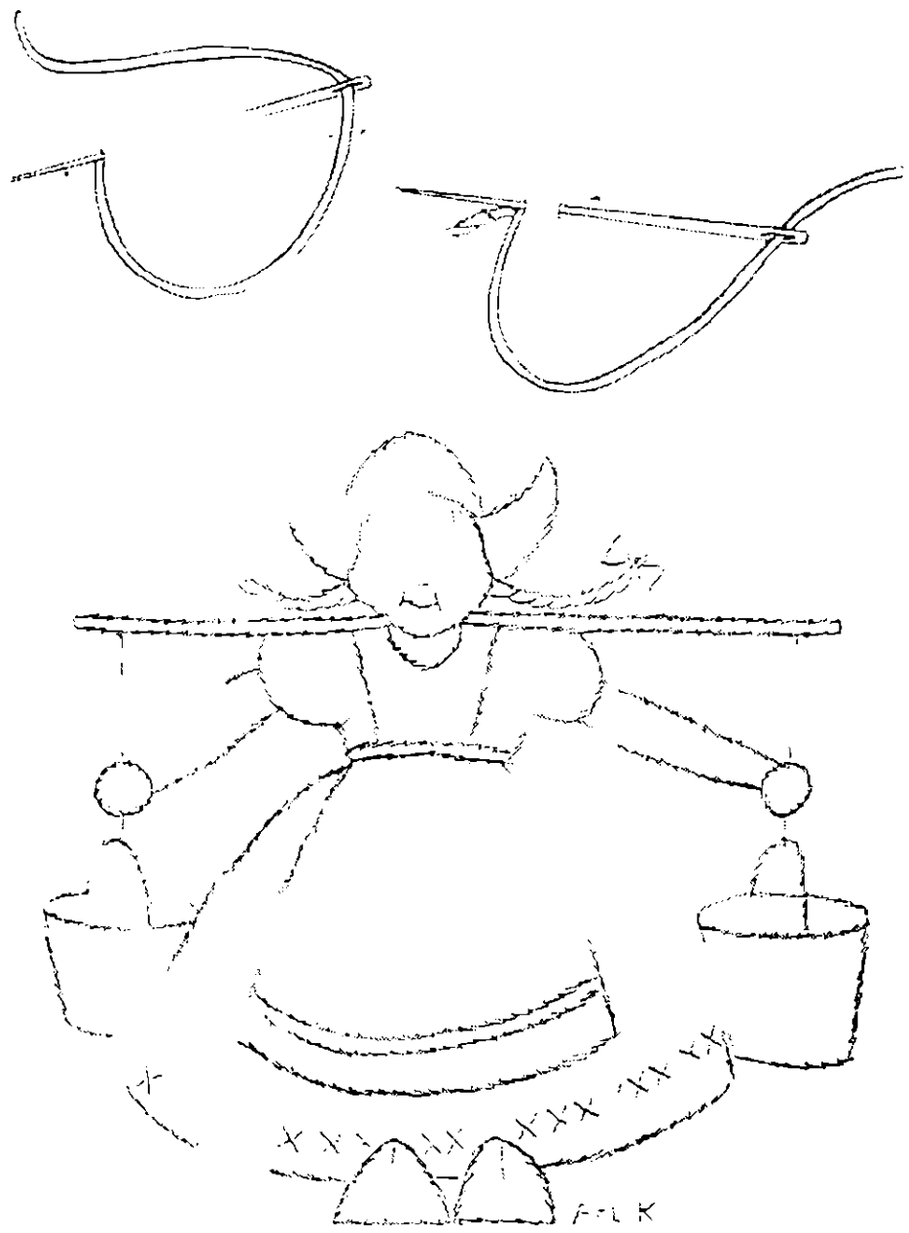


Cross-stitch. Make half of the cross in each stitch as shown in the illustration. Then go back down the line, crossing the other half. This will insure all stitches crossing the same way. Cross-stitches are used for decoration such as embroidering a simple unit of border design. Children should work on stamped material or on checked material. Adults may wish to count threads for each cross-stitch.

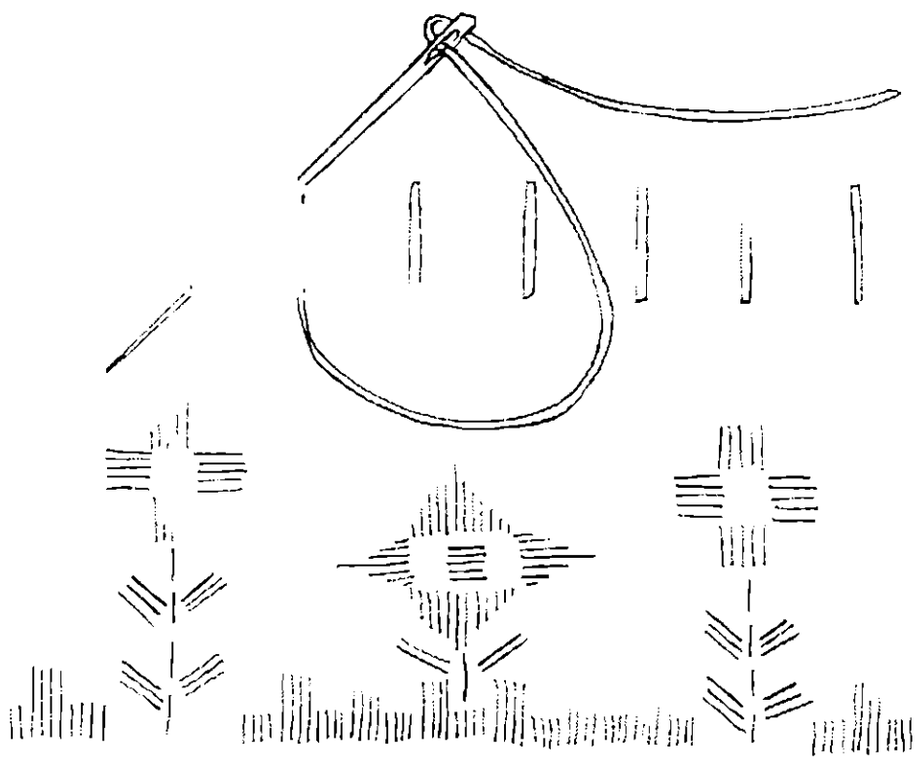




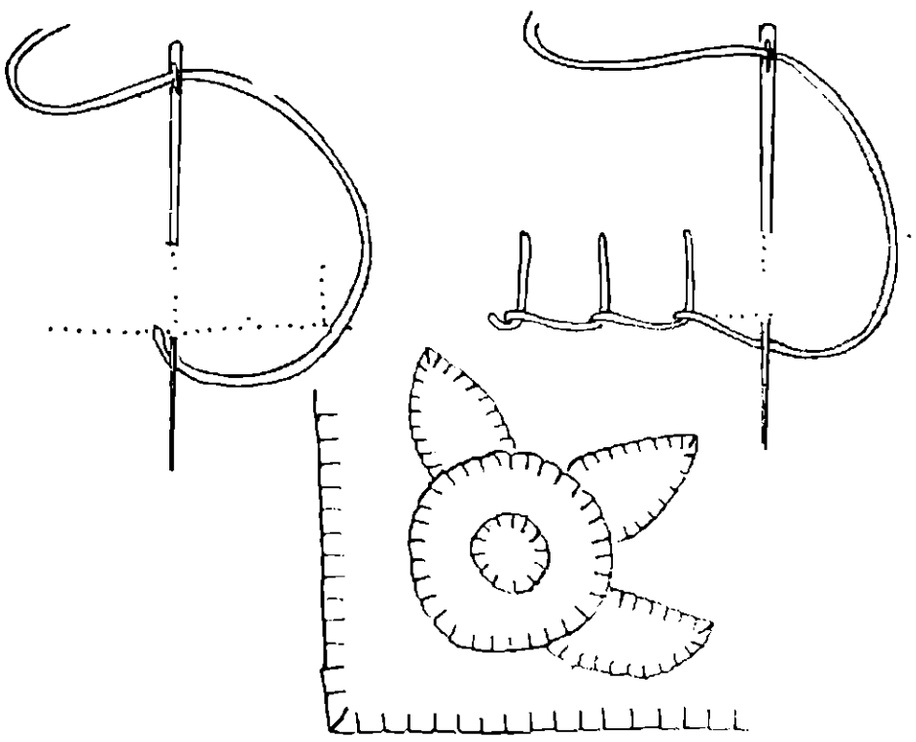
Outline stitch. Make the first stitch a back stitch. Take another stitch the same length. Bring the needle out at the end of the previous stitch. Use this stitch for outlining designs or monograms.

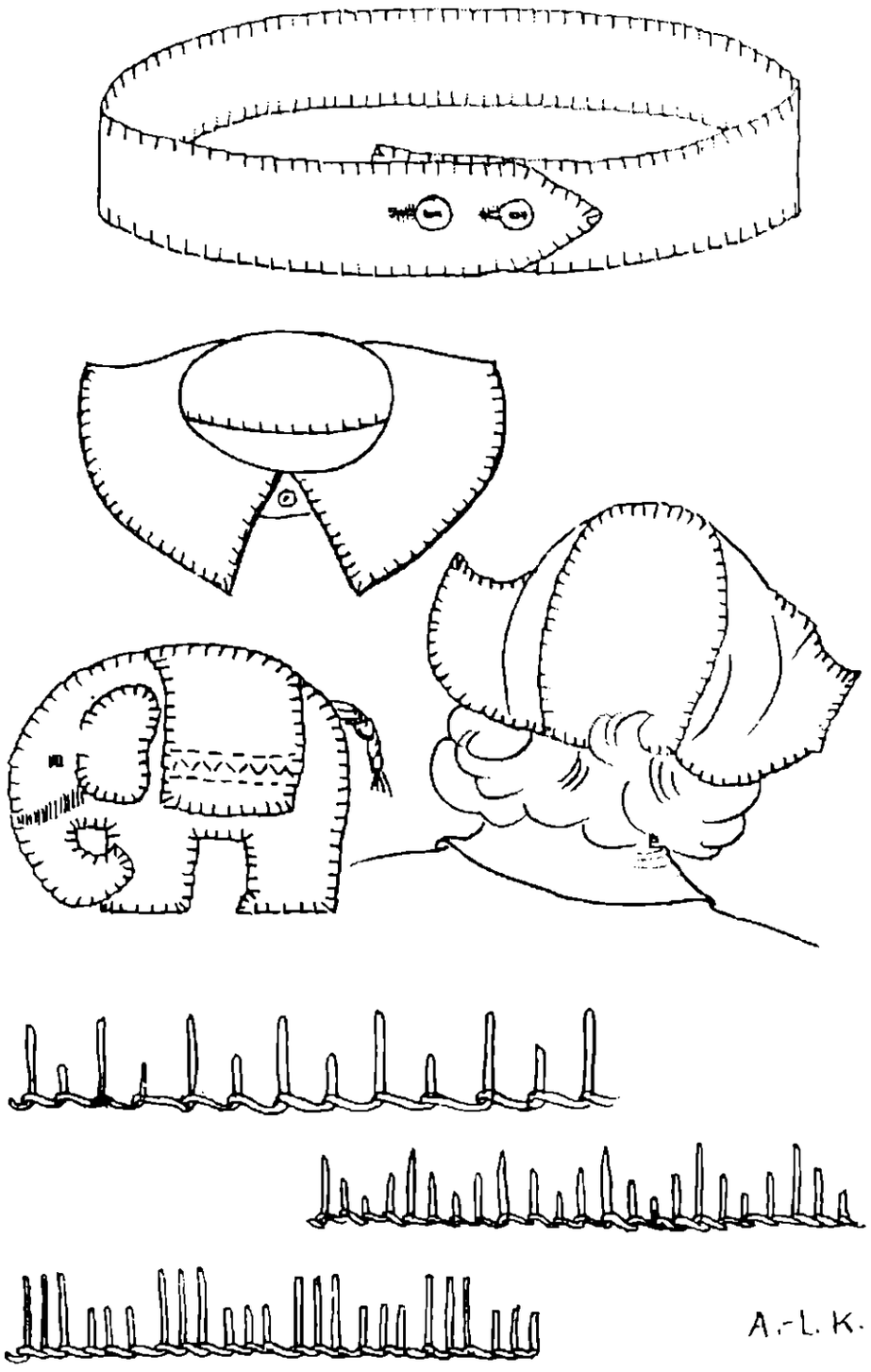


One stitch. Bring the needle up at the bottom of one stitch. Insert it at the upper end of the same stitch and come out at the bottom of the next stitch. Use on art canvas or burlap. Stitches may be made very close together to produce a solid effect.

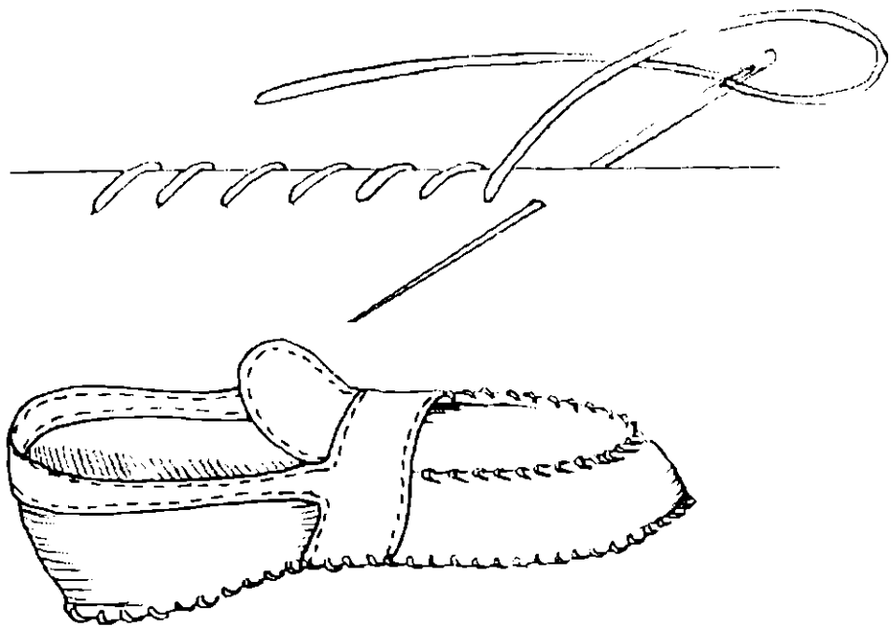


Blanket stitch. Insert the needle from the wrong side near the bottom of the first stitch to be taken. Insert the needle at the top of the stitch coming out again at the bottom, but with the needle coming over the thread or through the loop. Make the second stitch like the first. Use the blanket stitch to finish edges, to sew edges together, and in other embroidery work. Use this stitch to fasten down appliqué patches.

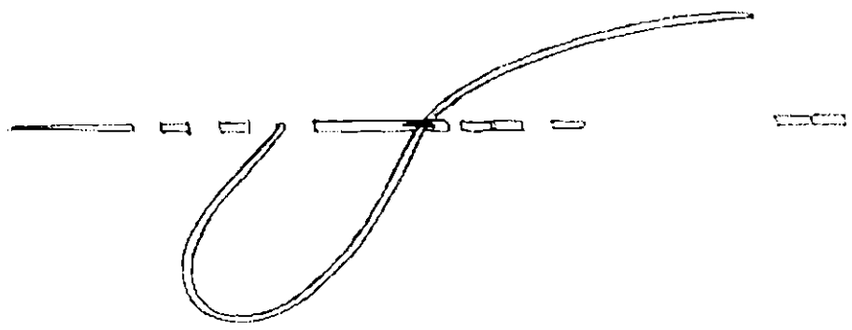




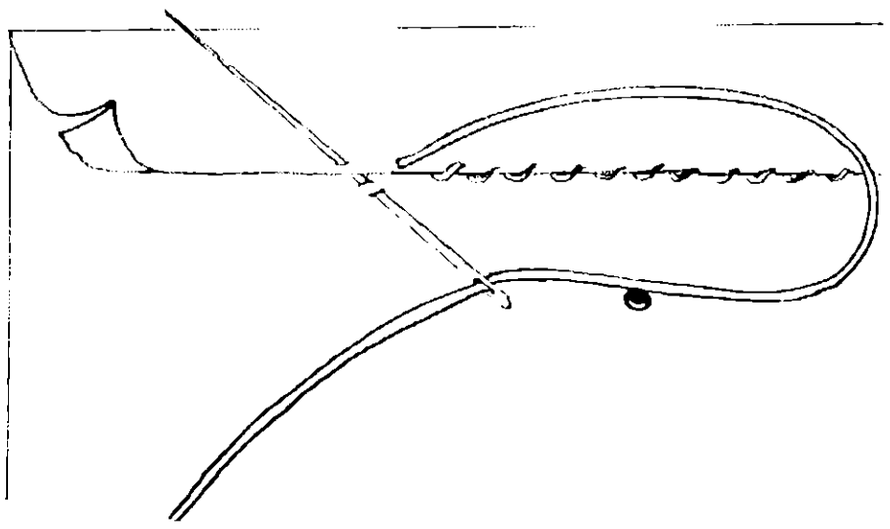
Overcasting stitch. Overcast from left to right. Insert the needle fairly close to the edge on the underside of the material. Bring out on top. Let the thread fall over the edge, and insert the needle from the underside the desired distance between stitches. Use the overcasting, or whipping stitch as it is sometimes called, to keep raw edges from fraying or to sew two edges together.



Combination stitch. Make two running stitches and one back stitch. This is stronger than the running stitch. Use for seams.

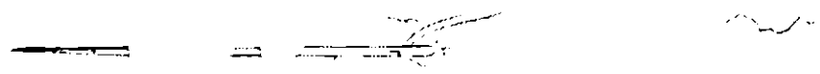


Hemming stitch. This stitch holds a folded edge in place. Only a thread or two of the material, and the same from the hem, should be picked up by the needle. Slant stitches from one insertion to the next. Use for hemming aprons, dresses, towels, bags, and so on.

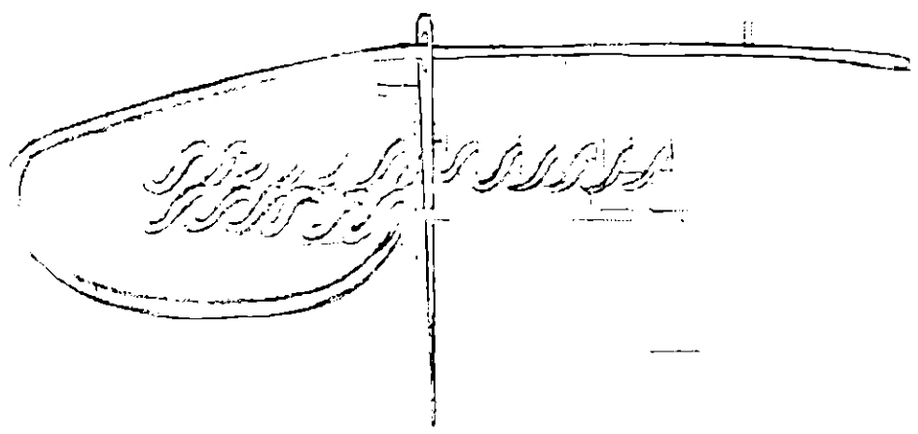


A.-L. K.

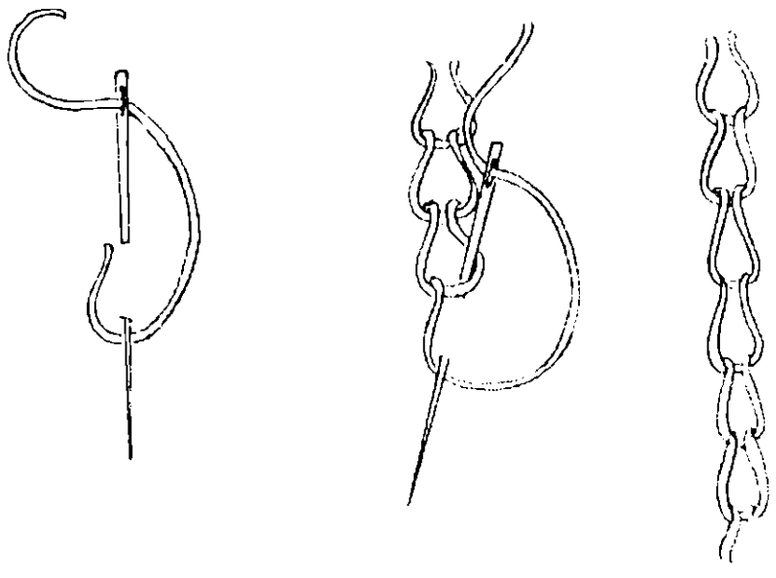
Gathering stitch. Use a running stitch. Pull up the thread to gather the material. Keep stitches small and even to get evenly spaced gathers. Use for gathering skirts, bags, and aprons.

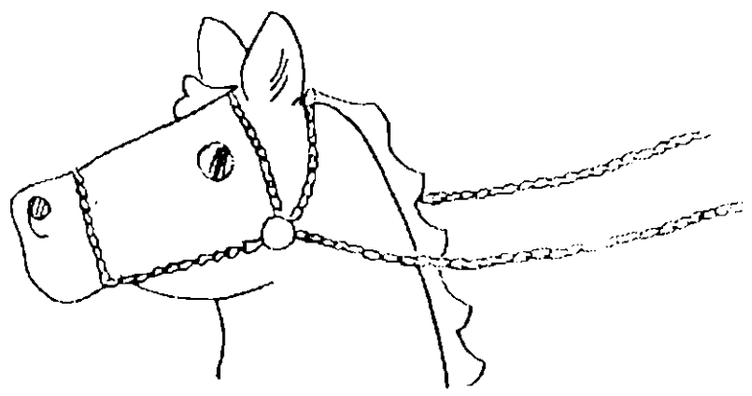


Needlepoint stitch (half cross-stitch). The needle is inserted in open squares of art canvas. A half cross-stitch is made. Stitches on the front or top are slanted or diagonal. Stitches in the back are straight up and down. Use needlepoint stitch for purses, belts, and pillow tops on art canvas or burlap.

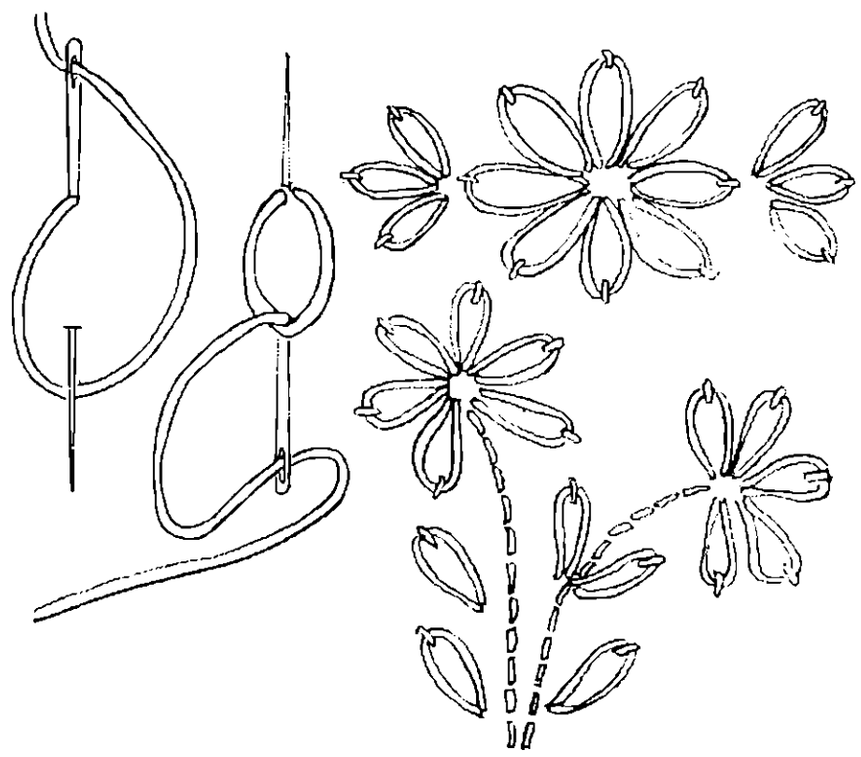


Chain stitch. Work from left to right. Insert the needle from the underside. Loop the thread in front of it, and insert it from the top side near the first insertion, bringing it back to the top side the desired length of the stitch. To make the stitch, be sure that the needle passes over the looped thread. Insert again inside the loop near the last insertion, bringing the thread back to the top side as previously directed.

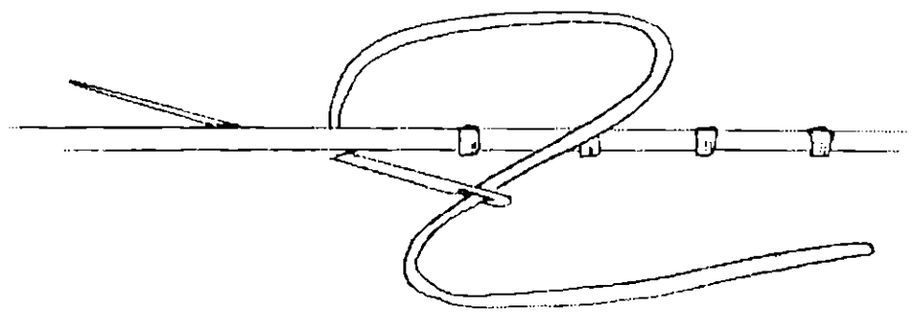




Lazy daisy stitch. This is a single chain stitch. Loop the thread under the needle. Fasten the thread in place at the top of the loop with a tiny stitch. Use the lazy daisy stitch for embroidering flower petals, and leaves.

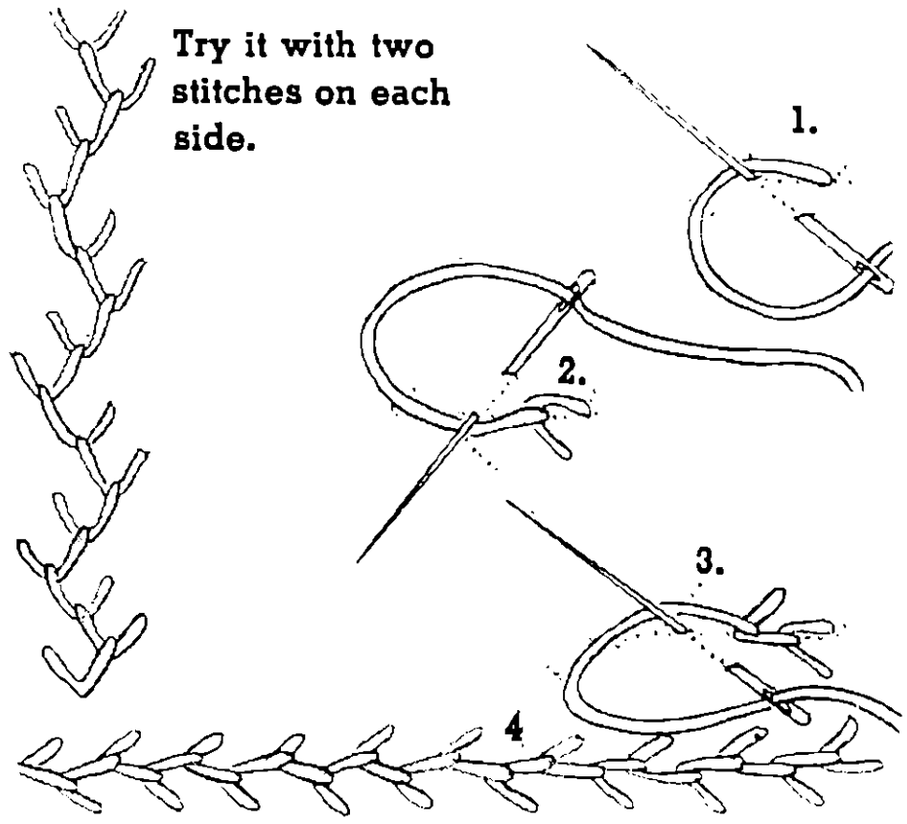


Couching stitch. Lay a thread on the material. Fasten it in place as shown in the illustration with little stitches made in another color. Use heavy thread. The couching stitch is used for outlining designs or for making small borders.

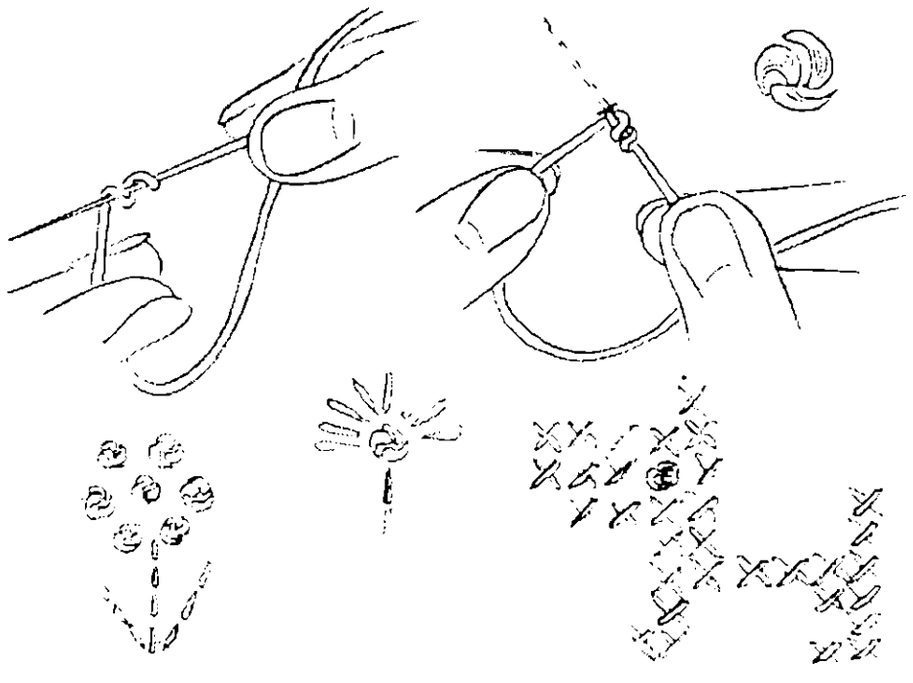


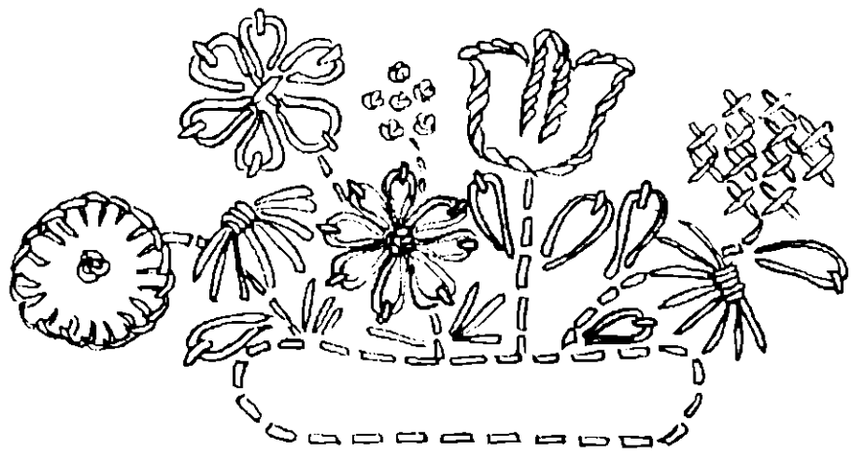
Featherstitch. This is a little difficult for beginners. Teach this stitch to children who are eager to learn more stitches. Start just above the center line. Make a short stitch to the right of the starting place, passing the needle over the thread. Make a little stitch to the left of the first stitch, passing the

needle over the thread. Use the featherstitch for trimming hem lines or for border designs on collars, cuffs, and around jackets.



French knot. Bring the thread up through the cloth. Wind the thread around the needle two or three times. Pull the thread up tight, push the needle back through the cloth near the same point, leaving the knot on top. Use French knots to make flowers, flower centers, and dots.





Some of the stitches are more difficult than others. A child in the first or second grade can usually obtain excellent results with a running stitch, but experience with children has shown that stitches such as the French knot are not ordinarily done successfully until the sixth grade. The chart below should help teachers guide children into using the kind of stitches with which they can succeed in doing good work.

Suggested Textile Projects

As with other craft materials, the variety of projects that can be made from textiles is almost limitless. Almost any textile project may be made in several ways—by varying the construction, by using different techniques, and by using different materials. Whether the article is easy or difficult to make depends upon how it is to be made.

The following list of projects, while far from complete, will suggest many articles for children to make. The table on page 246 indicates grade levels at which various projects have been found to work out most effectively.

Suggested Grade Placement of Stitches

GRADES 1 and 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Running stitch	Backstitch	Outlining stitch	Combination stitch	Needlepoint stitch
Basting stitch	Cross-stitch	Gathering stitch	Hemming stitch	Chain stitch
	Blanket stitch	Couching stitch	Lazy daisy stitch	Feather stitch
	Overcasting stitch			French knot stitch

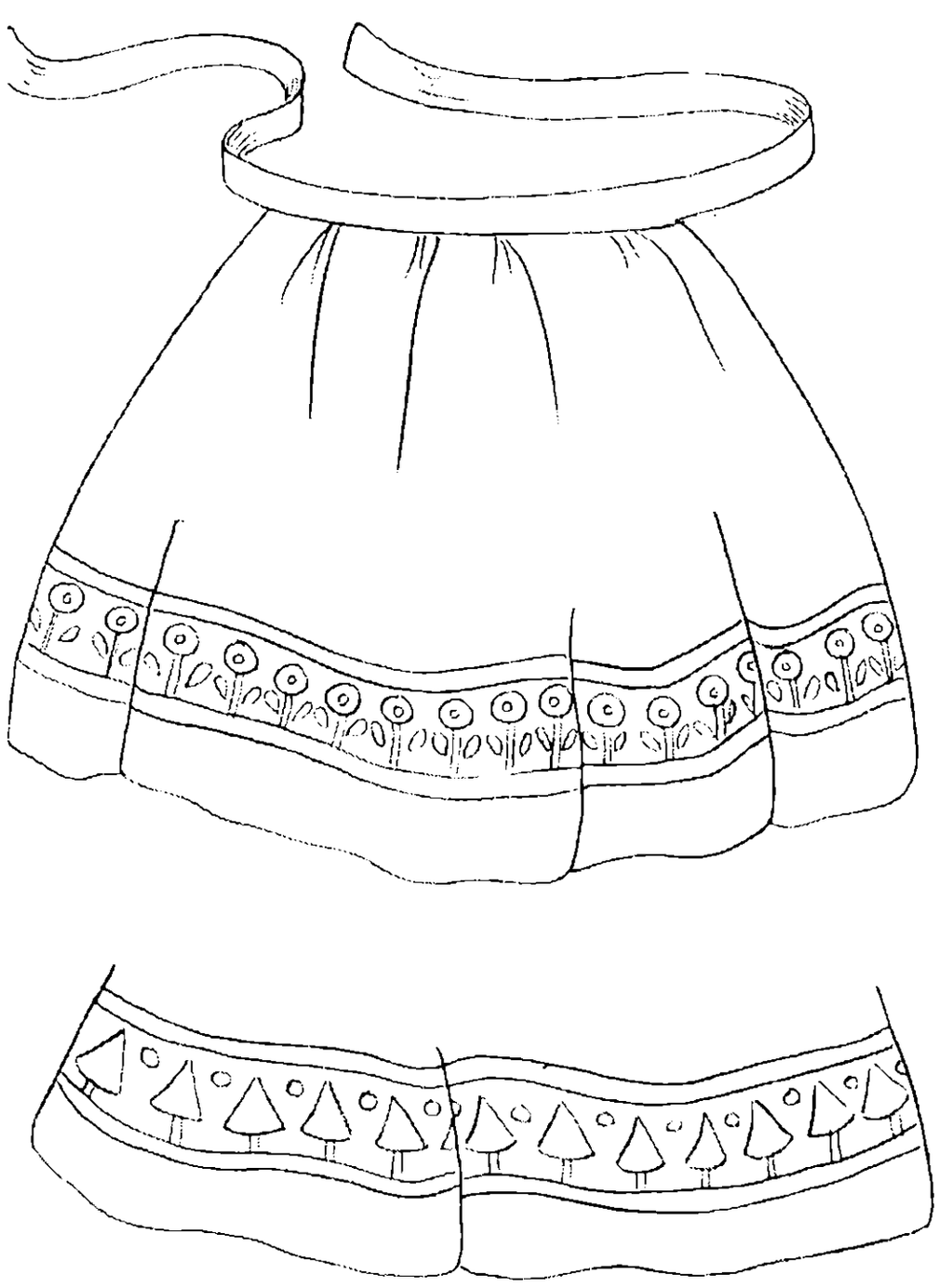
Suggested List of Textile Projects

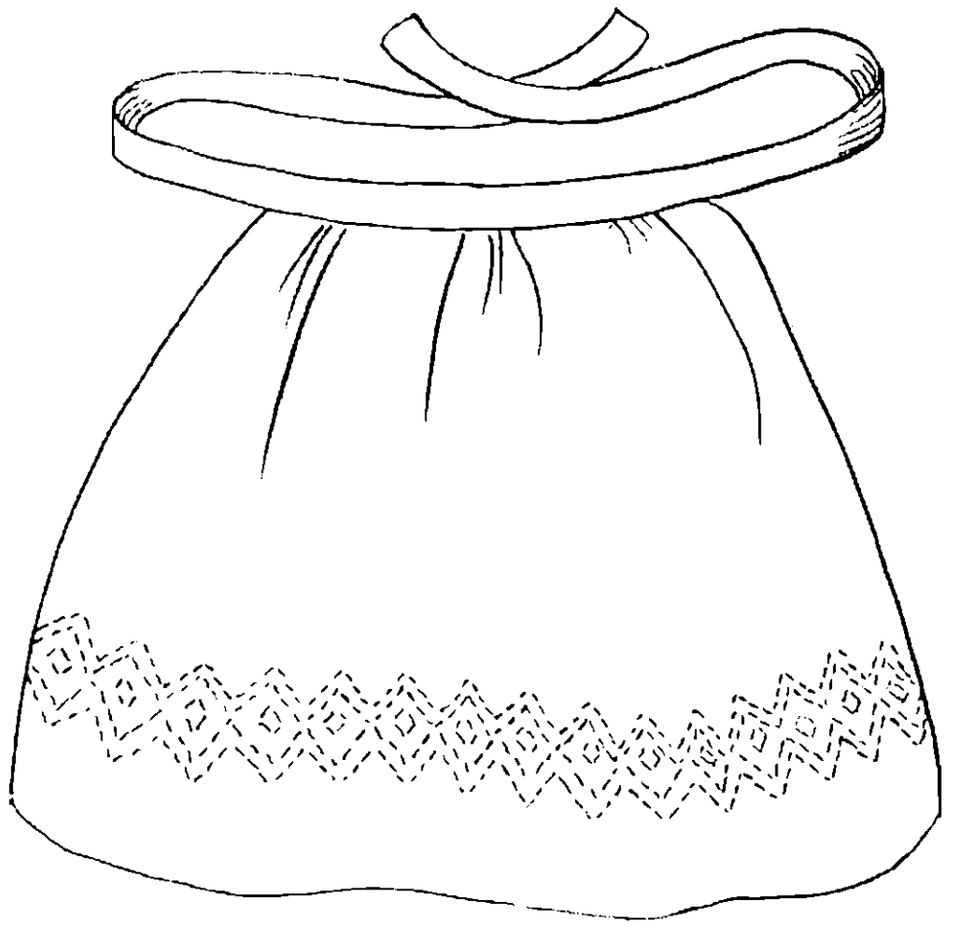
TYPE OF PROJECT	TYPE OF MATERIAL
Aprons	toweling, unbleached muslin, bleached muslin, gingham, percale, dimity
Babushkas	pongee, gingham, percale, silk, or wool
Bags for knitting, sewing, laundry, marbles, jacks, or beans	unbleached muslin, gingham, percale, cambric, burlap, felt
Bibs	toweling, unbleached muslin, percale, cambric, bleached muslin
Boleros	felt, burlap, percale, gingham, woolen materials
Caps	felt, woolen materials
Chair sets (antimacassars)	toweling, unbleached muslin, burlap, checked gingham, linen
Dolls	wire and cotton, felt, unbleached muslin or flesh-colored percale or cambric, silk hose, cotton hose, and underwear
Doll clothes	any material that does not fray easily—dimity, percale, muslin, cambric, felt, etc.
Lapel ornaments	felt, imitation leather, wool yarn, raffia
Luncheon sets	unbleached muslin, percale, gingham, Indian head cotton, linen, toweling, burlap
Mats	unbleached muslin, percale, gingham, Indian head cotton, linen, huck or crash toweling, burlap, raffia
Mittens	felt or woolen material that does not fray easily
Pictures	felt, percale, muslin, burlap, yarn on canvas
Pillow tops	felt, percale, burlap, muslin, cambric, gingham
Purses	art canvas, burlap, felt, huck toweling
Rugs	burlap, quilted baby pads, rags, yarn
Samplers	linen, Indian head cotton, muslin
Scarves (wearing apparel)	pongee, plain colored rayons, silks
Stuffed animals	felt, oilcloth, turkish toweling, percale, gingham
Suspenders	felt
Towels	huck toweling, cotton or linen crash toweling
Wall hangings	burlap, felt, unbleached muslin, percale, pongee

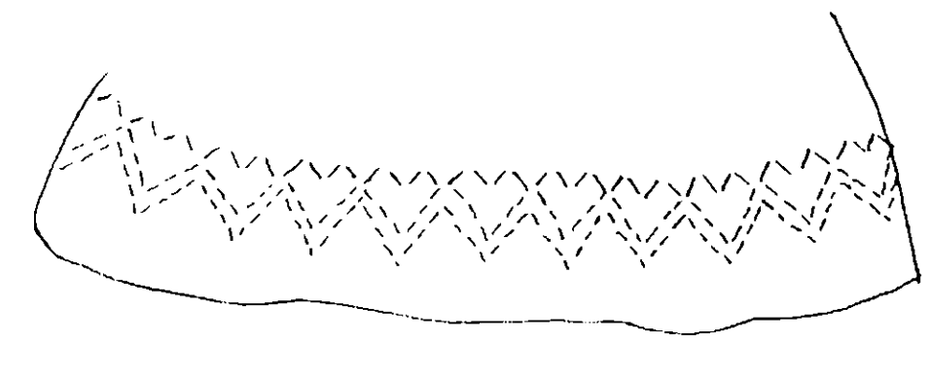
Most Effective Grade Placement of Textile Projects

GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Pictures on cloth (running stitch only)	Woven pot holders (jersey loops)	Bean bags Felt comb case Felt animals Reed basket (wood base) Raffia mat Indian bead weaving (bracelet)	Stocking doll Stuffed animals Felt belts Felt suspenders Indian bead weaving Tie dyeing	Apron Marble bags Handbag Doll clothes Hand puppet Felt purse Felt doll Reed mat Indian bead weaving (belt)	Baby bib Felt beanie Felt vest Felt bolero

SIMPLE APRONS







AN APRON MAKES an attractive and useful gift. Simple sewing plus decoration are involved. Girls in the fifth and sixth grades will enjoy making them. Boys will enjoy block printing or stenciling the cloth for aprons for their mothers.

Materials Needed

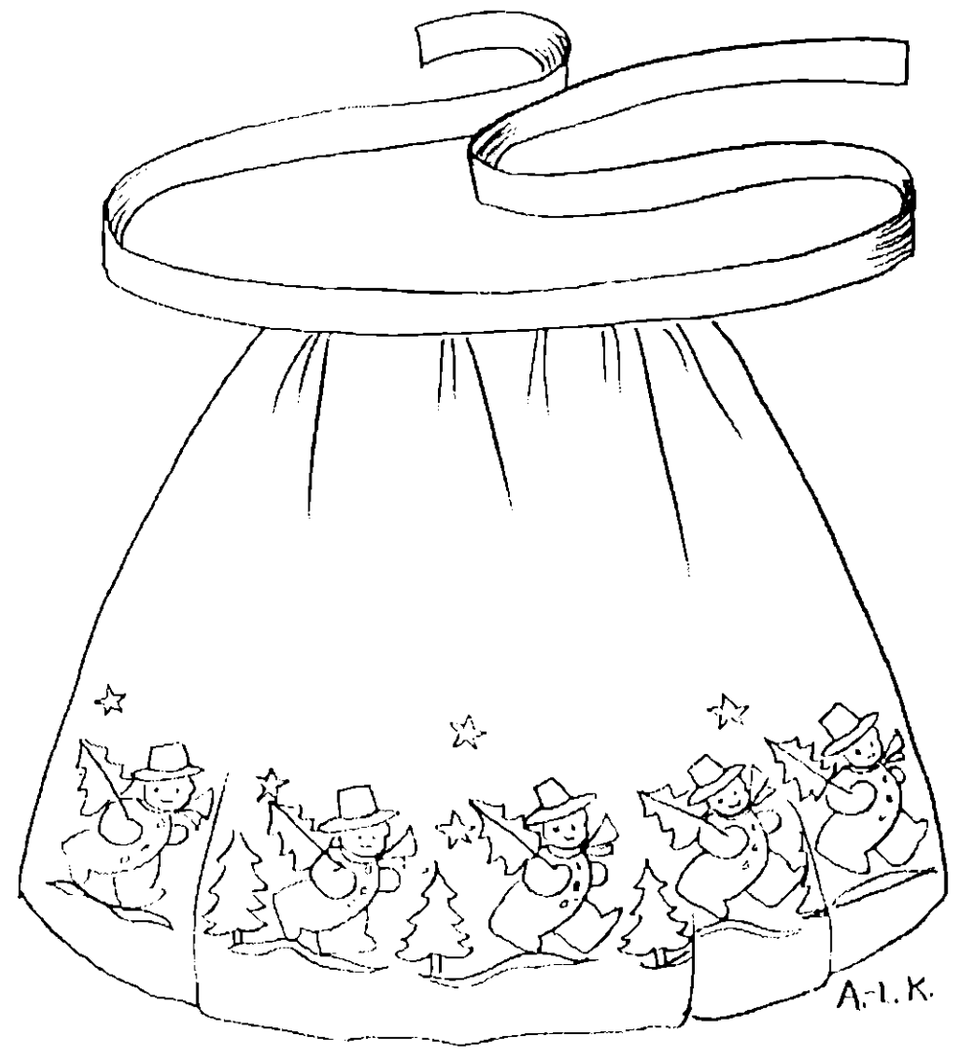
1 pc. Plain-colored cotton material, full width and 24″ long
1 pc. Matching material for belt, 3″ x 54″ (This may be pieced.)
Cotton thread to match the materials

Tools Needed

Scissors
Thimble
Needles
Tape measure
Pins

Skills Used

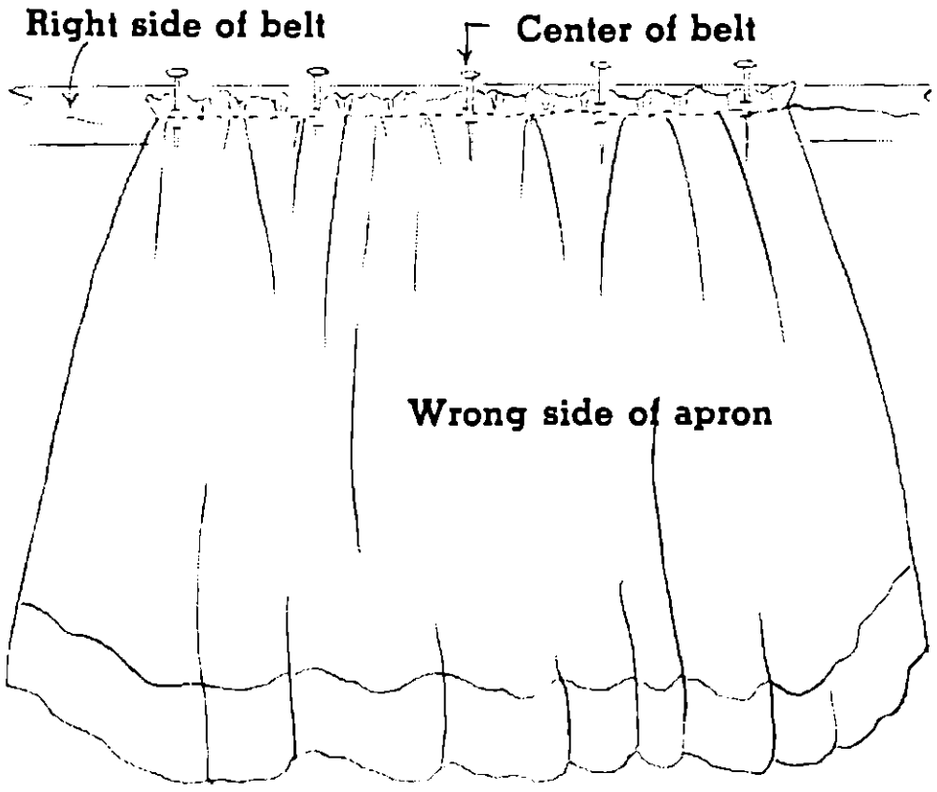
Tearing
Pinning
Hemming
Gathering



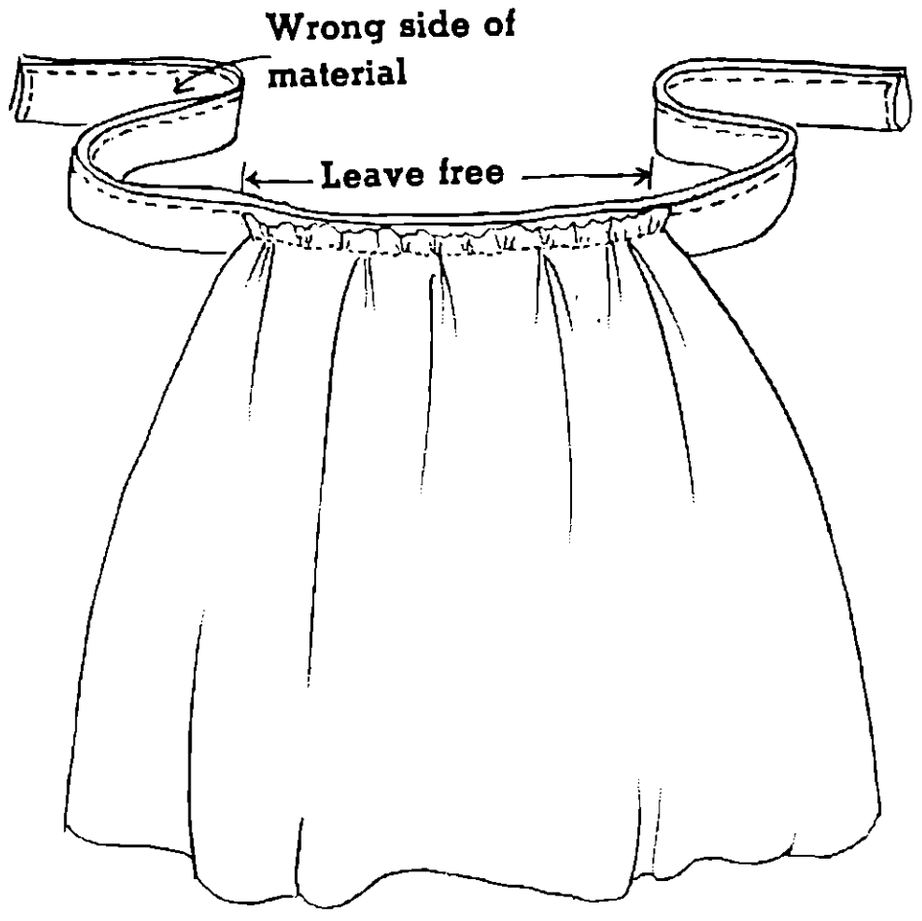
Aprons may be decorated with a block print, a woven border, or a stenciled design.

PROCEDURE

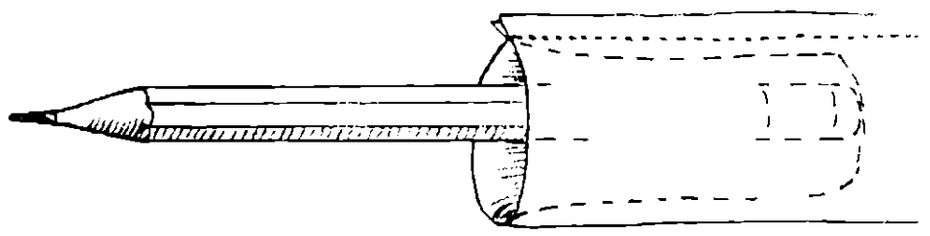
1. Use the full width of the material. Selvages will serve as side hems. Measure off 18″ for children who wear size 10 or 12, 21″ for sizes 14 and 16, and 24″ for sizes 18 and 20. Tear the material or pull threads and cut.
2. Turn up a 2″ hem at the bottom. First fold back ¼″, then 2″ of material. Pin, baste, and then use the hemming stitch shown on page 243. Remove the basting.
3. Design a border for the apron. This may be done in cross-stitch, in outline stitch, in running stitch, or in a combination of stitches. The design may be block-printed or stenciled. Bias tape or rick rack may be appliquéd.
4. Apply the border design. All printing or stitching should be done before the next step.
5. Mark the center of the top of the apron with a pencil. Run a gathering thread across the top of the apron. Pull up the gathers to 18″ in length.
6. Pin the right side of the gathers to the right side of the belt. Match the center of the apron to the center of the belt. Adjust the gathers to make them even. Baste. Sew together along gathering line with a back stitch or with a combination stitch.



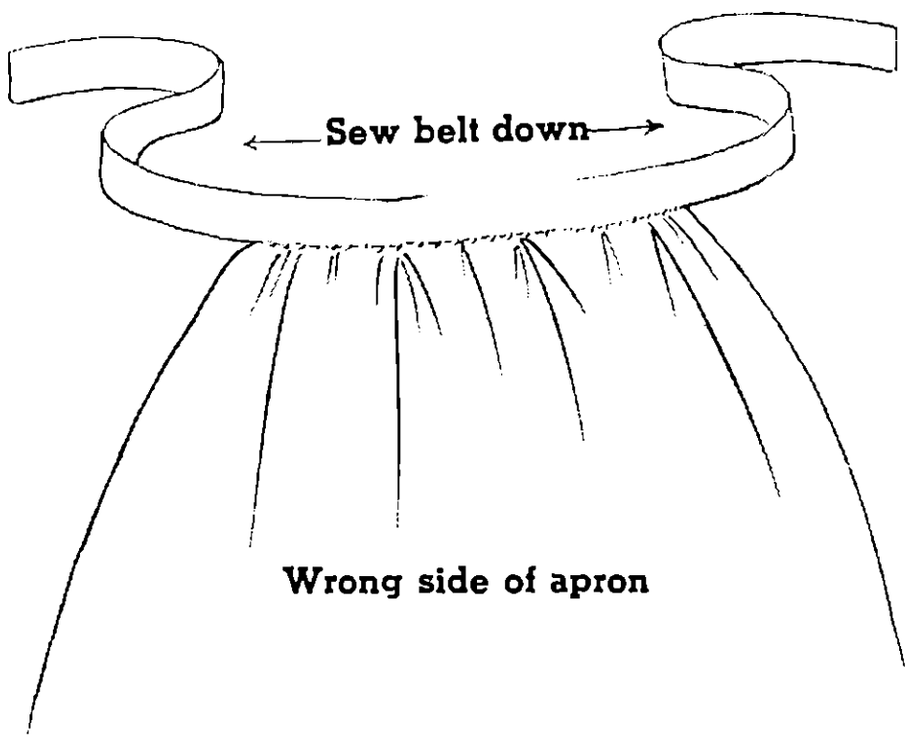
7. Fold the right sides of the belt ties together. Pin and baste in place. Sew with the combination stitch ¼″ from the edge.



8. Turn the belt ties right side out. Pull the eraser end of a pencil down through the belt, turning the material right side out.

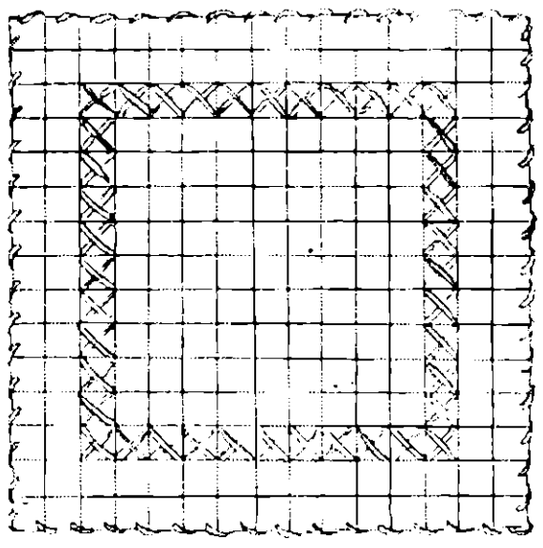


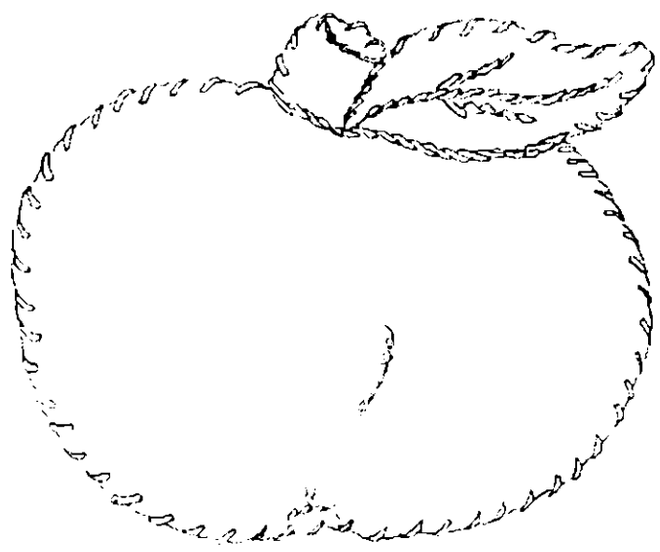
9. Finish the section of the belt over the gathers. Turn back the raw edge ¼″ and baste. Pin and baste this edge over the gathers. Sew in place.

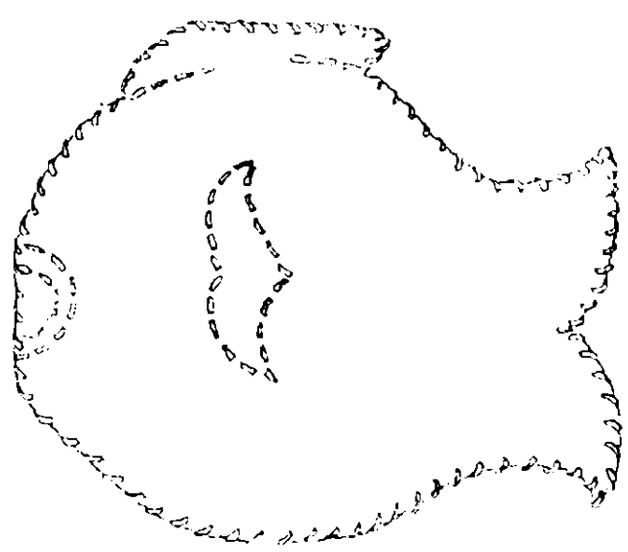


10. If the material is soiled, wash and iron the apron. If the material is clean, dampen the apron and press it.

BEAN BAGS







BEAN BAGS ARE fun whether they are plain or decorative. Every youngster knows several games to play with bean bags. Third and fourth graders enjoy making and playing with them. Fifth and sixth graders will want to make them for gifts. However, they will toss them back and forth a few times, too.

Materials Needed

2 pcs. Percale, muslin, or felt, 7″ square
Strong thread (No. 40 or heavy duty thread)
1# Dry beans or split peas
7″ Square of paper
Colored embroidery threads

Tools Needed

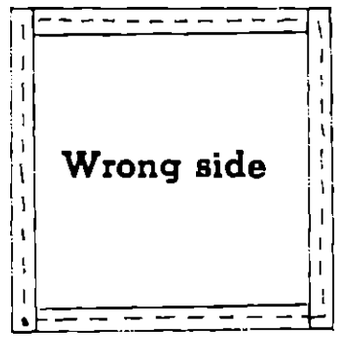
Scissors
Needles
Pins
Thimble

Skills Used

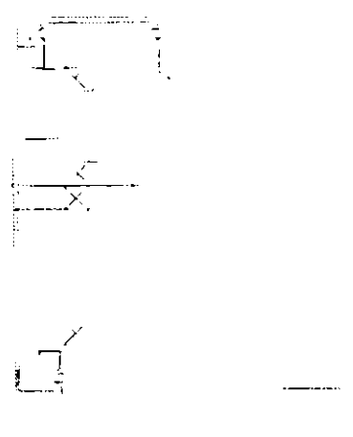
Cutting
Basting
Pinning
Sewing—various simple stitches

PROCEDURE

1. Cut a pattern for the bean bag from a 7″ square of paper. Three designs are suggested here. Others may be used. Keep the design simple in outline, using as much of the 7″ square as possible.
2. Pin the pattern on the material. Cut the material to shape. Do this with both pieces.
3. Make the decorative stitches. For example, do the cross-stitch on the gingham, the outline stitch on the veins and other lines of the apple, or the running stitches on the lines in the fish.
4. Turn back ¼″ all around the edges of each piece of material. Crease and baste. This step is omitted if felt is used since the edges of felt will not fray.

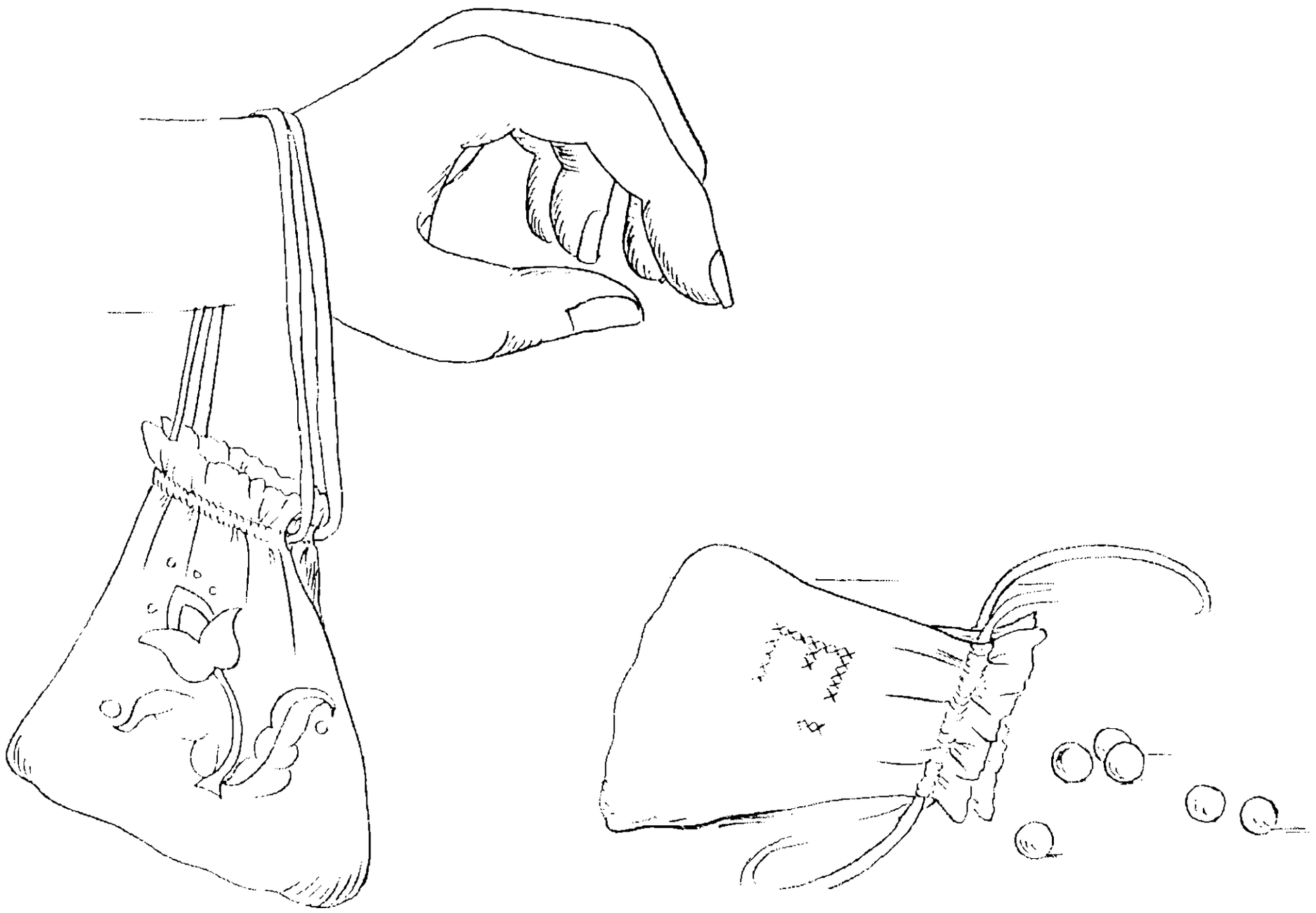


5. Pin the two pieces together, matching the edges and corners. Keep right sides out, wrong sides in. Baste together. Remove the pins.



6. Use the overcasting stitch (see page 243) to sew the edges together. Leave 2″ open so that beans or peas may be poured in.
7. Fill the bean bag. Do not overstuff. Bean bags should be fairly limp.
8. Overcast the rest of the edge.
9. Remove all bastings.

MARBLE BAG OR HANDBAG



THE SIMPLE DRAWSTRING bag becomes a marble bag, a handbag, or a knitting bag, depending on who makes it. Boys will want gingham, denim, or dark-colored percales for the marble bags. The girls have a greater choice of materials. Monk's cloth, linen, Indian head, percale, crash toweling, or unbleached muslin may be used. Bags may be left plain or decorated with monograms or designs. These may be embroidered, block printed, or stenciled.

Materials Needed for Marble Bag

1 pc. Cloth, 7″ x 20″
1 pr. 24″ Shoelaces, or 2 pcs. ½″ cotton twill tape 24″ long
Thread, No. 40 or heavy duty
Colored embroidery thread

Materials Needed for Handbag

1 pc. Cloth, 15″ x 27″, or 1 pc. cloth 12″ x 24″
2 pcs. ½″ Cotton twill tape, 36″ long
Thread, No. 40 or heavy duty

Tools Needed

Needle
Pins
Tape line
Scissors
Thimble
Safety pin

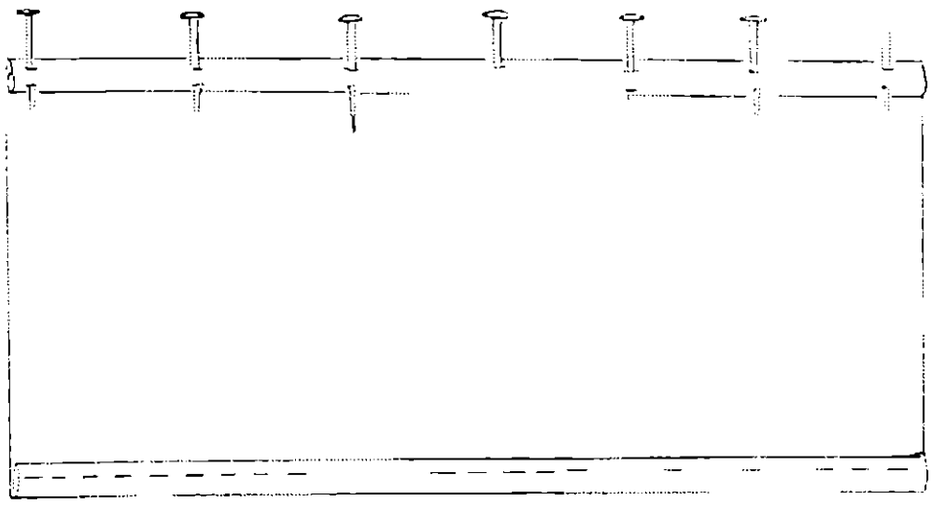
Skills Used

Measuring
Cutting
Making a hem
Making a casing
Overcasting
Putting in a drawstring

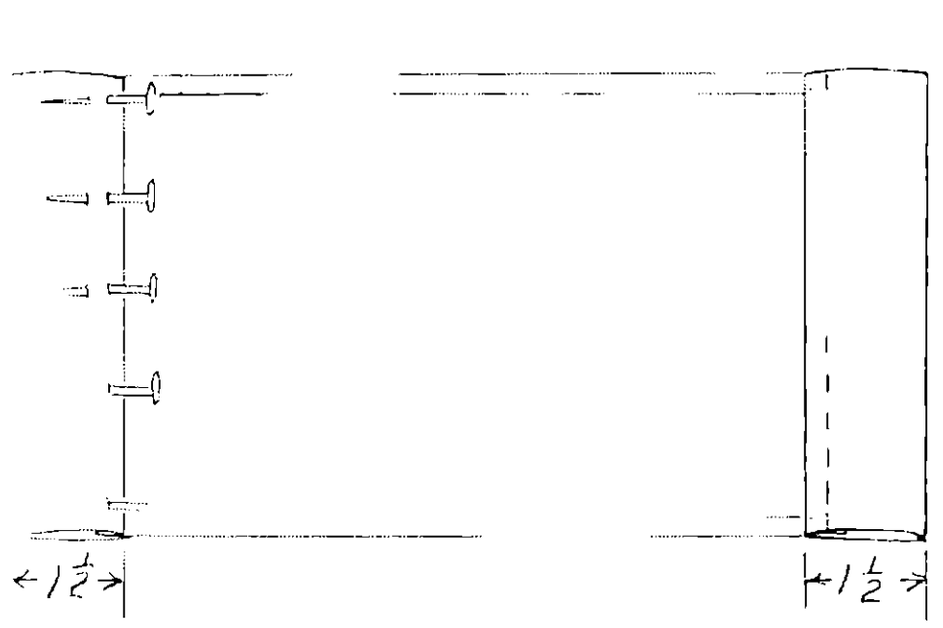
PROCEDURE

1. Measure the material. Tear to size or pull a thread and cut along that thread.

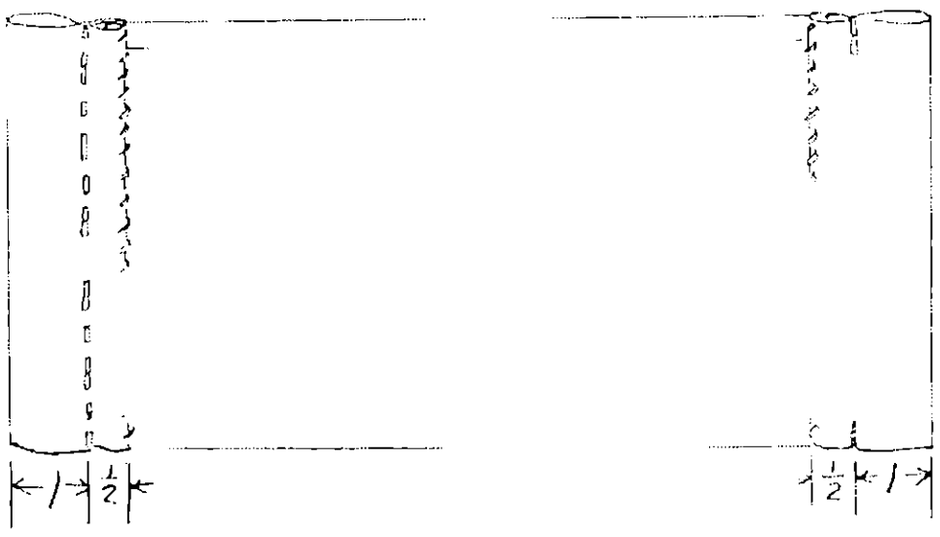
2. Make a ¼″ hem along the two long sides. Fold the material back ¼″ and crease. Fold back another ¼″ and crease. Pin, baste, and hem. Pull out the bastings.



3. Make a 1½″ hem at the top and bottom. Fold the material back ¼″ and crease, then down 1½″ and crease. Pin, baste, and hem. Leave the ends of these wide hems open. Pull out the bastings.

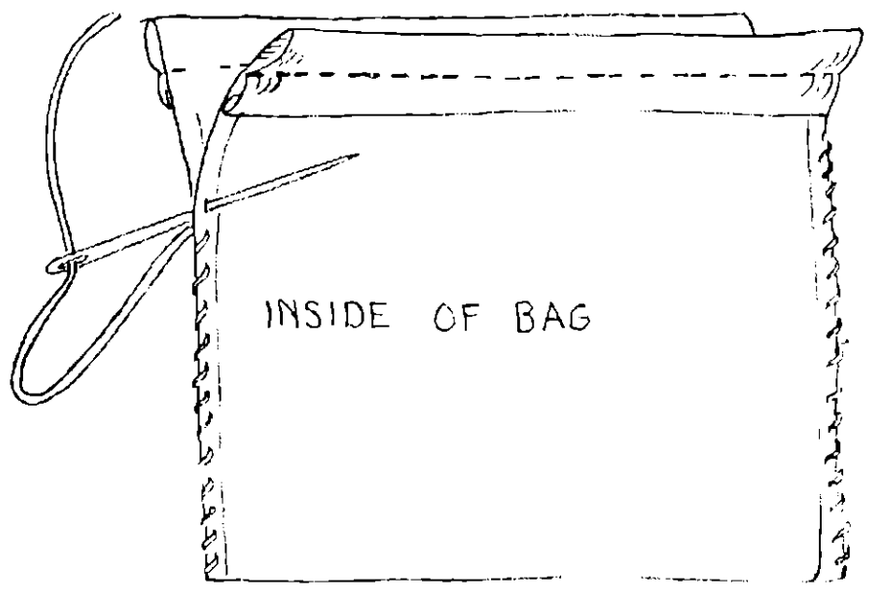


4. Make the casing. Use the combination stitch to sew ½″ above the hemming stitch on both 1½″ hems.

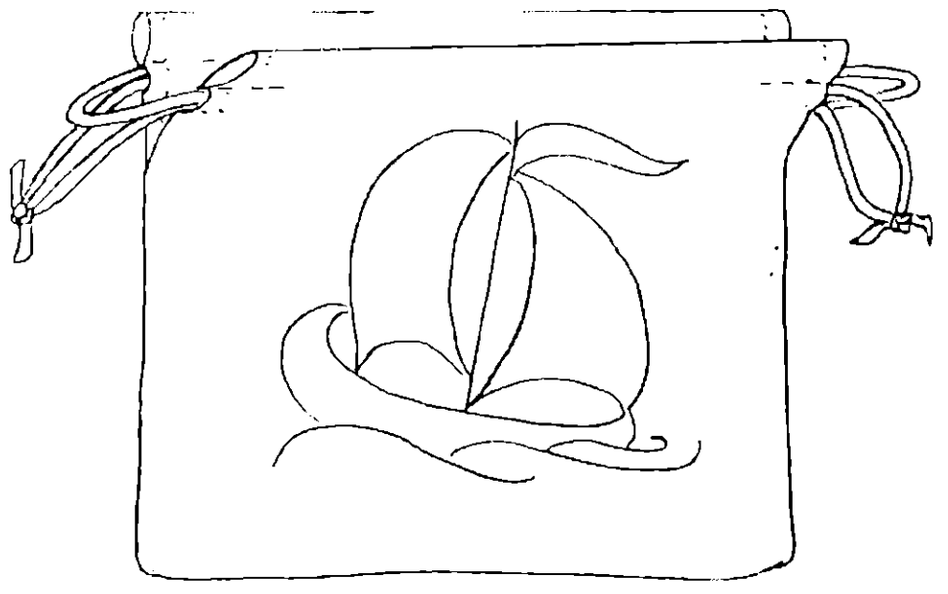


5. Apply the decoration. Use cross-stitch or outline stitch monograms, or stenciled or block-printed initials on the marble bags. Use flower, bird, or other designs on the handbag. Embroider, block print, or stencil these designs.

6. Sew up the sides. Bring the right sides of the bag together, wrong sides out. Overcast the edges of the bag up to the casing. Leave the hem and casing free of stitches. Make several stitches at the top and fasten the thread securely to prevent ripping. Turn right side out.

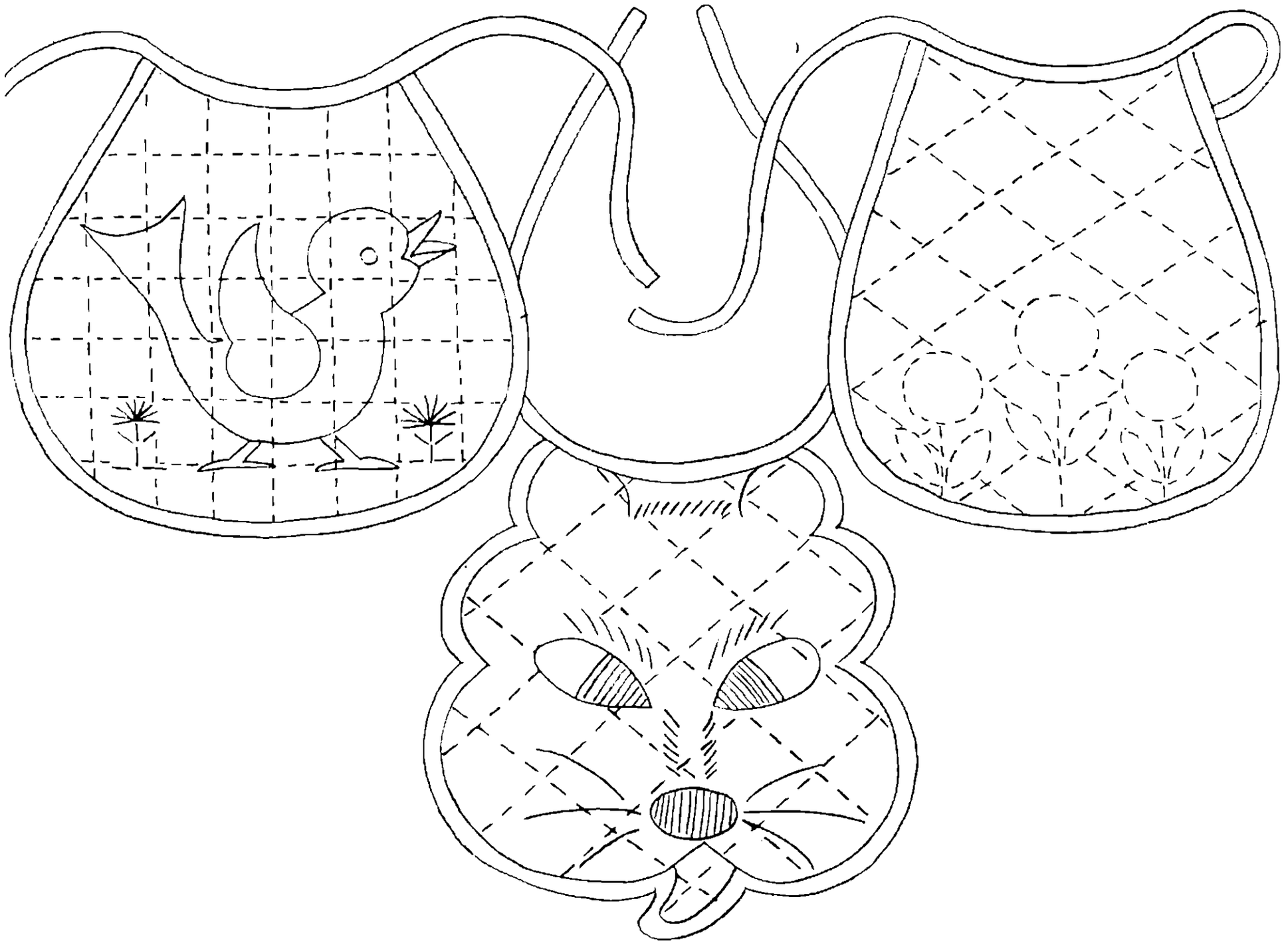


7. Insert the draw string in the casing. Pin a safety pin on one end of the tape. Run one tape in from one side, clear around the bag and back to the starting point. Sew or tie the ends of the tape together. Start the other tape on the other side of the bag. Run the tape through both sides of the bag. Sew or tie the ends of the tape together.



8. If the bag is soiled, wash and iron it. If the material is clean, dampen and press it.

BABY BIB



CHILDREN ENJOY MAKING gifts. Almost all of them have a baby sister or brother or an infant cousin for whom the baby bib described here is a practical gift. It may be as attractive as the child wishes to make it. Its beauty will depend as much on workmanship as on the design.

Use any soft material such as outing flannel, checked gingham, muslin, percale, or batiste. Simple outline designs of birds, flowers, animals, or fish may be embroidered on the bib. The design may be stenciled if so desired. The bibs are lined with outing flannel to make them absorbent.

Materials Needed

1 pc. Paper, 8″ x 10″
1 pc. Material for outside of bib, 8″ x 10″
1 pc. Outing flannel for lining bib, 8″ x 10″
1 pc. Binding (colored bias tape), 36″ long
1 pc. Binding (to match), 20″ long
Colored embroidery threads
Thread to match bib material

Tools Needed

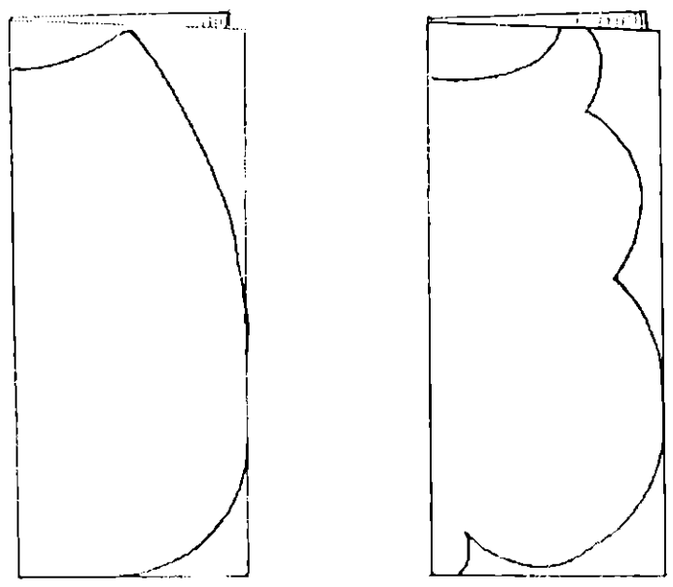
Needle
Pins
Scissors
Ruler and pencil

Skills Used

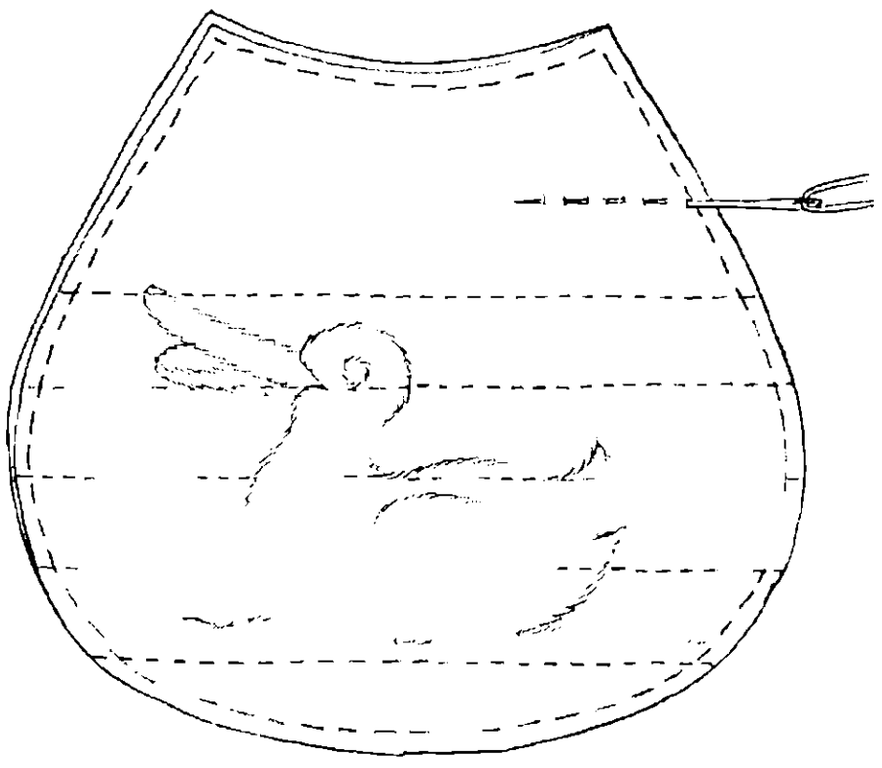
Cutting
Embroidering
Quilting
Putting on a binding

PROCEDURE

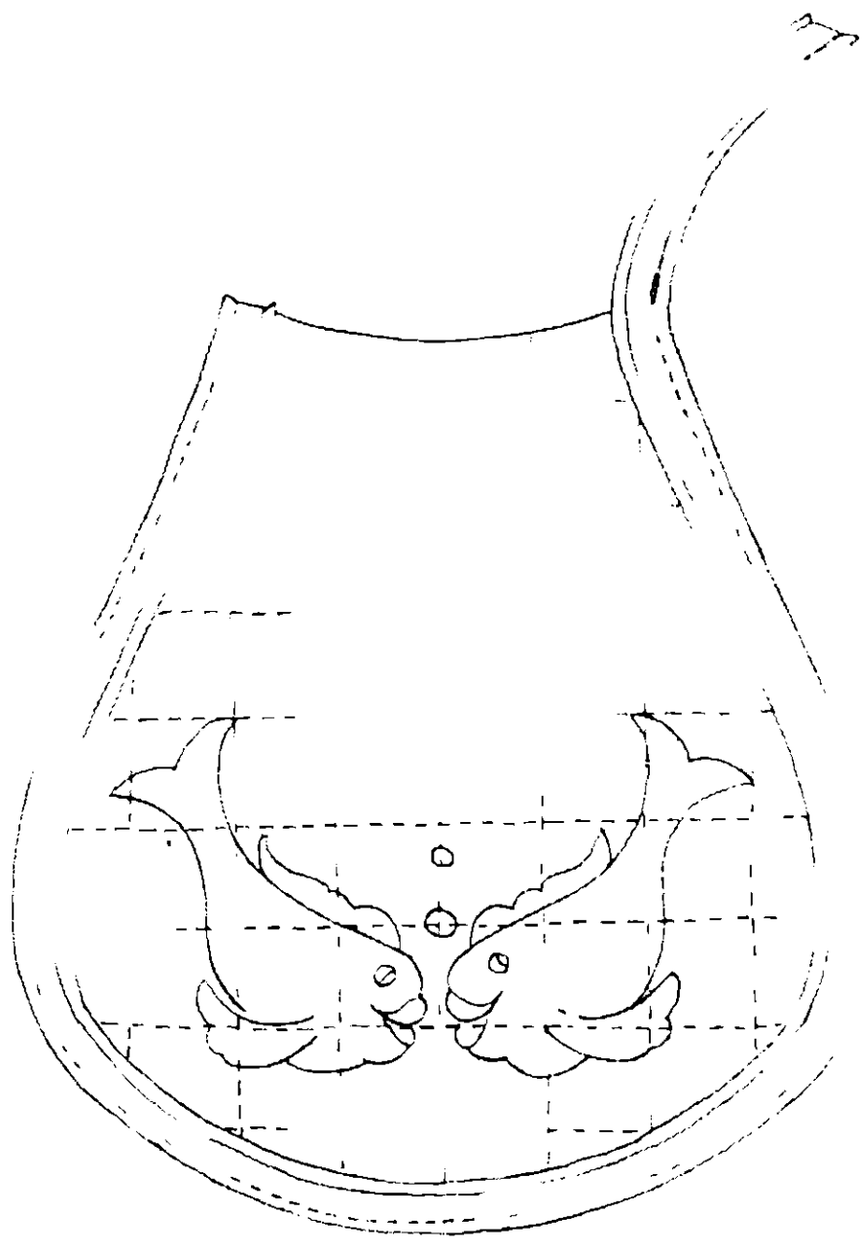
1. Fold the paper in half lengthwise and cut a pattern.



2. Pin the pattern on the bib material and cut it out.
3. Draw a simple embroidery design on the paper pattern. Trace it on the bib material. Embroider it with colored threads, using the running stitch, back stitch, outline stitch, or a combination of simple stitches. A stencil design might be used on the bib instead of embroidery.
4. Press the embroidery or stencil work.
5. Pin the decorated piece to the lining. Cut the lining to match. Leave the pieces pinned together.
6. Baste the two pieces together all around the edges.
7. Quilt the two pieces together. Use a ruler and pencil to mark off the material into 1″ squares. These may be set straight on the material or drawn diagonally. Sew along these lines with small running stitches, sewing through both pieces of material. Use ordinary sewing thread for quilting the bib material to the lining.

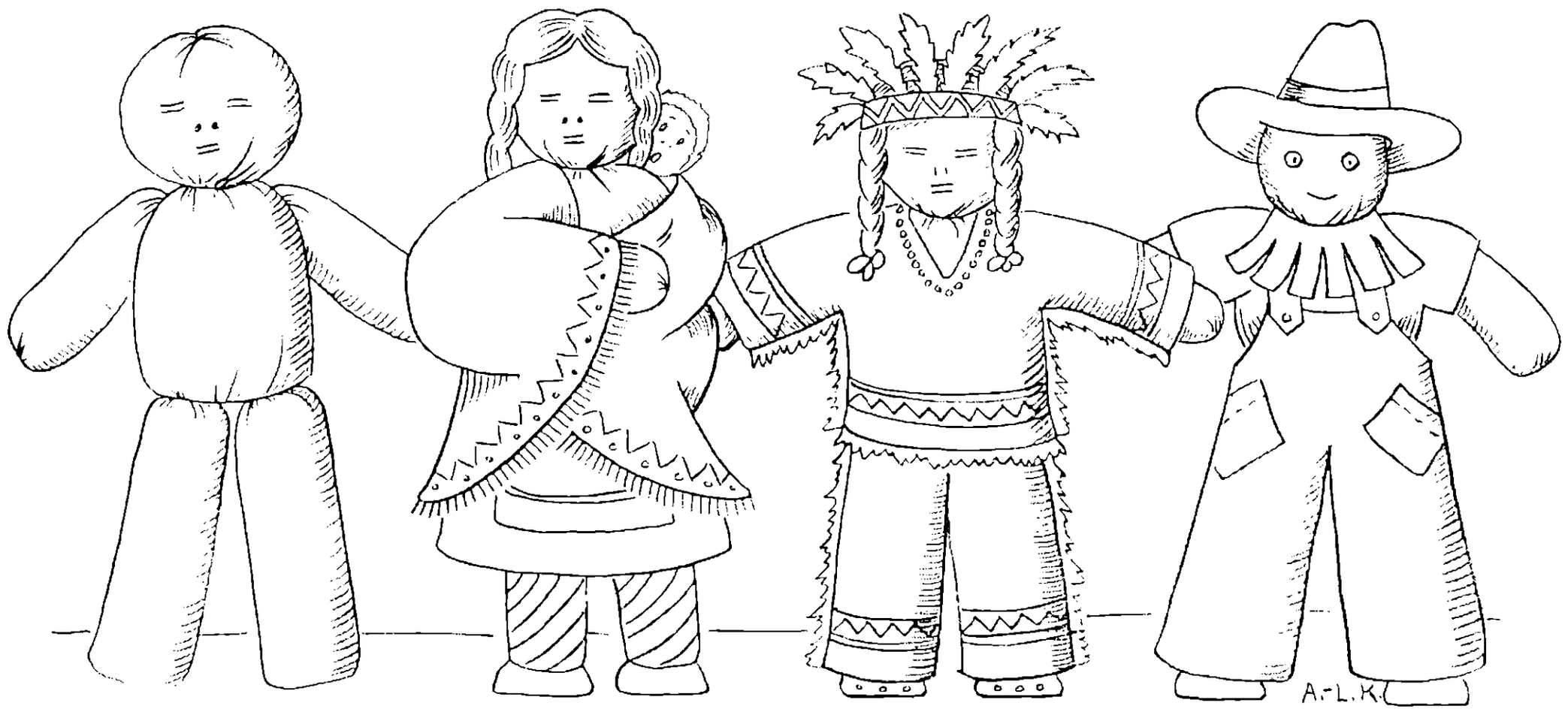


8. Bind all edges except the neckline. Open the 36″ piece of folded bias tape. Sew the right side of the tape to the right side of the bib. Stitches should fall along the crease on the tape. Use a small running stitch or the combination stitch.

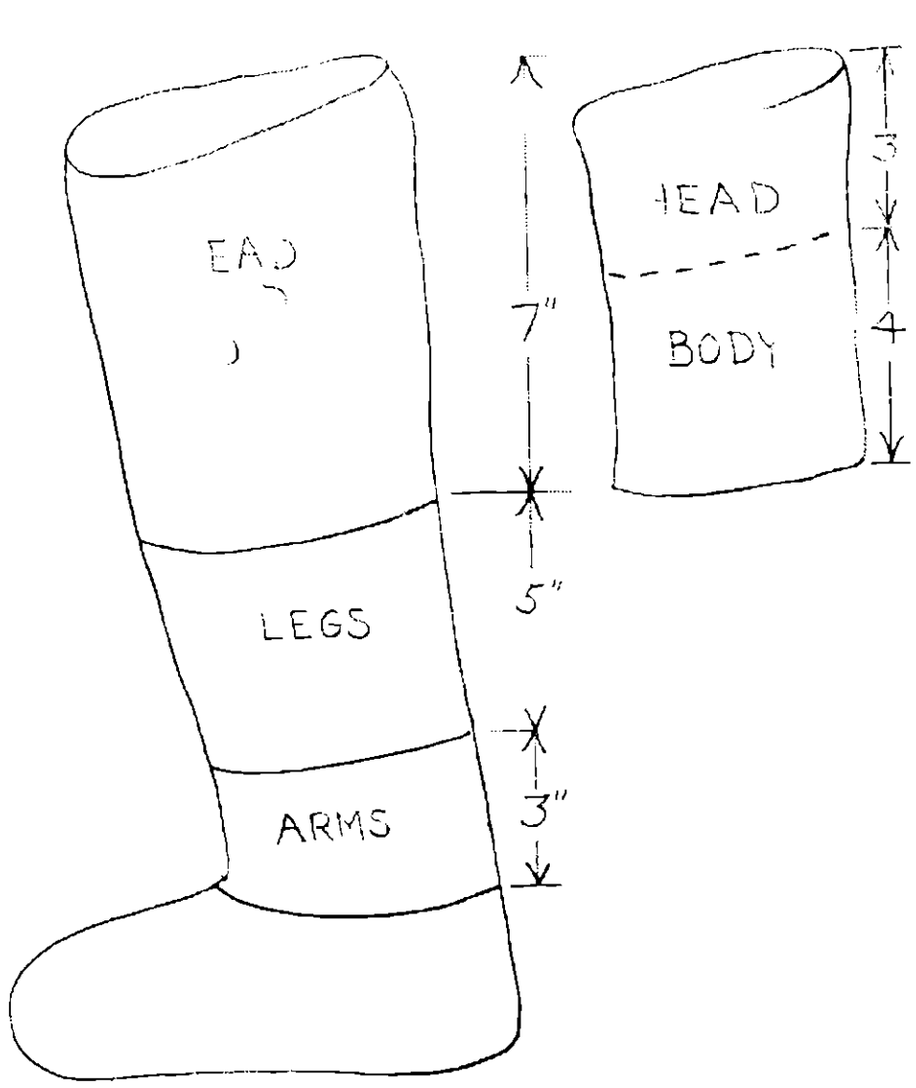


9. Fold the bias tape over to the underside of the bib. Sew the folded edge of the tape to the lining. Make the stitches fall along the line formed by the previous stitches. Half the width of the bias tape should show on each side of the bib.
10. Bind the neck and make the ties. Put a pin at the center of the neck line on the bib. Find the center of the tape. Pin the right side of the tape to the right side of the bib, matching centers. Do *not* cut off the tie ends. Sew the binding to the right side of the bib. Turn the binding over the edge and sew it to the wrong side of the bib. Sew the edges of the ties together with an overcasting stitch. Use thread to match the tape.
11. Wash and iron before giving the bib to the baby.

A DOLL MADE FROM A STOCKING



"STOCKING SALLY" is one of the easiest stuffed toys to make. Her character changes with her costume. One cotton stocking at least 15″ in length will make a doll. White stockings may be dyed flesh color before using. Tan stockings make a good skin color. Black stockings may also be used.



Materials Needed

1 Cotton stocking at least 15″ long
1 Small skein or ball of hair-colored yarn
Thread, No. 40 or heavy duty
Red and black embroidery thread

Tools Needed

Needle
Thimble
Scissors
Ruler

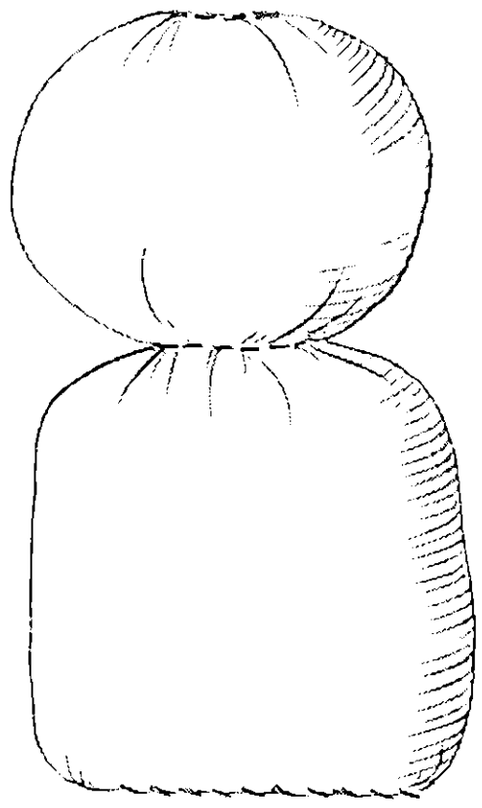
Skills Used

Measuring
Cutting
Embroidering
Sewing
Stuffing
Braiding yarn

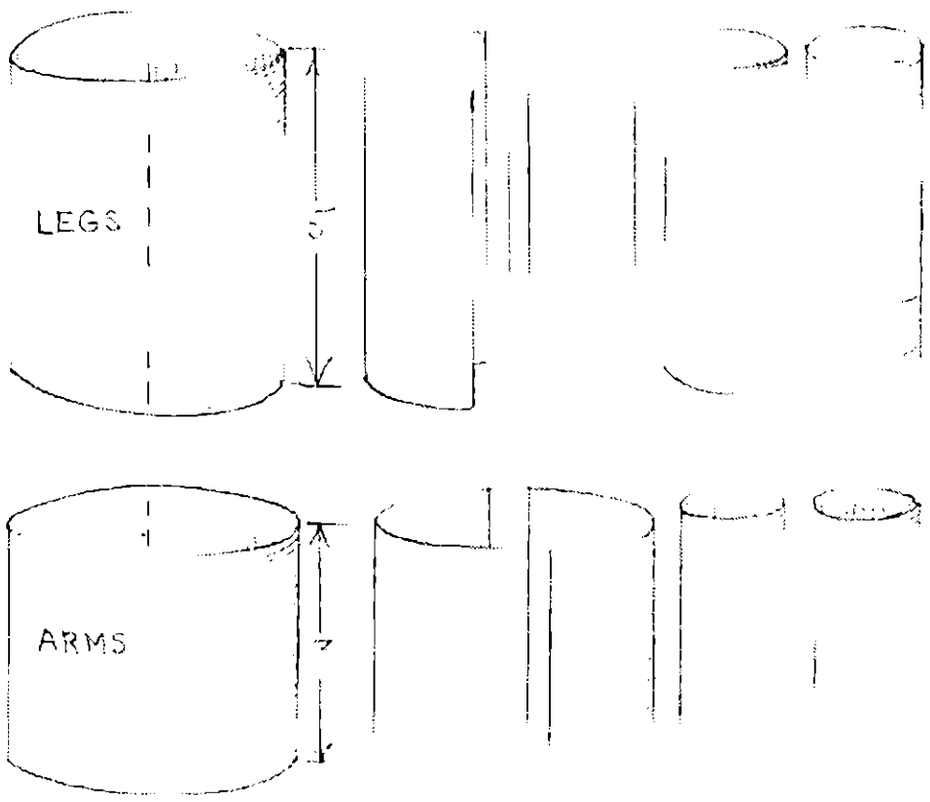
PROCEDURE

1. Measure off 7″ at the top of the stocking. Cut off for the head and body piece. Measure and cut off 5″ for the legs and 3″ for the arms.
2. Run a double gathering thread around the top of the head. Pull the thread up tight, fasten securely, overcast the edges together, and fasten again. Turn this piece right side out, seam on the inside.
3. Run a gathering thread around the neck, 3″ below the top of the head. Use a double thread for strength.

4. Stuff the head with cotton. Pull up the gathering thread to make the neck. Fasten the thread securely. Stuff the body. Sew the open ends together with an overcasting stitch.

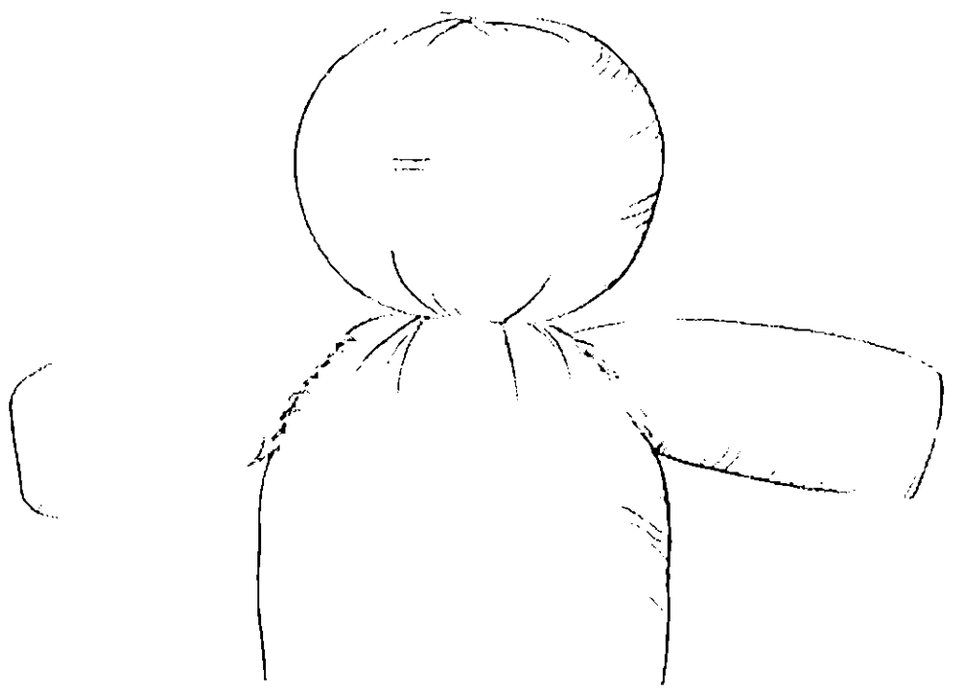


5. Cut the 5″ piece in half lengthwise. Use each piece to make a long tube for a leg. Sew together lengthwise and across the bottom, using a small combination stitch. Do the same to make the arms. Turn right side out.

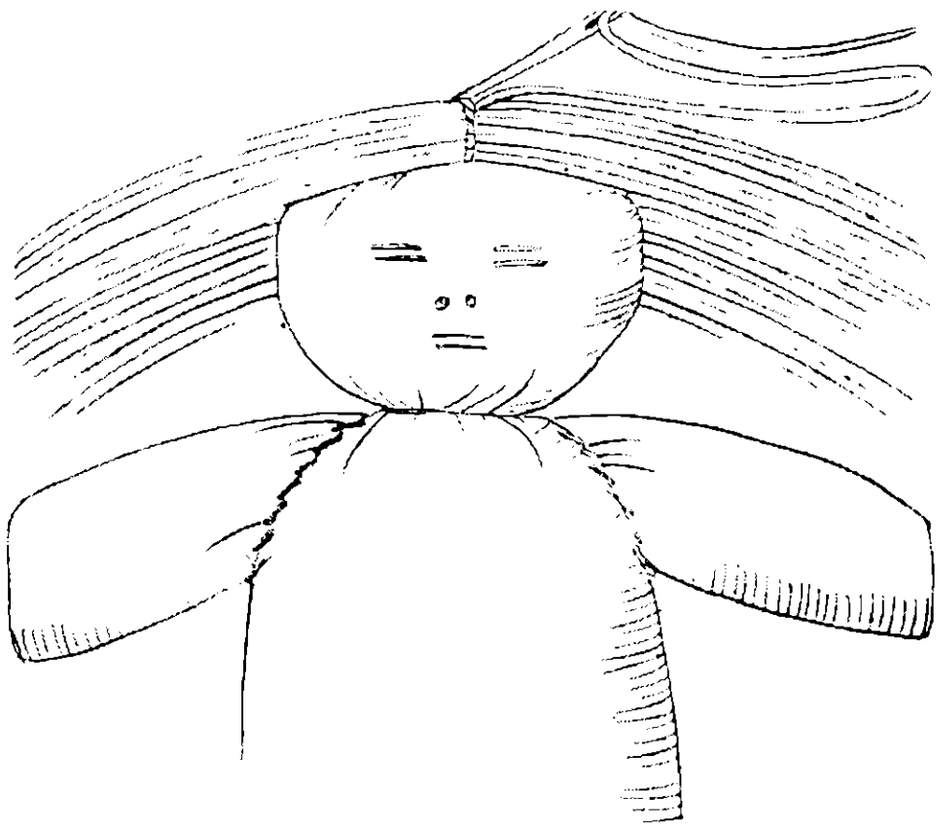


6. Stuff the arms and legs. Sew the ends shut with the overcasting stitch.
7. Sew the arms and legs securely to the body. Attach the overcast end of each leg and arm to the body piece. The doll clothes will cover the rough edges.

8. Embroider a face on the doll. Use two black stitches for each eye, two tiny French knots for the nose. Use two red stitches for the mouth. Eyes should be halfway down the head and close together.

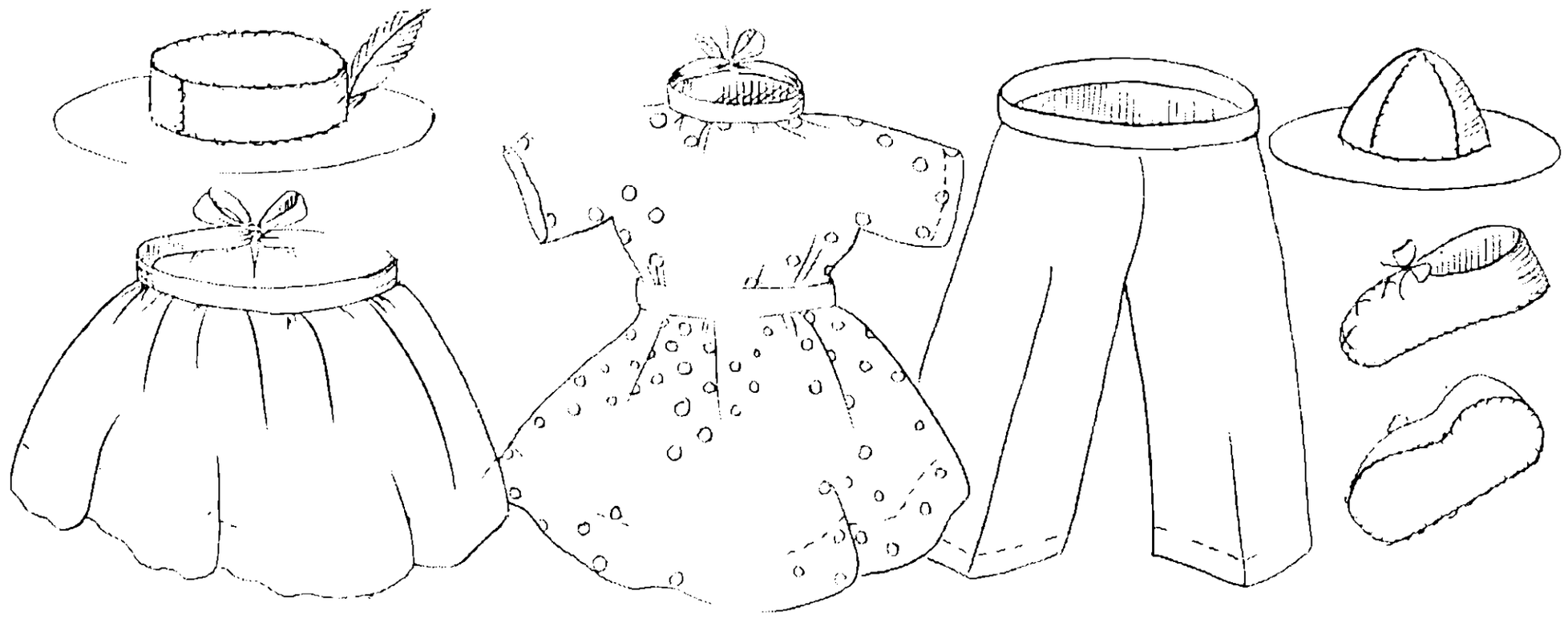


9. Make the hair. Cut pieces of yarn 9″ to 12″ in length, depending on the length of braid desired. Lay strands of hair over the head beginning at the top of the forehead or hair line. Sew in place. Use thin thread in a matching color and a backstitch or outline stitch to sew the yarn to the head. The stitching will make a center part. Braid the hair and tie with ribbons.



10. Dress the doll. Directions for making doll clothes are given on the following pages.

DOLL CLOTHES



THE SUGGESTIONS given here are for making clothes or costumes for the wooden doll on page 201, the wire doll on page 133, or for the stocking doll just described. Directions are given for making dresses, blouses, shirts, skirts, trousers, and shoes. The children may wish to add boleros, vests, hats, and coats. Suggested patterns are included for these.

Felt is an ideal material for the younger children to use in making doll clothes since none of the edges need to be hemmed or finished. It does not fray. The pinking shears may be used to finish the hems of skirts, shirts, blouses, aprons, and dresses. This eliminates some of the sewing.

Materials Needed

Thread
Felt for shoes, hats, etc.
Small pieces of material that do not ravel easily—felt, percale, muslin, gingham

Tools Needed

Tapeline
Scissors
Pins
Needle
Thimble

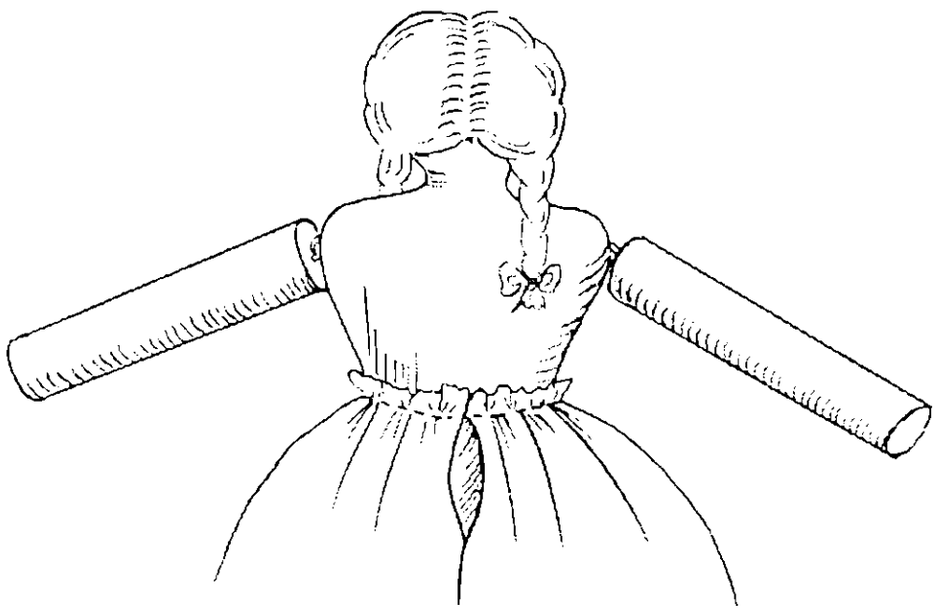
Skills Used

Measuring
Cutting
Marking seams
Gathering
Hemming

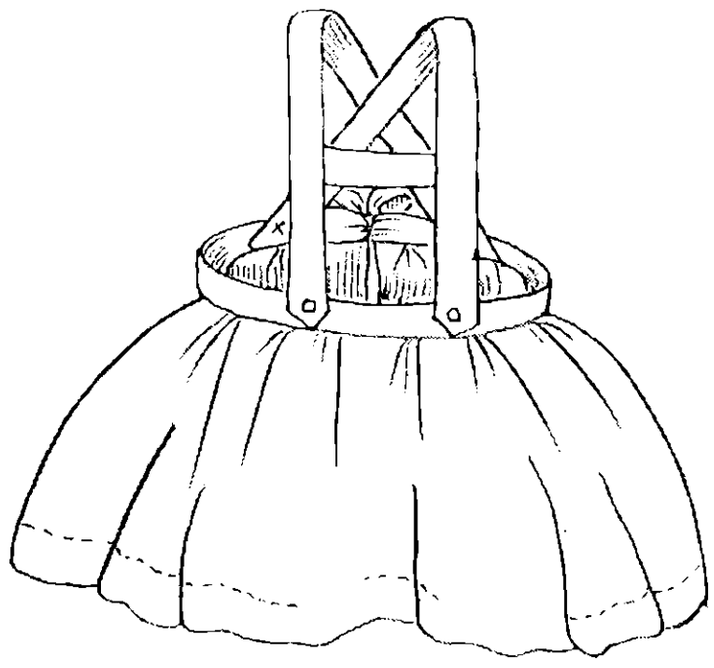
PROCEDURES

A Skirt

1. The material should be three times as wide as the waistline. For example, if the doll's waistline measures 6″, cut the skirt 18″ wide. Cut it 1″ longer than the desired length. Cut the belt 1″ wide and 8″ longer than the waistline. This allows for ties and makes buttonholes unnecessary.
2. Sew the short sides of the skirt piece together with the combination stitch. Leave 1″ open at the top for a placket.
3. Fold up ¼″, then ¾″ to make the hem. Sew with the hemming stitch.
4. Mark the center front of the skirt. Placket goes in center back.
5. Run a gathering thread around the top of the skirt. Pull up the gathers to fit the waistline of the doll. Fasten the thread securely.

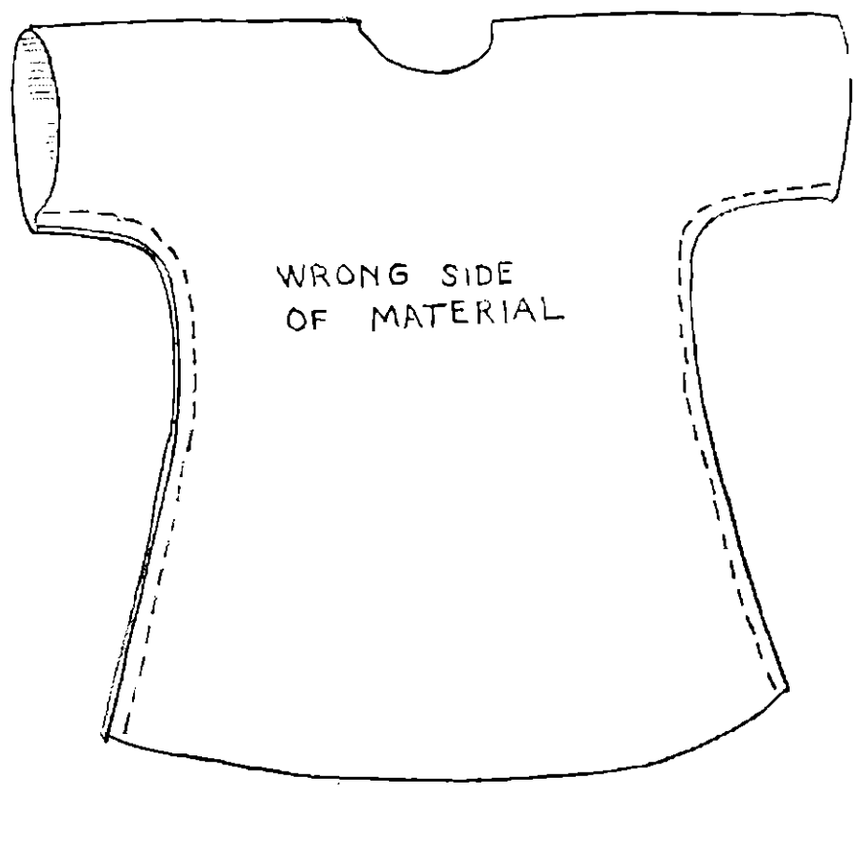


6. Find the center of the belt. Pin the right side of the belt to the right side of the skirt, matching centers. Finish the belt as described in steps 6, 7, 8, and 9, page 248, putting a belt on an apron.
7. Shoulder straps may be added as shown.

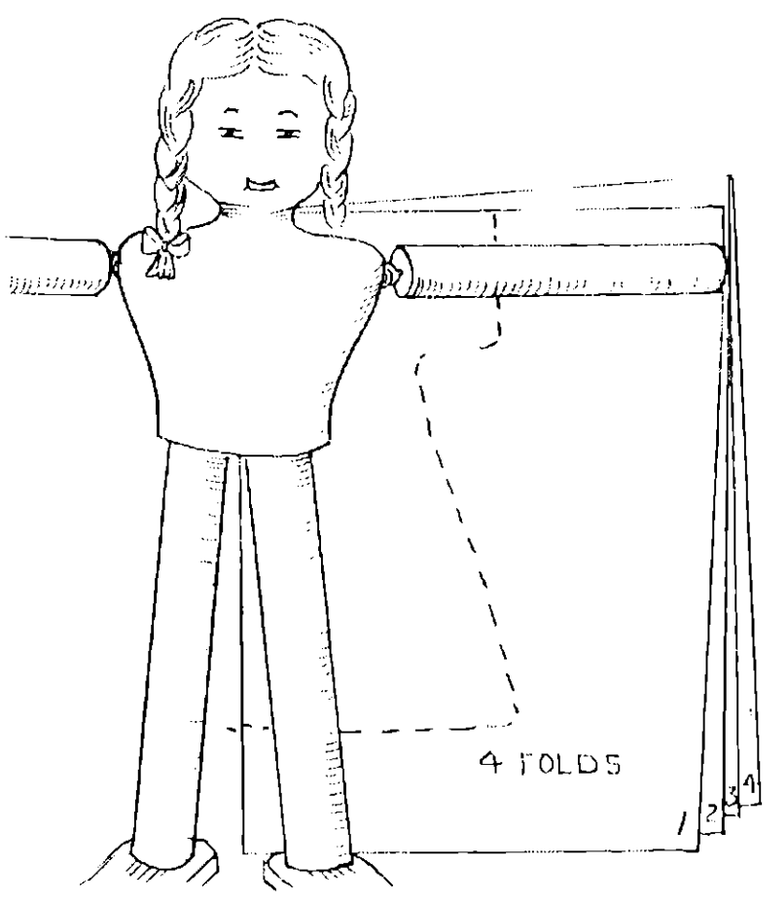


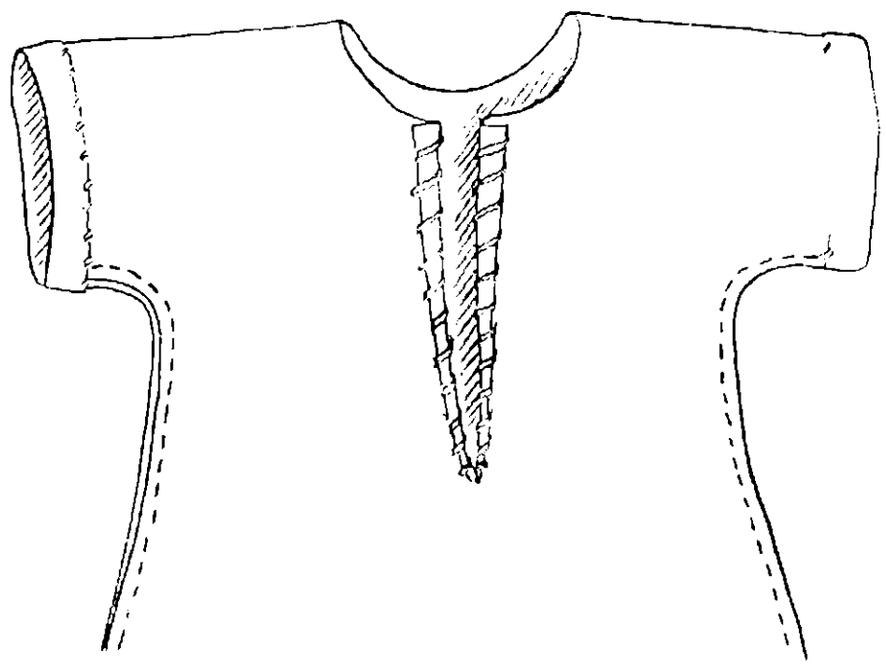
A Blouse or Dress

1. The simplest style is that of the kimono sleeve. Cut the dress shorter to make a blouse. Use a ribbon sash or tiny leather belt to draw up the gathers or folds of material at the waistline.
2. Cut a paper pattern. Use a piece of paper twice as long as the doll and as wide as from finger tip to finger tip when the arms are spread out. Fold in half lengthwise. Then fold in half crosswise. Place the center of the doll on the long fold and the shoulders on the short fold. Draw around doll, allowing ¼″ for seams, ½″ for sleeve hems, and 1″ for the skirt hem. The dress should fit loosely. Cut out the neck. Be careful not to make the hole too large. Cut out the pattern. Keep the paper folded while cutting.
3. Pin the pattern on the cloth. Cut around the pattern.
4. Sew the side seams together.



5. Hem the sleeves. Fold back ¼″, then another ¼″, and hem.
6. Hem the skirt. Fold up ¼″, then ¾″, and hem.
7. Cut a 2″ slit down the back of the dress for a placket. Turn back ⅛″ along the placket and overcast.

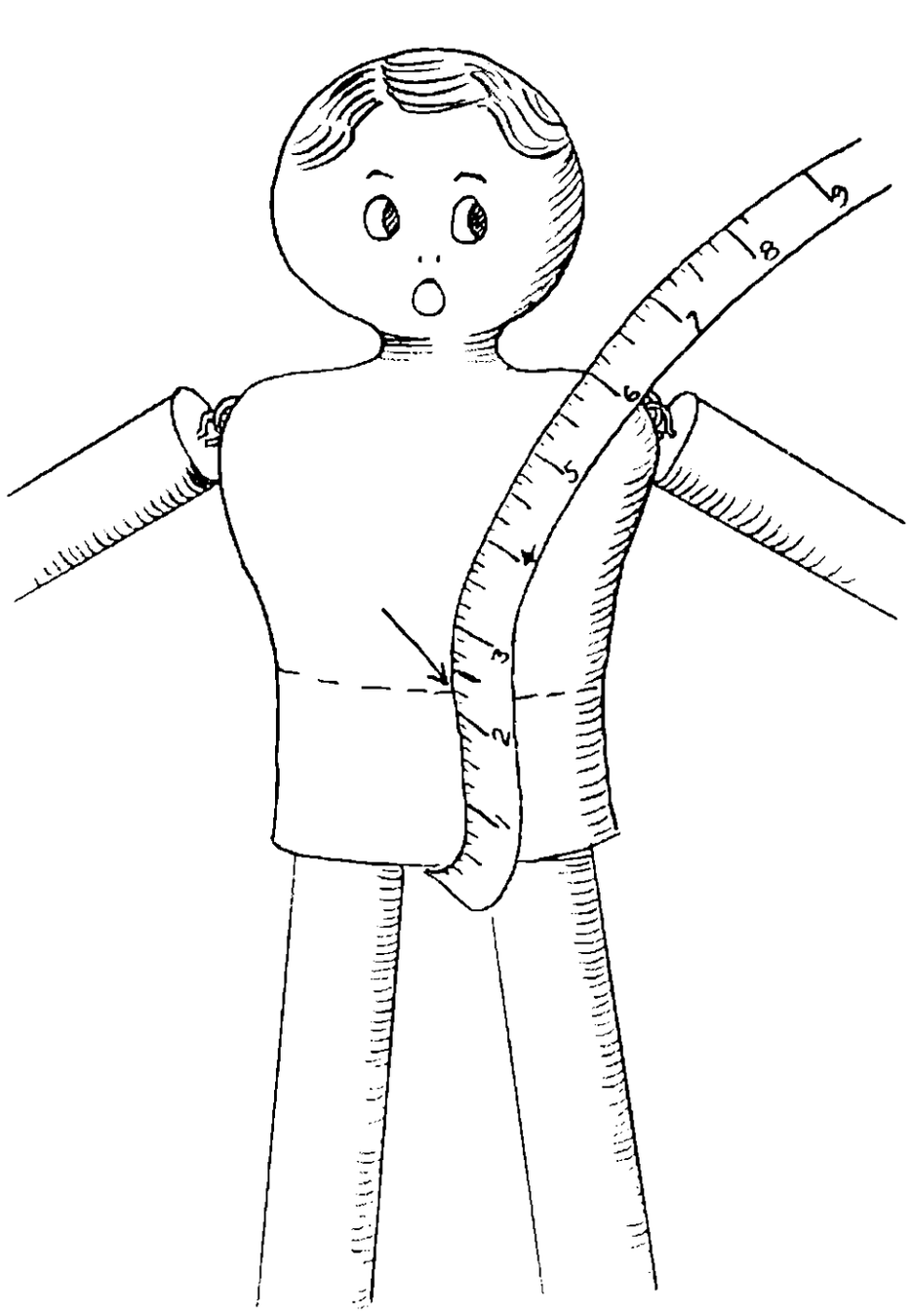




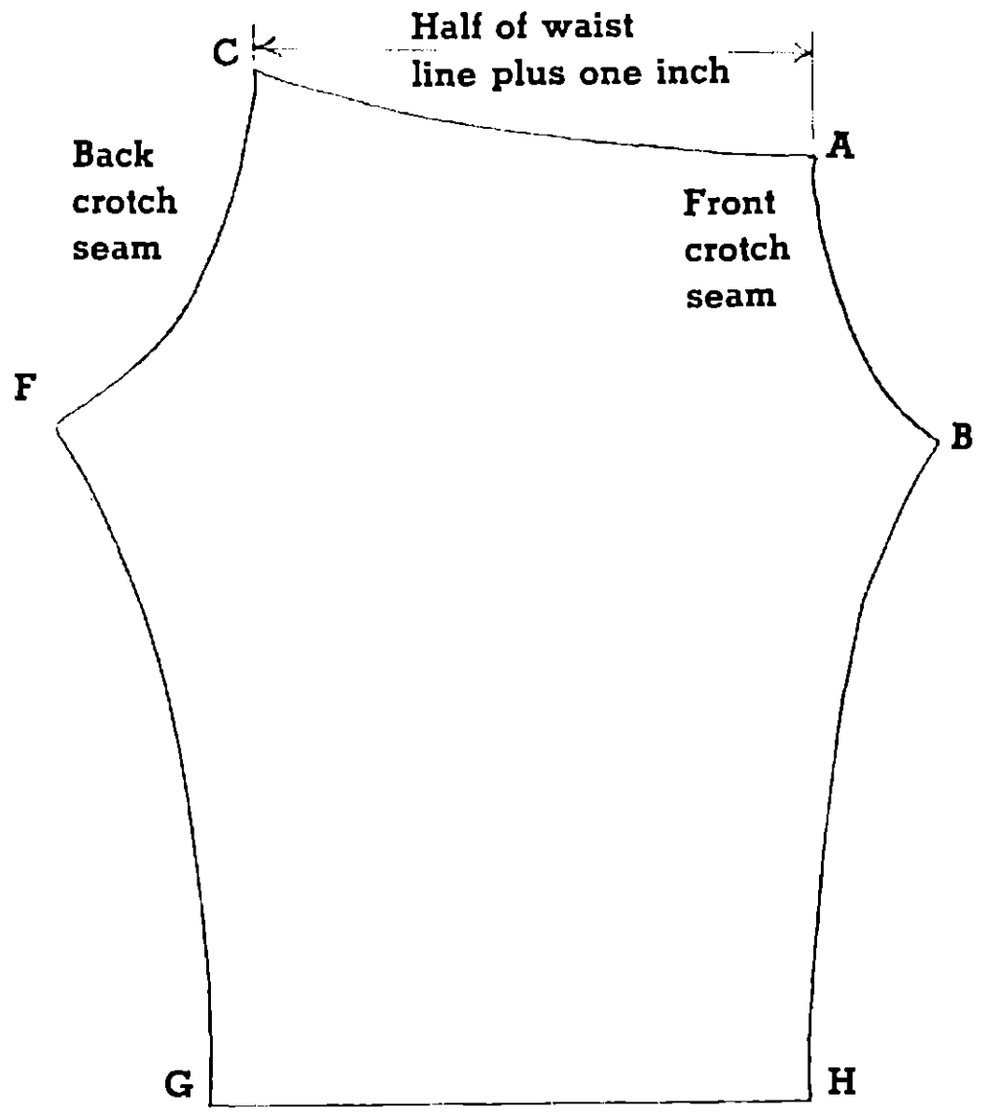
8. Bind the neck with bias tape leaving tie ends as shown in step 10, page 253, on how to bind the neck of a bib.

Trousers or Overalls

1. These may cause some difficulty for the child. More supervision will be necessary than in making the dresses or skirts. Cutting the pattern will require the help of the teacher or parent.

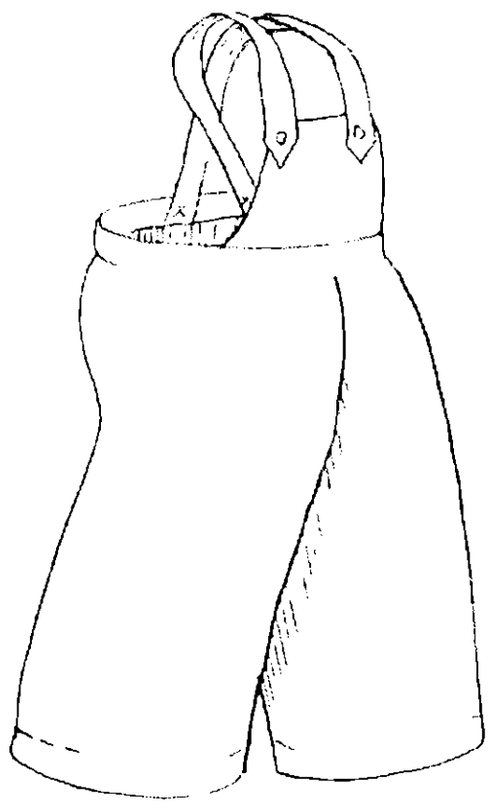


2. Measure for the front crotch seam. This is the distance from the point between the doll legs to the waistline. Add ½″ to this length for the front crotch seam length. This is the curve from *A* to *B* on the pattern.
3. Measure the doll's waistline. Divide by two and add 1″. This is the measurement across the top of the pattern from *A* to *C*.
4. The back crotch seam *C* to *F* is ½″ longer than the front crotch seam.
5. *F* to *G* and *B* to *H* are the inside leg seams. Measure the inside of the doll's leg and add ½″ for this.
6. Make *G* to *H* the same length as *C* to *A*.
7. Cut out the pattern.
8. Cut two pieces of material like the pattern.



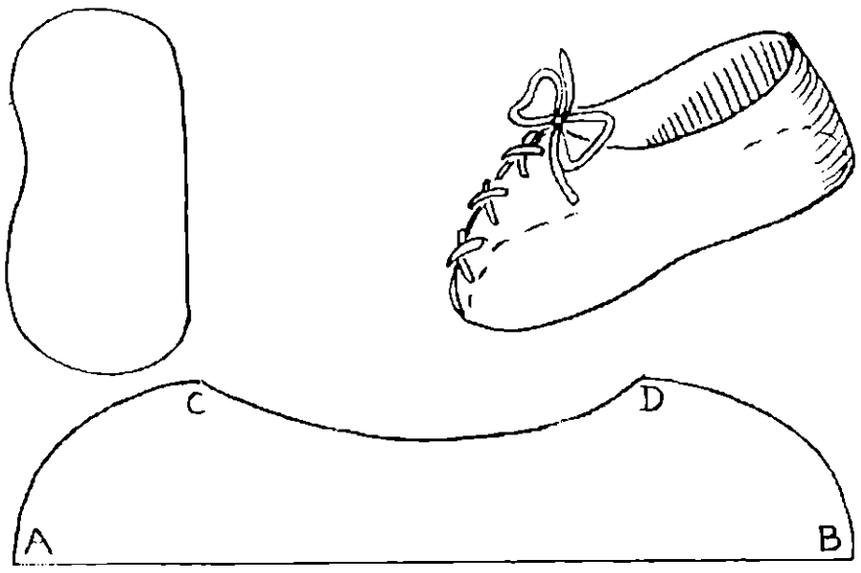
Pattern for trousers

9. Sew the front crotch seams of the two pieces together.
10. Sew the back crotch seams together.
11. Sew the inside leg seams together.
12. Cut a belt 1″ wide and 1″ longer than the waistline of the doll. Cut 1″ placket on the side of the pants. Turn back ⅛″ along the placket edges and overcast. Sew the belt onto the pants, turning in the ends ¼″.
13. Hem the pants legs.
14. To make overalls add a bib and suspenders.

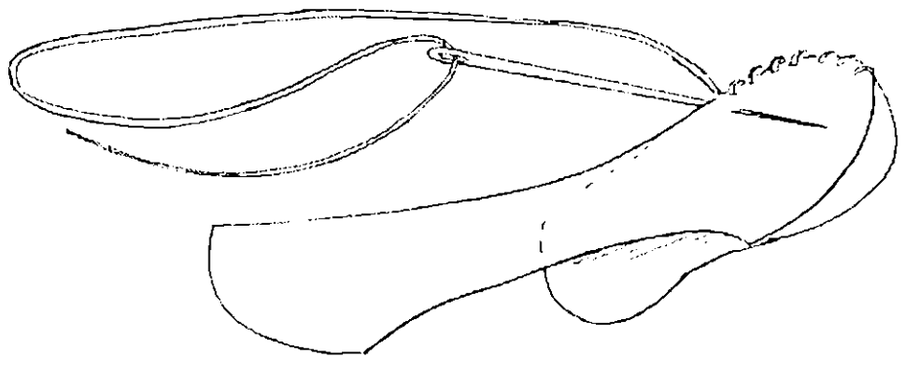


Doll Shoes

1. These should be made of felt, thin leather, or oilcloth.
2. Cut the sole of the shoe to fit the doll's foot. Cut a piece of material long enough to go around the sole. The distance from *A* to *B* should go completely around the sole. Make the shoes about ½″ high. The distance from *C* to *D* must be long enough to go around the ankle.

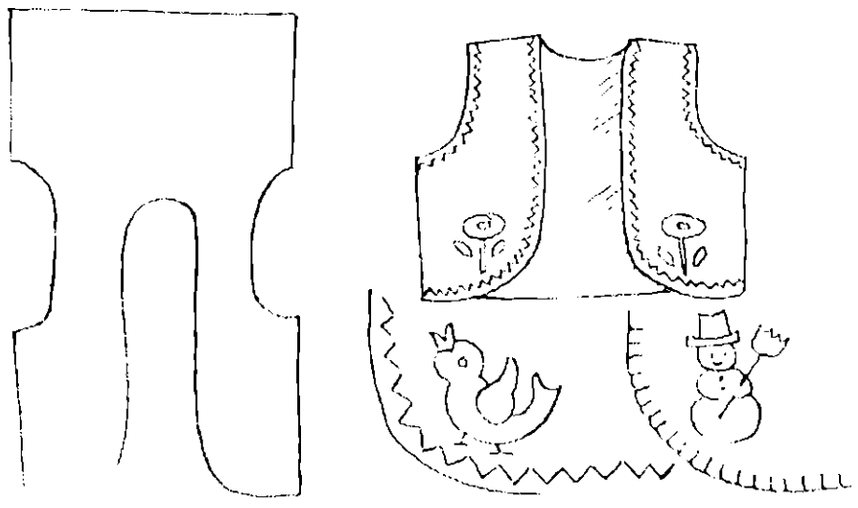


3. Overcast the upper part of the shoe to the sole. The seam should come in the center front.

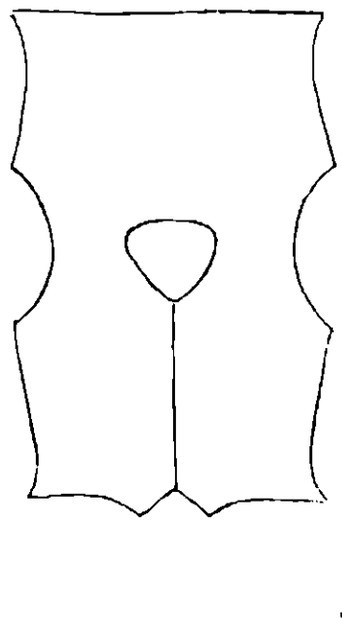


4. Lace the shoe up the front with heavy embroidery thread or crochet cotton.

Making boleros and vests. These garments should be cut from felt. Only the side seams need to be made. These may be overcast together. Brightly colored embroidery may be added.

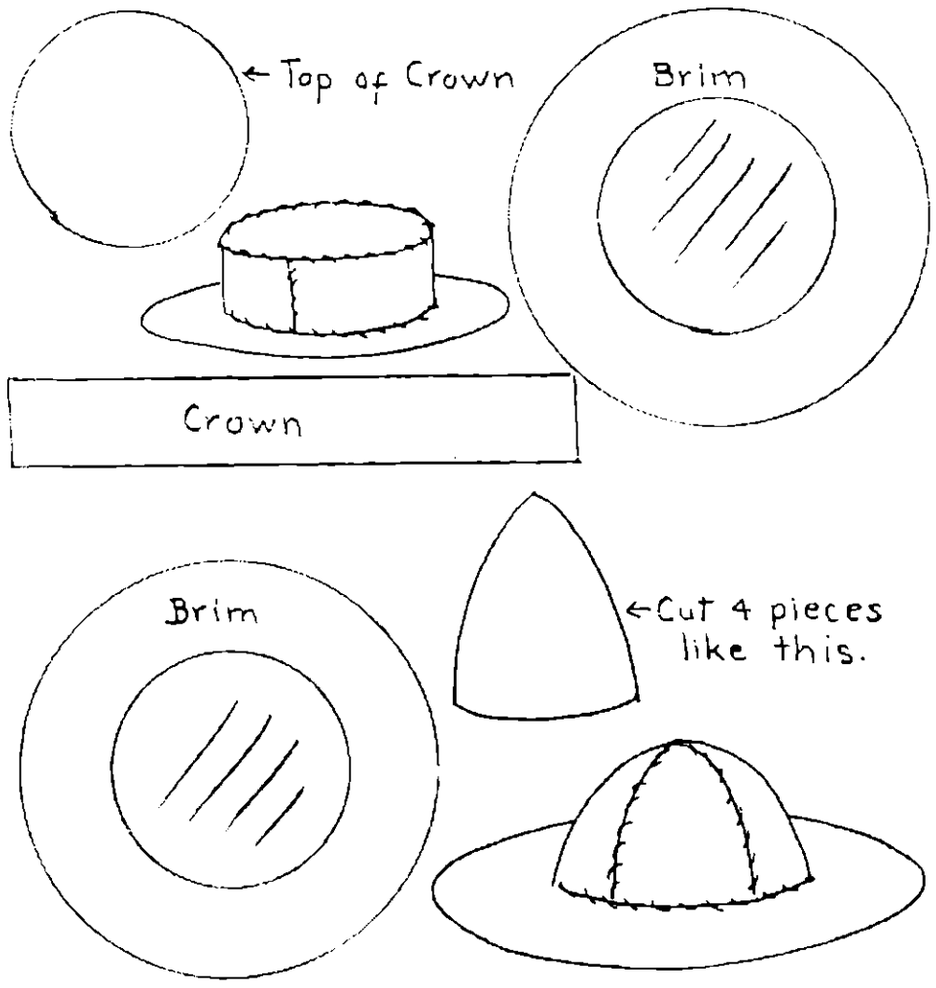


A bolero



A vest

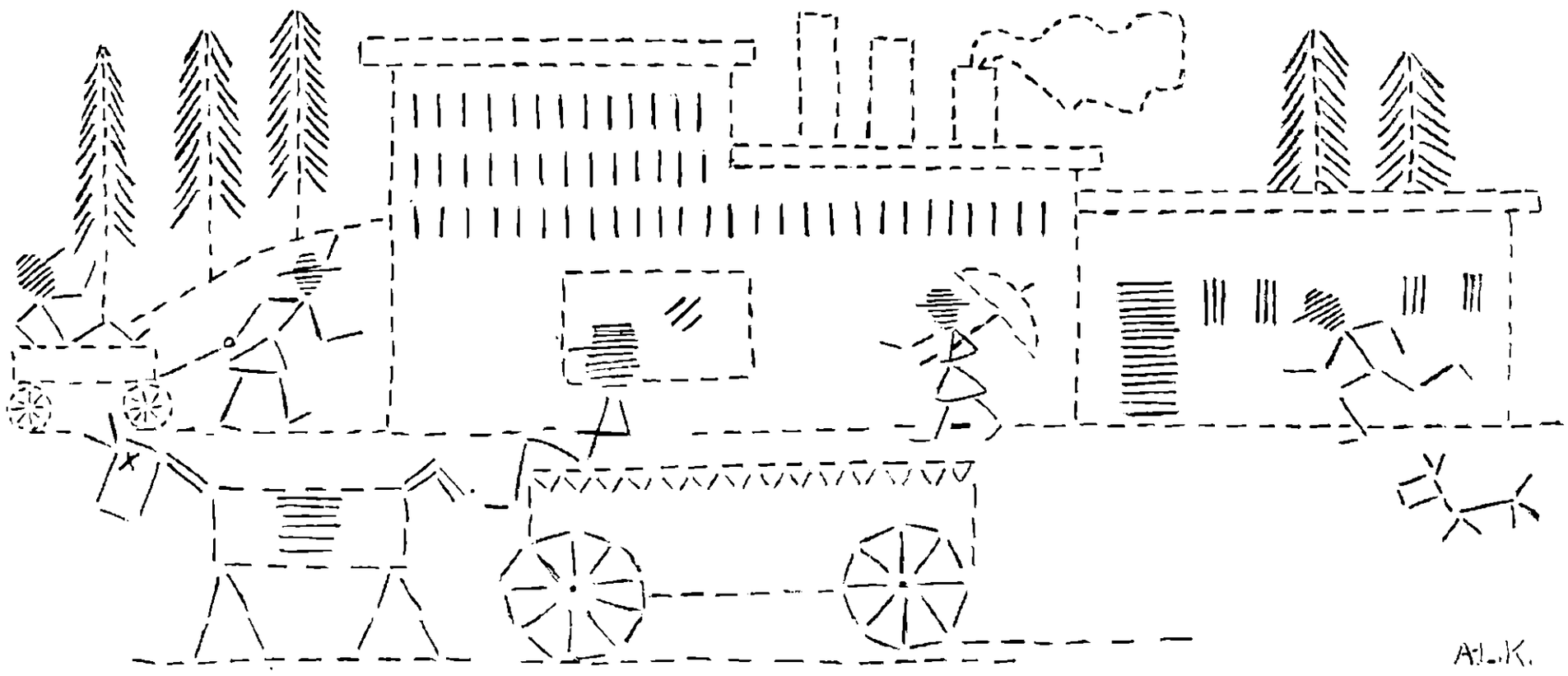
Making hats. Hats are most easily made from felt. One piece makes the brim, and two or four sections make the crown, depending on the style chosen.



Making coats. Coats should be made of felt or other non-fraying material, as tiny collars and revers are difficult to hem or make double. Make seams. Overcast edges instead of hemming them.



PICTURES WITH STITCHES



This picture is made entirely with a simple running stitch.

THOUGH THE CHILD may know only one stitch, he can enjoy needlework, one of the oldest of crafts. Brilliantly colored threads stitched into softly colored textiles will enhance even the crudest design.

Children with more sewing experience may wish to use a greater variety of stitches. Designs may be woven into huck toweling or done in cross-stitch on checked gingham. Easily made but delightful pictures may be made by simply cutting out patches of colored cloth and gluing them on black paper.

Textile pictures may be framed and hung on the wall, used as wall hangings without frames, made into table mats, used on hems of dresses, skirts, or blouses, or embroidered on boys' shirts or ties.

Specific directions are included for several types of stitched pictures.

Materials Needed

1 pc. Material, at least 9″ x 12″
1 pc. Paper of equal size
Colored embroidery threads—6-strand or single-strand. (Yarn may be used very effectively on coarse or heavy materials such as burlap, monk's cloth, felt, or woolens.)
1 pc. Black carbon paper for tracing

Tools Needed

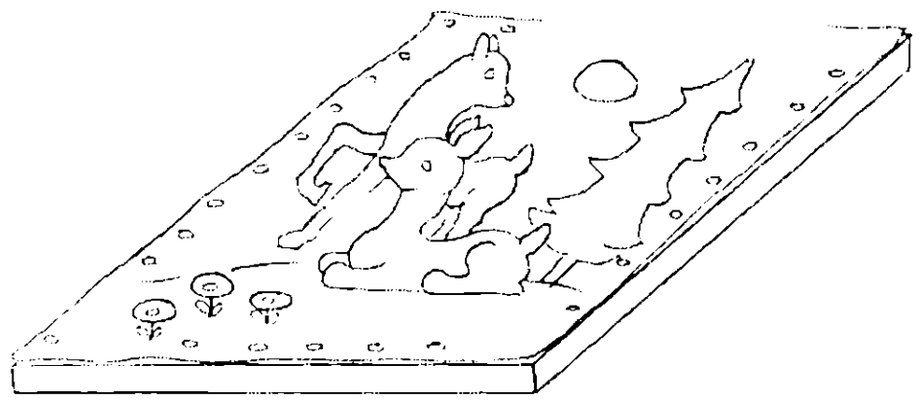
Scissors
Needles—long eyed embroidery needles. (One for each color used eliminates the necessity of re-threading when changing colors.)
Thimble
Hoops or frame large enough for the picture

Skills Used

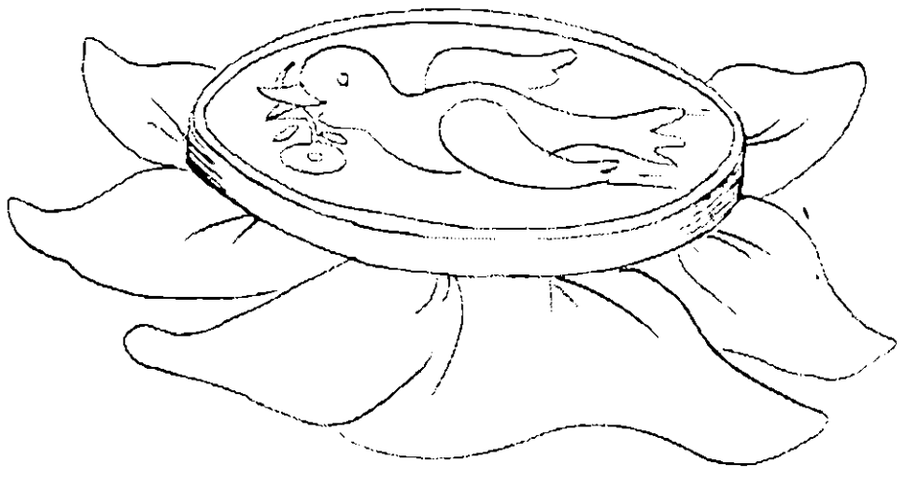
Designing
Embroidering (decorating with stitches)

PROCEDURE

1. Draw a simple outline design on paper. Make it amusing, or let it depict a scene or tell a story.
2. Trace the design. Stretch the material on a drawing board or workbench. Thumbtack in place. Put the carbon paper over the material and the design on top of all. Thumbtack in place. Use a sharp pencil to trace the design.
3. Tack the material to the frame or place it between hoops. Some may prefer to work without a frame or hoops but these do keep the material stretched, thereby preventing stitches from being too tight or too loose and causing the material to pucker.

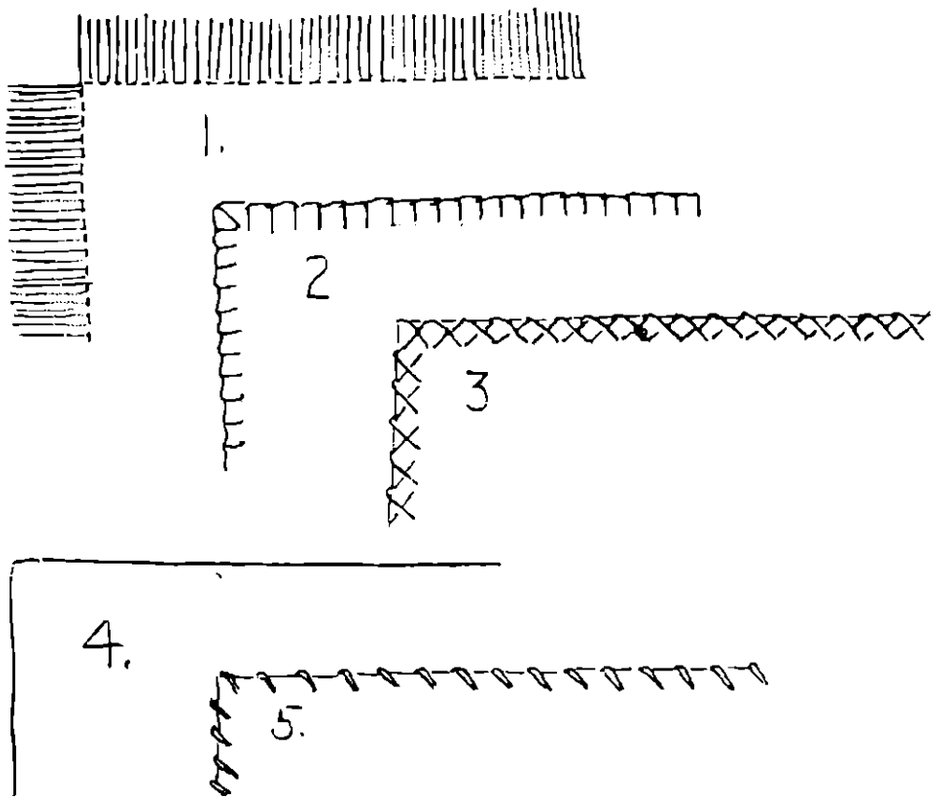


Material tacked to frame



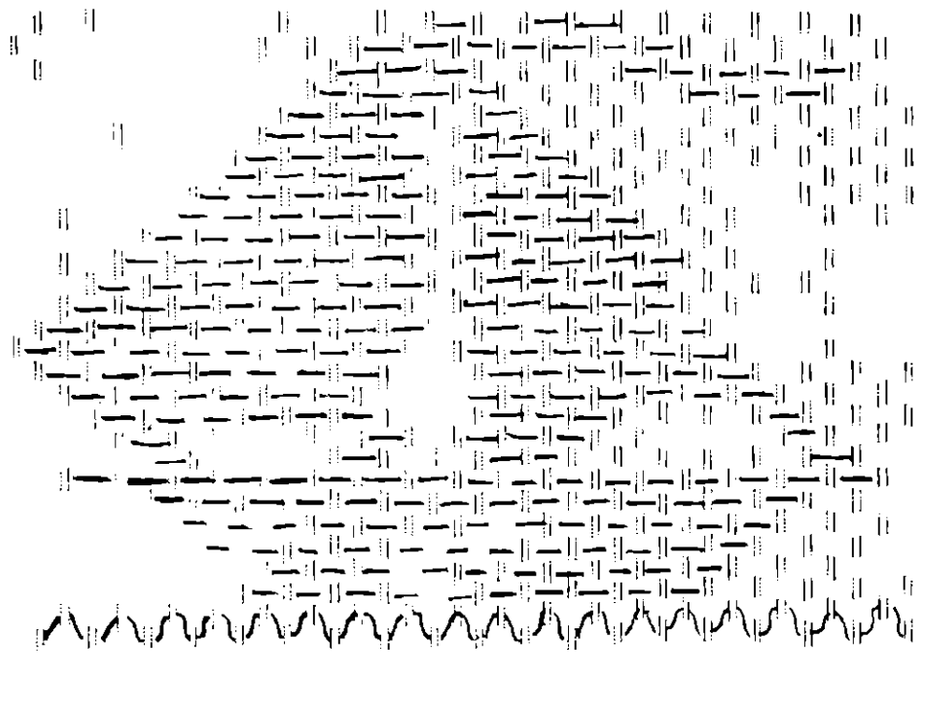
Material stretched on hoop

4. Work the stitches, following the pencil lines. Tie knots at ends of threads and bring needle up from wrong side of material when starting. Fasten threads securely.
5. Press the material on the wrong side.
6. Finish the edges or frame the picture. Edges may be hemmed or fringed. A decorative border may be embroidered around the frame.

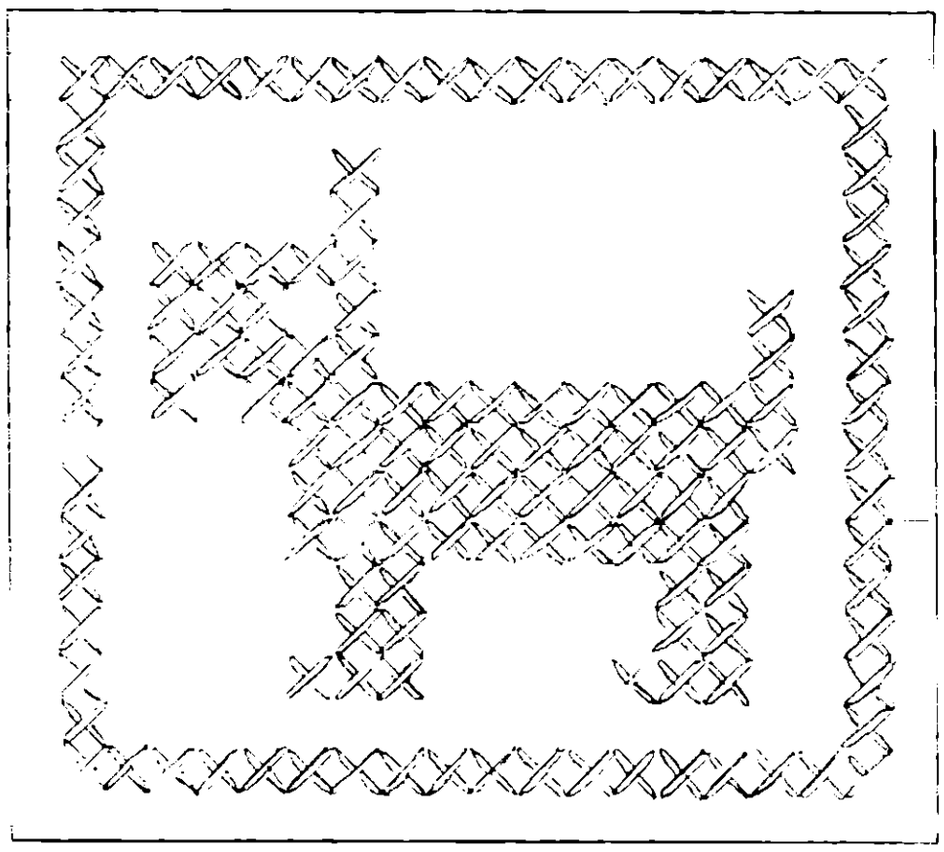


Finished edges. 1. Fringed 2. Blanket stitched 3. Cross-stitched. 4. Hemmed. 5. Whip stitched

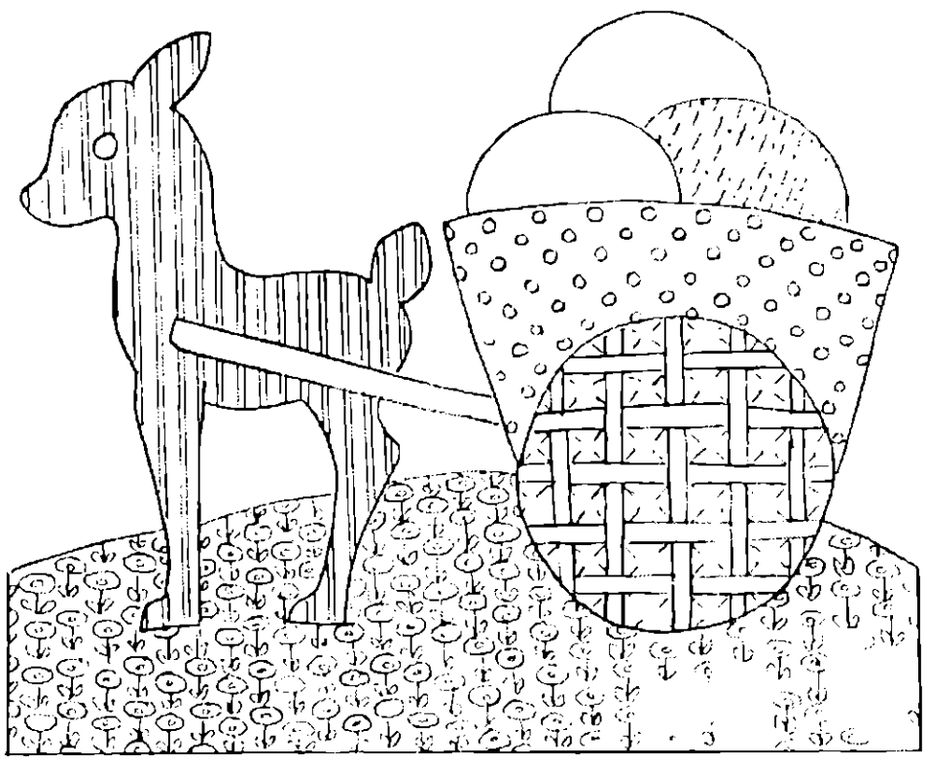
Huck toweling pictures. Colored threads are woven through the material. Huck toweling has pairs of threads at evenly spaced intervals that are above the surface of the material. The needle is passed under these threads. In this way all of the colored threads are on the right side of the material. The needle does not go through the material. Much of this work may be woven into a fairly solid pattern.



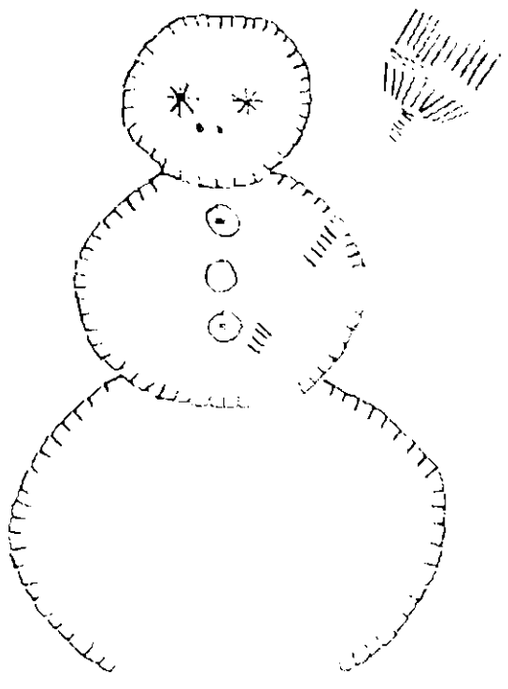
Cross-stitch pictures. Cross-stitch pictures may be made on checked gingham or on coarsely woven materials. When these coarse materials are used, each stitch crosses a given number of threads. Counting threads might be difficult for very young children. The design should be made with colored pencils on squared paper. Use squares the same size as the stitches to be made. Stitches are then counted out on the material as the pupil follows the paper pattern.

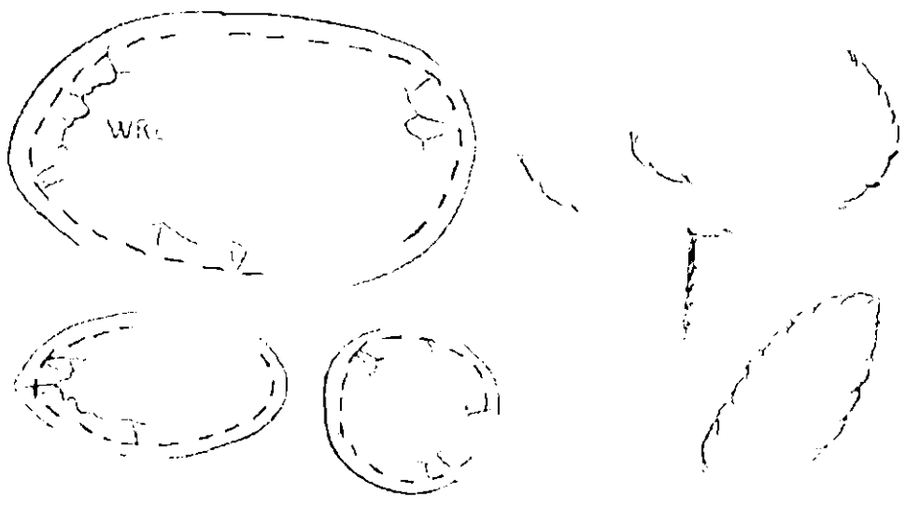


Appliqué pictures. Patterns for these should be cut from pieces of colored paper. These pieces will then serve as patterns for colored pieces of materials. Small prints, stripes, polka dots, and plain colors may be used. If the picture is to be framed, pieces need not be hemmed. Interesting edges can be cut with the pinking shears.



Colored pieces of material are used to make an attractive appliquéd picture.





Left. Patches may be blanket stitched in place with tiny stitches.

Below. Patches may be turned under, basted, and then sewn down.

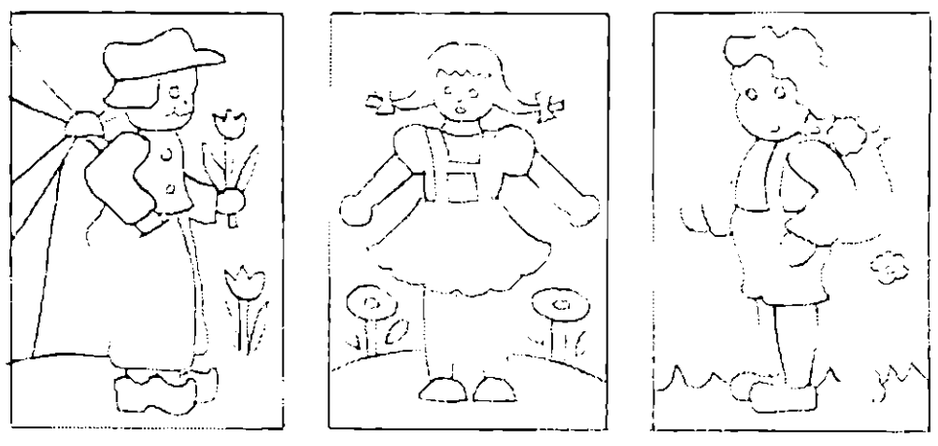
If the design is applied to an apron or dress or something that is to be laundered, the edges of each patch must be finished so that they will not fray. One of two ways may be used. Each piece may be blanket stitched or buttonholed in place with tiny stitches made very close together as in making a buttonhole in a dress. This will prevent fraying. Matching or contrasting threads may be used for the stitches. Another way is to hem each piece. Cut each patch ¼″ larger than the pattern. Turn under ¼″ on each edge, crease, and baste. Then sew the patches down.

This is more difficult sewing than the stitched pictures. Sixth graders with sewing experience might make appliqué pictures.

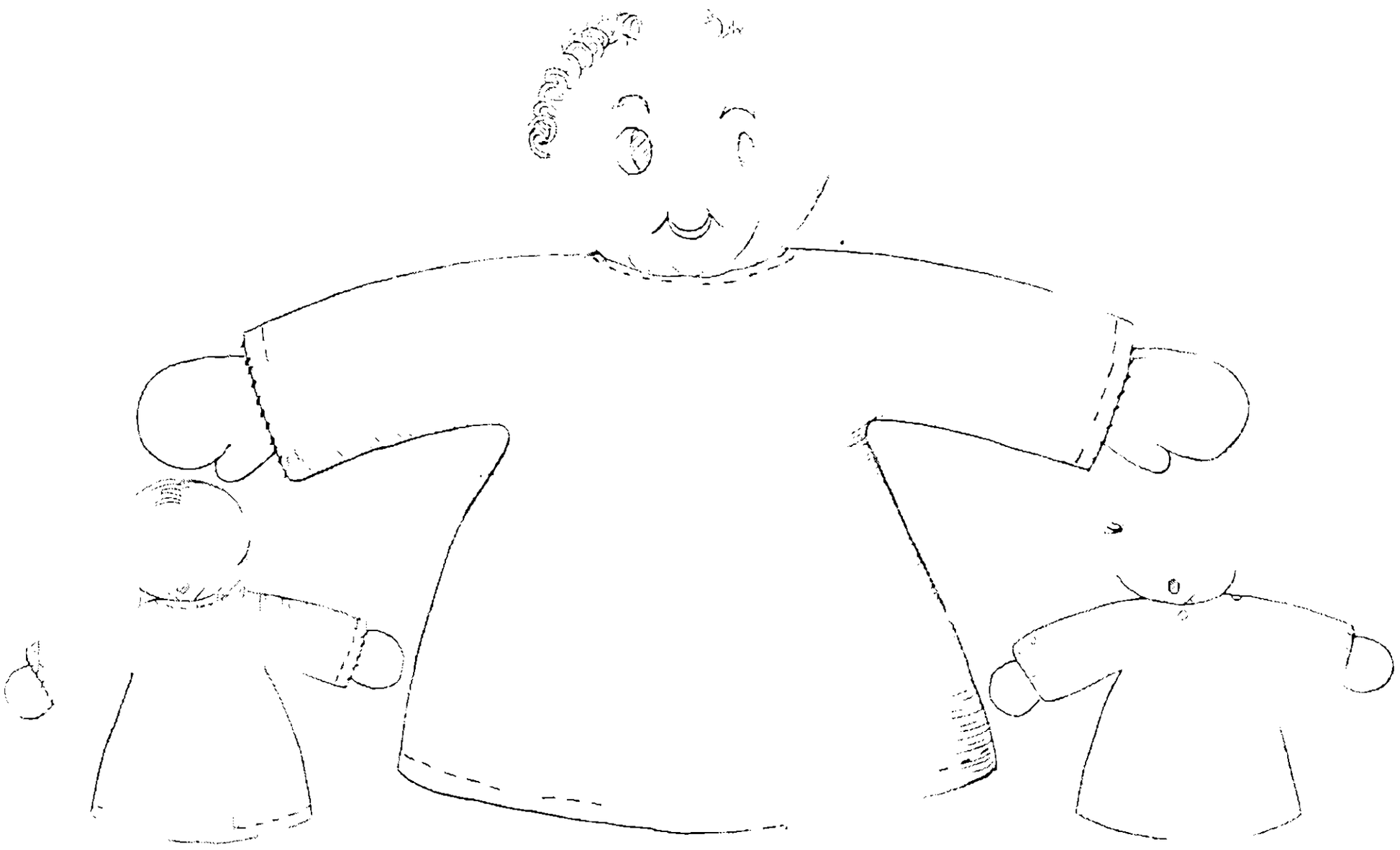
Stenciled pictures. Designs are stenciled onto the material as explained on pages 290–292. The outlining and some of the fine details are made with stitches.



Felt pictures. These are similar to the appliqué pictures. Parts of the design are cut out of various colors of felt. These are then glued to a felt or paper background. Black backgrounds are very effective.



A HAND PUPPET



WHAT FUN CHILDREN have in making and using puppets! The hand puppet described here can be made easily by children in the fifth grade. They will want to create characters for plays and sometimes they will simply want a puppet to play with.

Materials Needed

Cardboard tube, 1″ in diameter, 2½″ long (Toilet tissue tube may be used.)
Cotton sock—child's size 6 or 7
1 pc. Material for dress, 8″ x 12″
Yarn for hair
Red and black show card colors
Cotton batting
2 pcs. Felt, 1″ x 1½″ (Use a color to match the sock.)

Tools Needed

Scissors
Thimble
Needles
Pins
Brush

Skills Used

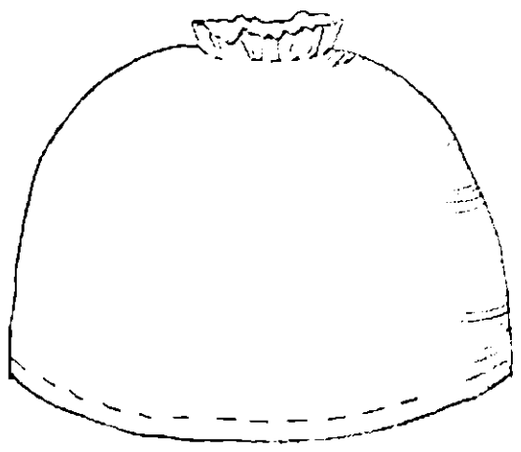
Cutting
Making seams
Making hems
Painting

PROCEDURE

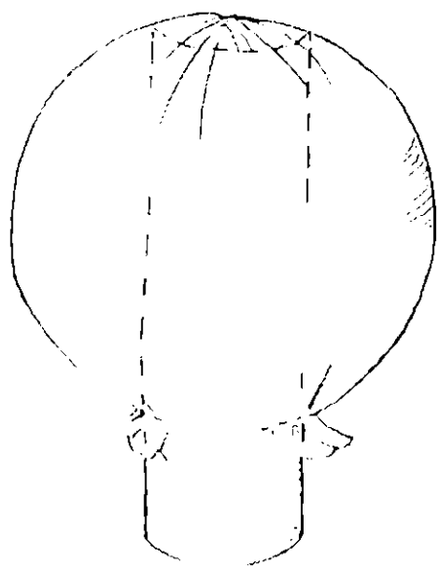
1. Cut off the cuff of an ankle sock. Use one that is skin color if possible—tan, pink, brown, flesh. Gather the top of



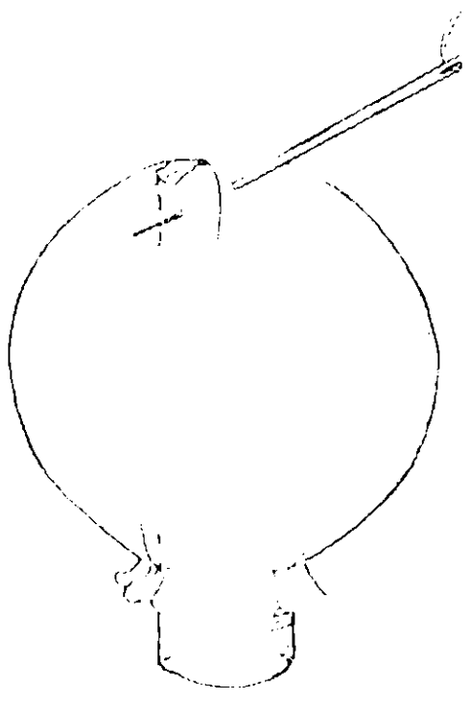
the cuff and sew it shut. Turn right side out. Run a gathering thread around the bottom of the cuff.



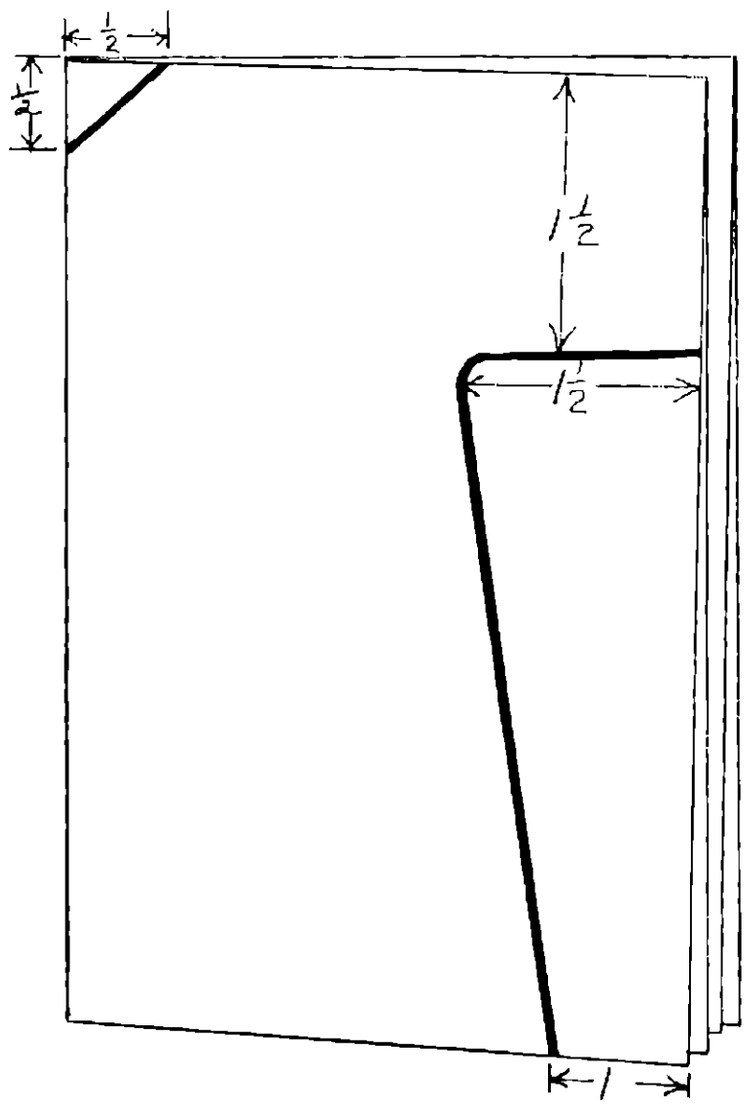
2. Put the cardboard tube up in the head. Stuff cotton around the tube, making the head round. Do not stuff the tube. Pull the gathering thread up tight and fasten securely.



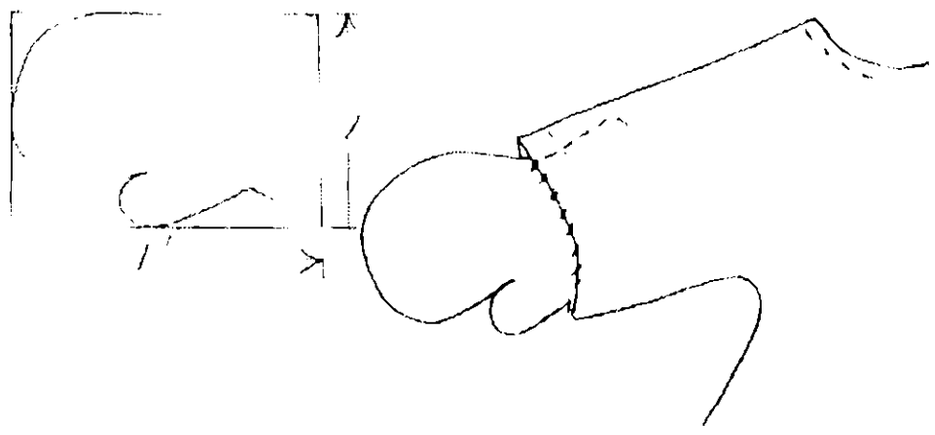
3. Use a heavy needle and strong thread to sew the top of the head to the top of the tube to keep it from slipping out.



4. Cut a dress for the puppet. Fold the 8″ x 12″ material in fourths. Use the full width and length of the material. Follow the directions in the illustration.

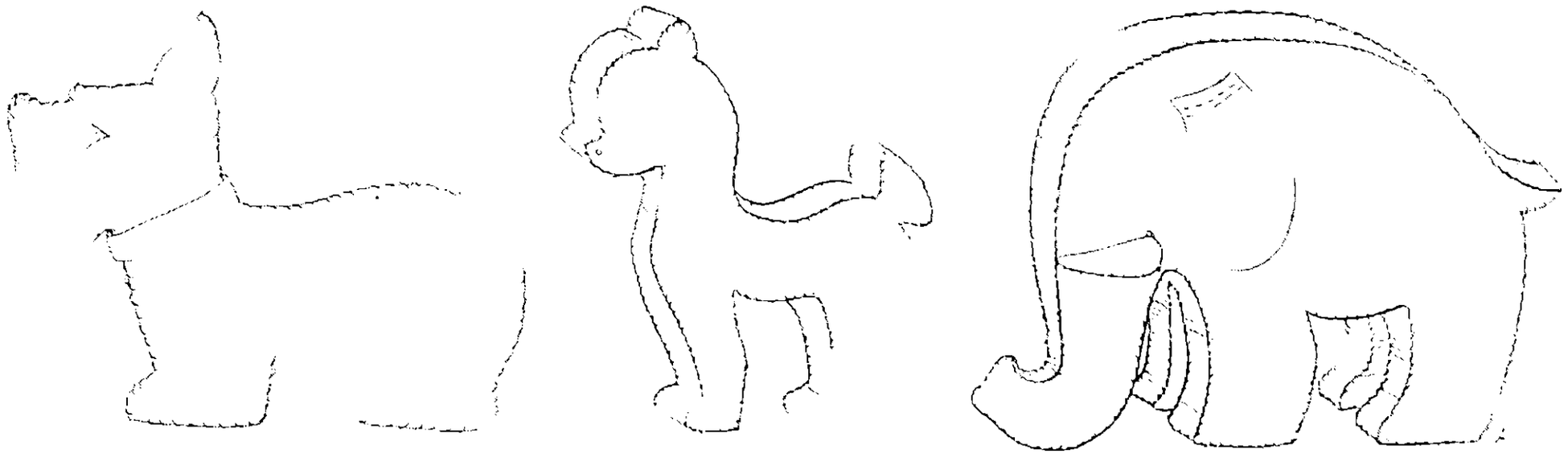


5. Make the underarm seams.
6. Hem the sleeves and the bottom of the dress. Make as small a hem as possible.
7. Cut two felt hands. Sew them between the ends of the sleeves sewing the sleeves shut.



8. Stuff the neck of the head into the neck of the dress. Sew the dress to the head.
9. Paint the face on the puppet. Use show card colors. Use very little paint on the brush.
10. Sew tiny loops of yarn all over the head for hair. Younger children may wish to paint the hair on.

STUFFED ANIMALS



STUFFED ANIMALS may be realistic or fantastic in design. Use sturdy materials that do not fray easily. Turkish toweling, oilcloth, felt, and corduroy make attractive and durable toys. Three types of stuffed animals are described here. The first one is the easiest to make. It might be used in grades three and four. The second and third types might be used in grades five and six.

Materials Needed

Strong, non-fraying material
Cotton or kapok to stuff animal
Thread, No. 40 or heavy duty

Tools Needed

Scissors
Needle
Pins
Thimble

Skills Used

Cutting
Seaming
Stuffing
Embroidering

PROCEDURES

Simplest Animal

1. Cut an animal silhouette (side view) from paper. Keep outlines simple. Avoid any thin projections such as very thin legs, antlers, etc.
2. Pin the pattern on a double thickness of material. Cut out the material, cutting ¼″ outside the pattern to allow for seams.
3. Pin the right sides of the material together.
4. Use the combination stitch or backstitch to sew the pieces together. Seams must be strong. Sew ¼″ from the edge. Leave an open space between the legs for stuffing. Turn right side out. Edges may be made stronger by blanket stitching on the right side.
5. Stuff the legs first. Poke the cotton down into the legs with a pencil. Stuff the head and tail, then the body.
6. Use the overcasting stitch to sew the body shut. Finish with blanket stitch if that was used on the rest of the animal.
7. Sew tiny buttons on for eyes.

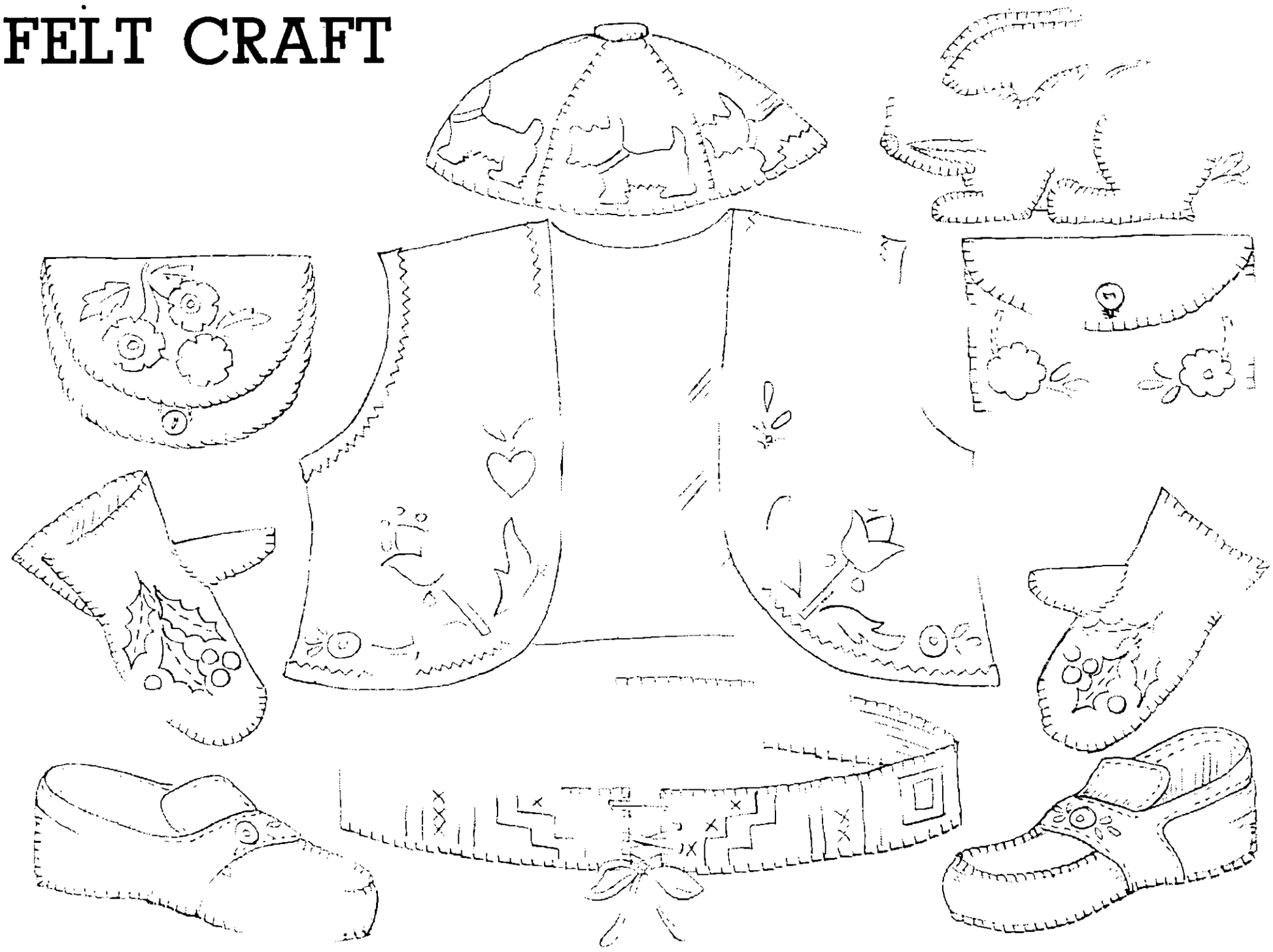
Using Band Between Silhouettes

1. Cut out the two animal silhouettes. Cut a 1″ (or wider) strip the same length as the outline of the animal.
2. Sew one edge of the strip to the edge of one animal piece, right sides together.
3. Pin the other animal piece to the band, right sides together. Baste and sew, leaving a space open between the legs for stuffing.
4. Stuff with cotton or kapok.
5. Sew the seam shut.
6. Sew tiny buttons on for eyes.

More Complicated Patterns

These are more difficult to make. Often parts like ears, legs, tusks, and tails, are made separately and then sewed to the body. Yarn is sometimes used for tails and manes. Seams are made with the combination stitch or backstitch. Patterns for animals like these may be purchased at pattern counters or may be found in needlework books. Directions for making are included.

FELT CRAFT



FELT IS PARTICULARLY easy to work with although it is rather expensive if new material is purchased. Every tiny scrap of felt is usable. Old felt hats are one source of material. They can be dry cleaned or even sandpapered clean. Felt does not fray; therefore, it is not necessary to finish any edges. Seams need only be overcast. This makes felt very simple for young children to use. One piece of felt may be glued to another, as in making pictures. A special adhesive can be obtained, although ordinary glue will do. Possible projects include bean bags, belts, suspenders, coin purses, boleros, beanies, and stuffed animals and dolls.

Materials Needed

Felt (New material may be purchased by the square yard at yard goods, drapery, or art needlework stores. All-wool felt is the best for craftwork.)
Buttons for ordinary use as well as for animal eyes
Colored yarns and threads for embroidery
Cotton or kapok for stuffing dolls or animals
Large snaps for purses

Tools Needed

Scissors
Needles
Pins
Thimble
Pinking shears

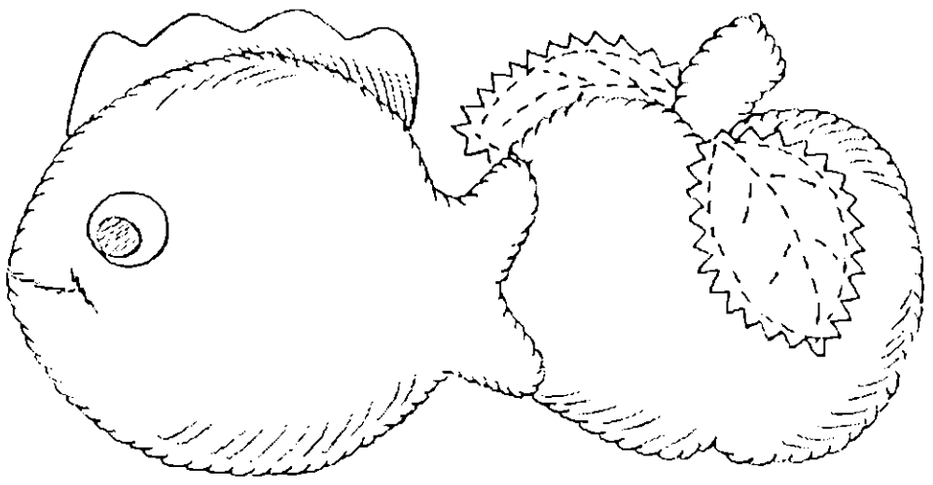
Skills Used

Designing
Cutting
Sewing

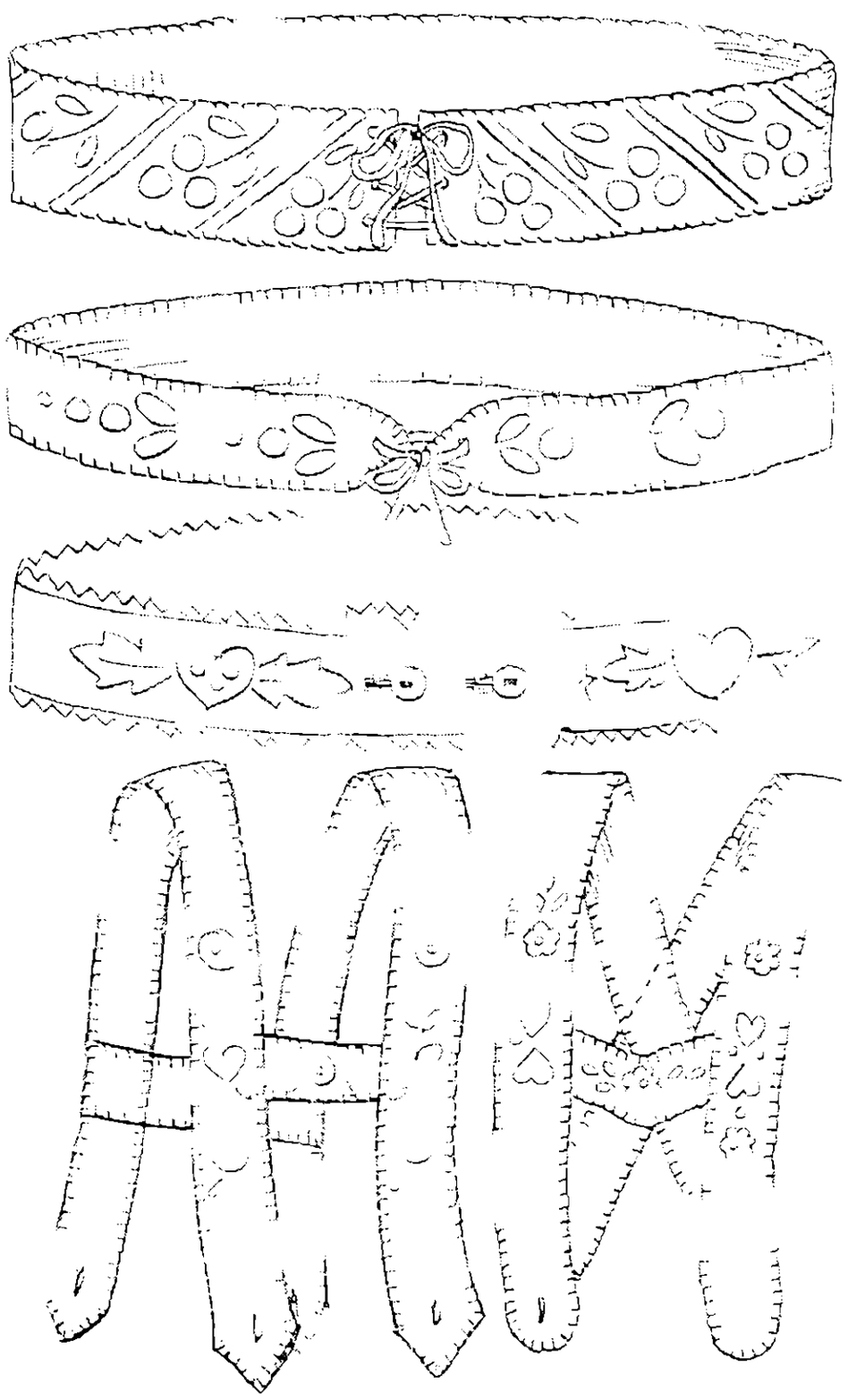
PROCEDURES

Bean Bags

1. Cut paper patterns first.
2. Pin paper patterns on felt. Cut two large apples of red or two large fish of yellow or orange. Cut stem and leaves for apples, or eyes and fins for fish.
3. Sew the large pieces together, using a small overcasting stitch. Make stitches close together. Leave a 1″ opening for pouring in dry beans or split peas.

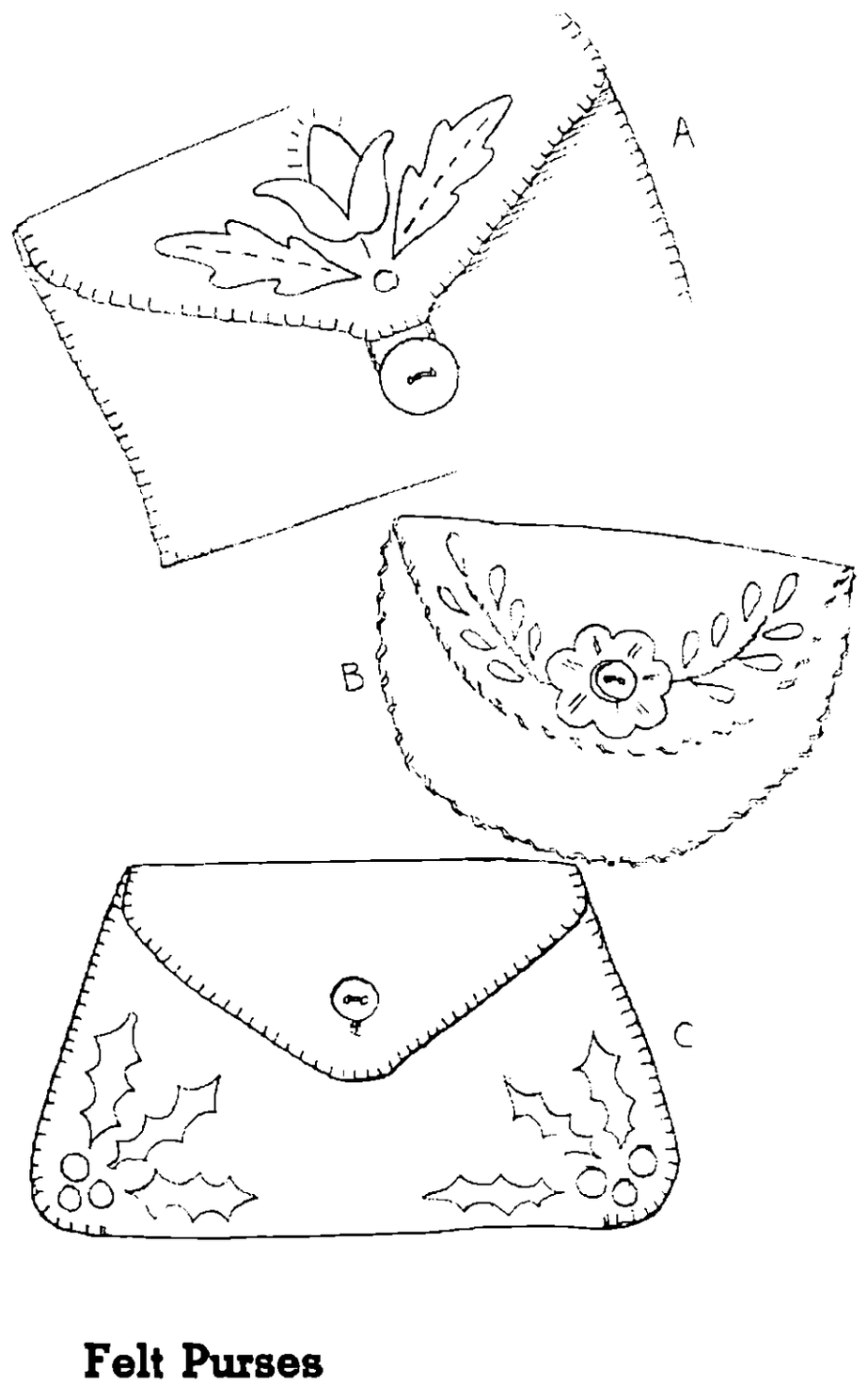


4. Add the stem and leaves, or eyes and fins. Sew securely in place.
5. Fill with beans or peas and sew shut.



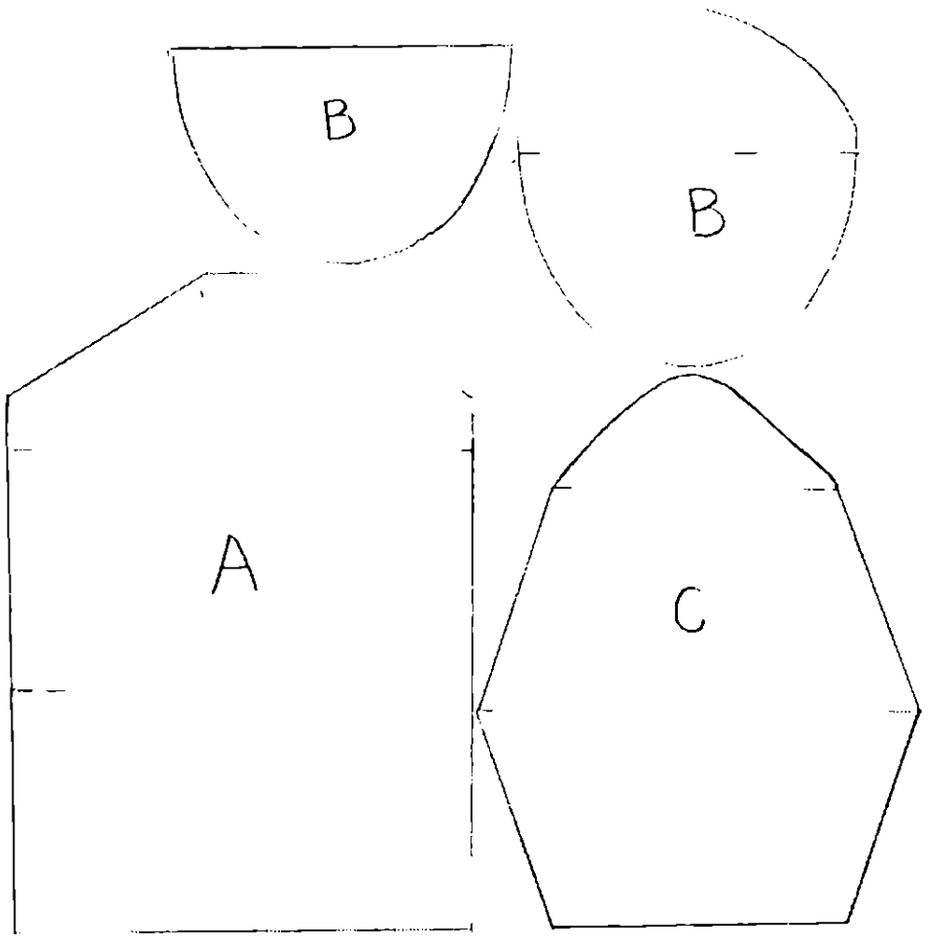
Belts and Suspenders

1. Cut strips of felt of the desired length and width. Cut double, as each piece is to be lined. These may be cut straight or with the pinking shears.
2. Make paper patterns for ornaments to be applied.
3. Cut design pieces out of various colors of felt. Pin paper pattern on desired color. Cut carefully around the edge.
4. Pin colored felt pieces on belt or suspenders. Stitch in place with colored, decorative stitches or with hidden stitches made with matching thread.
5. Sew the belt and lining together. Use running stitch, whip stitch, or outline stitch.
6. Sew on a buckle or snaps, or lace together. Sew the lining to the crosspiece of the suspenders. Pin this between the long pieces and their linings. Sew the long strips of the suspenders to the skirts. Make buttonholes in the four ends of the suspenders. Buttons are sewed on skirts or trousers.



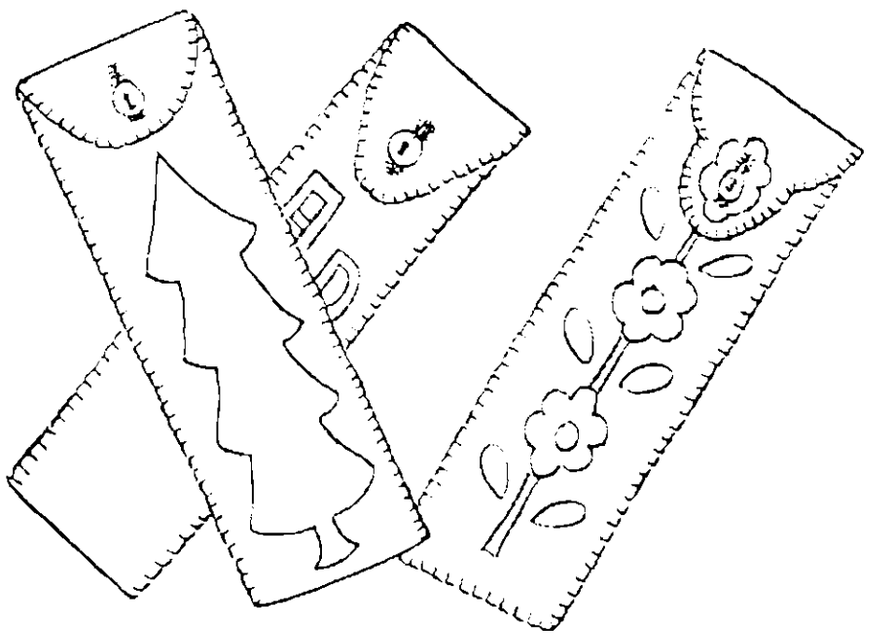
Felt Purses

1. Cut a paper pattern for the purse. Overall dimensions of the pattern ought not to exceed 8″ x 11″. Cut paper patterns for the decorations.
2. Pin the patterns to the felt. Cut carefully around the patterns.



Patterns for felt purses

3. Pin the felt design in place on the felt for the purse. Fold into finished position to see if design falls in right place.
4. Sew the patches of the design in place.
5. Sew the side seams. Use backstitch, blanket stitch or overcasting stitch. Finish the edge of the flap and the edge underneath it with the blanket or overcasting stitch.
6. Make a buttonhole and sew on a button if children are in grades five or six. Sew on a large snap if children are in grades three or four.



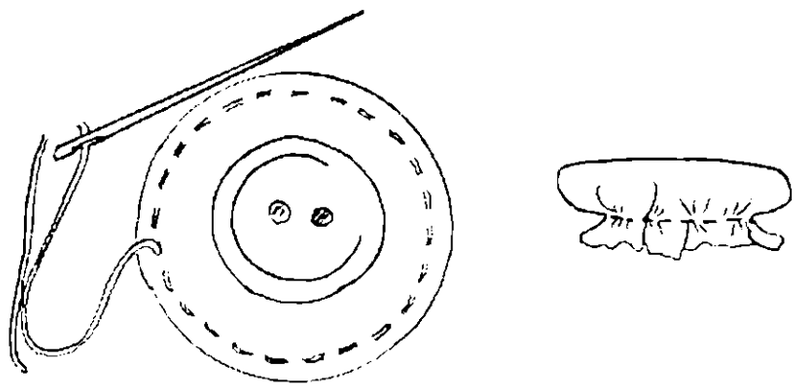
Comb Cases

These are made like the purses except for the pattern. They are long, narrow, flat tubes of felt.

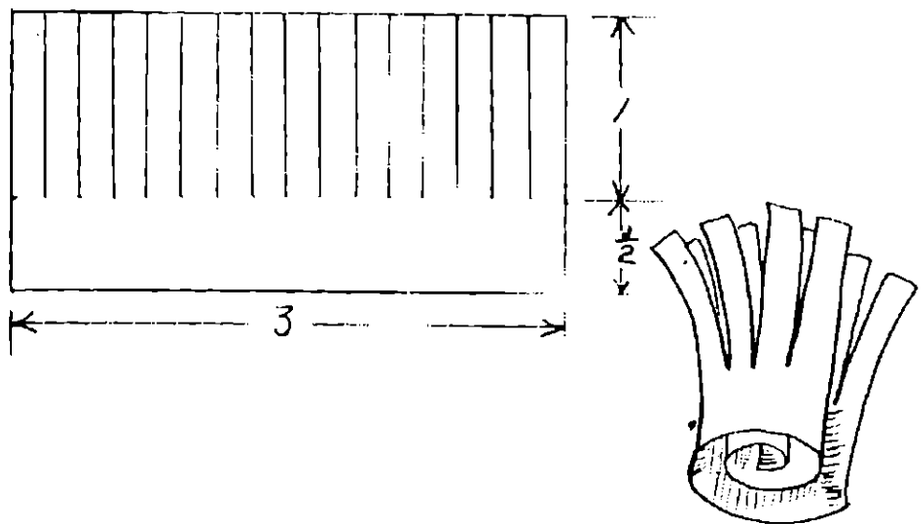


Beanies

1. Make a paper section-pattern for the beanie. Make paper patterns for the decorations to be applied.
2. Cut six sections of felt like the section-pattern. Cut out the pieces for decorating. The pinking shears cut an ornamental edge.
3. Sew the designs on the sections of the beanie.
4. Baste the beanie together. If too large take wide seams and trim off the excess material. Take a little off each seam rather than cut one or two sections smaller.
5. Sew the seams with overcasting or buttonhole stitch on the right side or outside of the beanie.
6. Finish the bottom edge with the same stitch or cut a strip ¾″ wide and long enough to go around the beanie. This strip may be of a matching or contrasting color. Cut in points or scallops and sew to the edge.
7. Cover a button with felt or make a felt pompon and sew it to the top of the beanie.



To cover a button with felt, run a gathering thread around edge of circle. Then pull up tight and fasten securely.

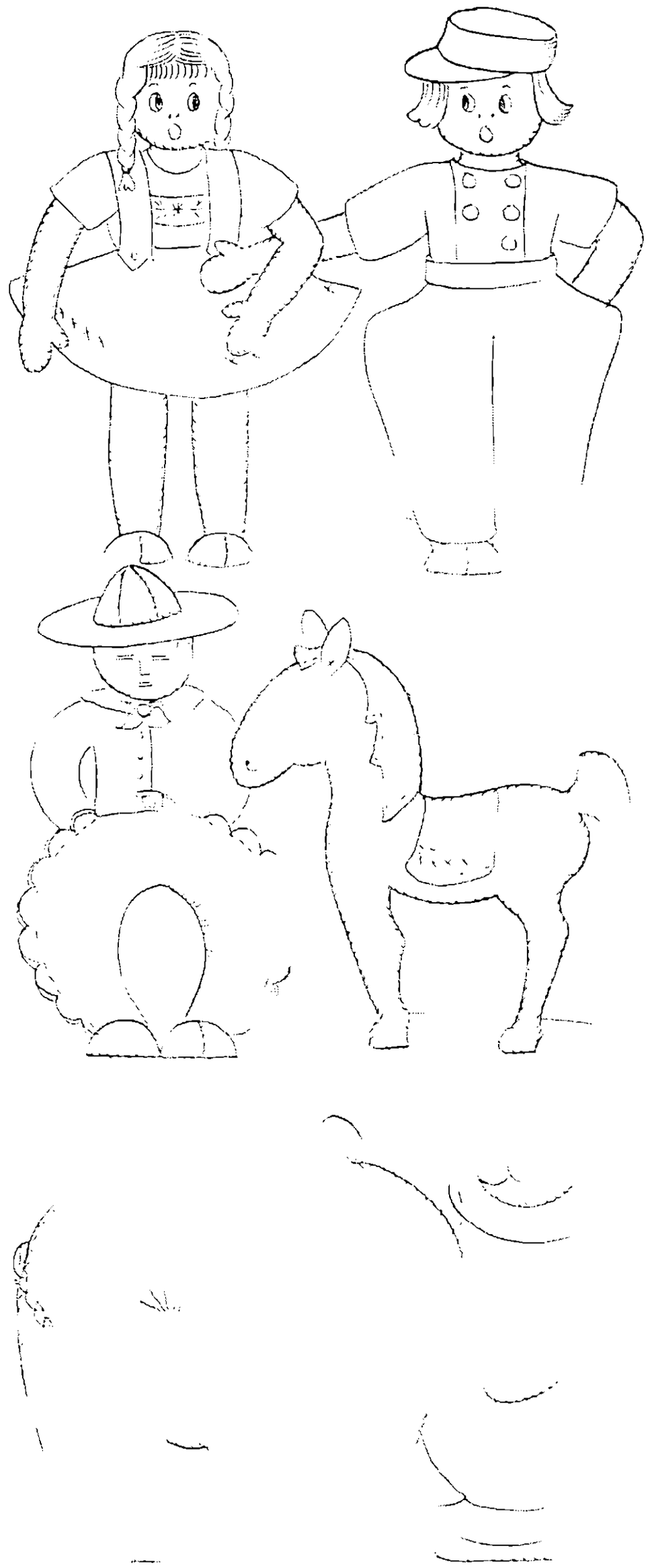


Make a pompon by slitting top edge of a piece of felt. Roll up and sew bottom together.

Felt Vests or Blouses

1. It would be wise to buy a pattern in the correct size for this project. Pin the pattern to the felt.
2. Cut out the vest, cutting away the seam allowance. Felt does not need to be hemmed or faced.
3. Make paper patterns for the felt design to be applied. Pin the patterns on the various colors of felt and cut.
4. Sew the felt designs in place.
5. Make any darts required. Use the combination stitch. See purchased pattern for directions.
6. Make the shoulder seams and underarm seams. Use the combination stitch, or blanket stitch or overcast the edges together.
7. Finish the edges with an overcasting or blanket stitch.

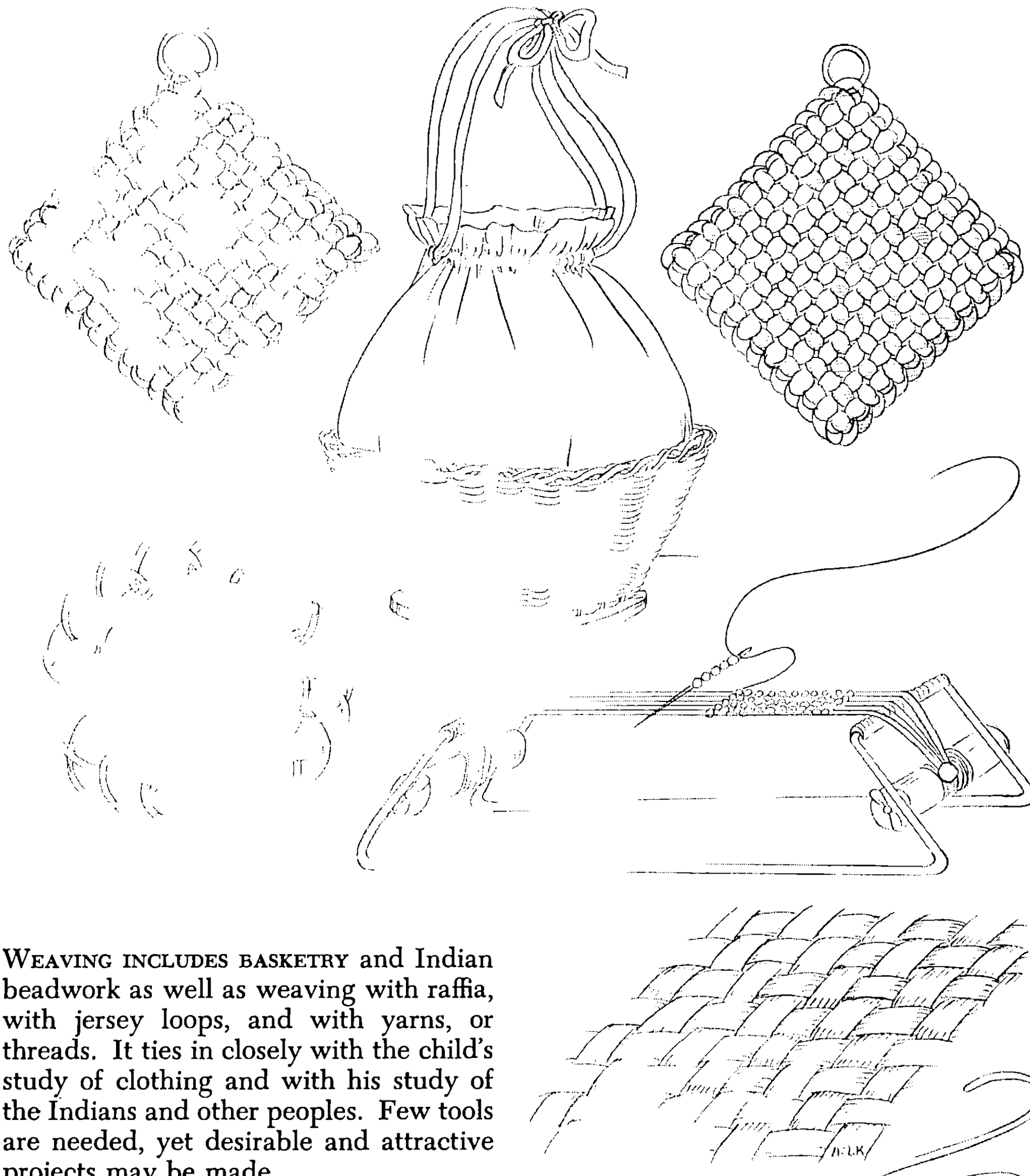




Felt Dolls and Animals

Follow the directions given on page 265 for making simple stuffed animals. Make the dolls in the same manner, only cut out a front and back for the dolls instead of using two side views. Use felt to make the doll's clothes.

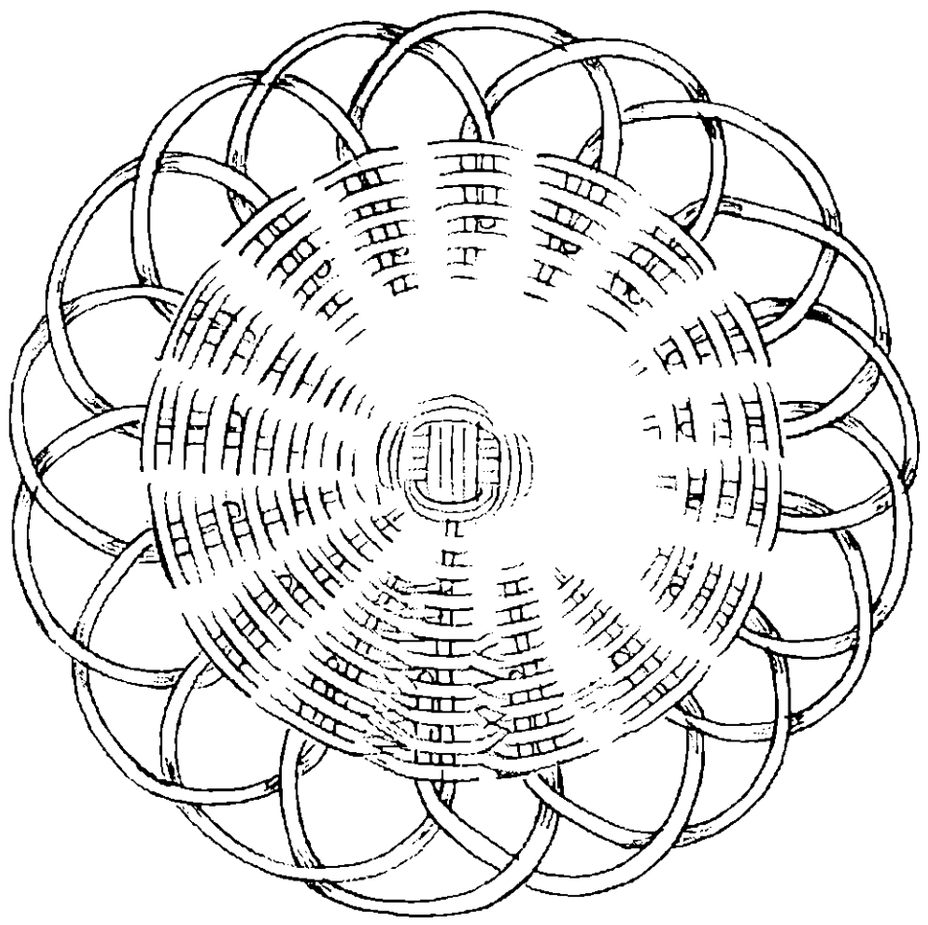
REED AND RAFFIA WEAVING



WEAVING INCLUDES BASKETRY and Indian beadwork as well as weaving with raffia, with jersey loops, and with yarns, or threads. It ties in closely with the child's study of clothing and with his study of the Indians and other peoples. Few tools are needed, yet desirable and attractive projects may be made.

The simple principle of weaving is to pass threads over and under other threads that are held taut on the loom. In basketry, reeds of various thicknesses are used instead of threads. Several woven projects are described on the following pages. Every child should have the opportunity to try at least one of these.

REED MAT



Materials Needed

8 pcs. Round reed, No. 3, 16″ long
1 pc. Round reed, No. 3, 10″ long
5 pcs. Round reed, No. 1, 10′ to 12′ long

Tools Needed

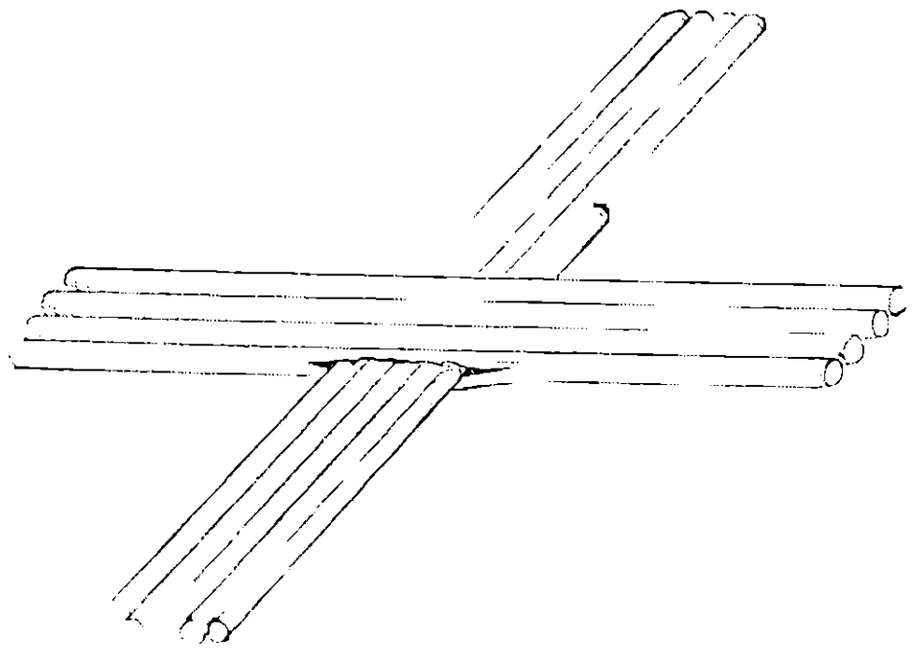
Sharp knife or single-edge razor blade

Skills Used

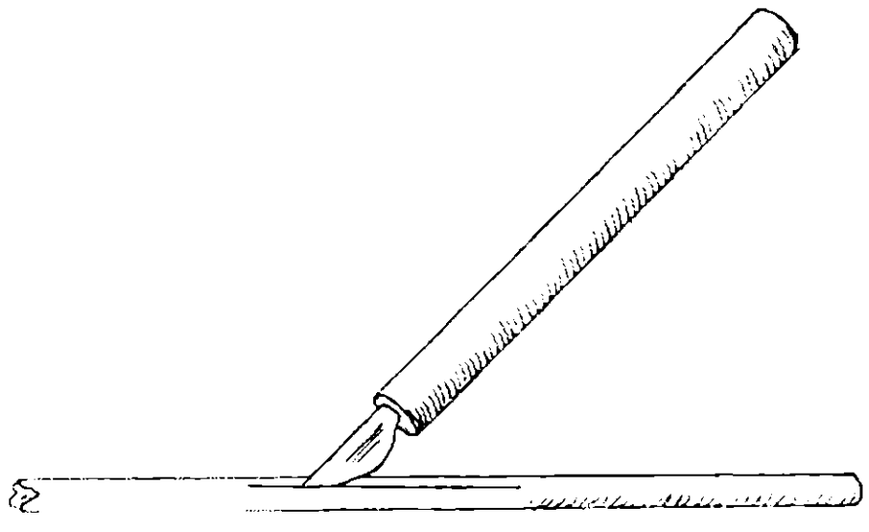
Measuring
Weaving
Making a scalloped edge

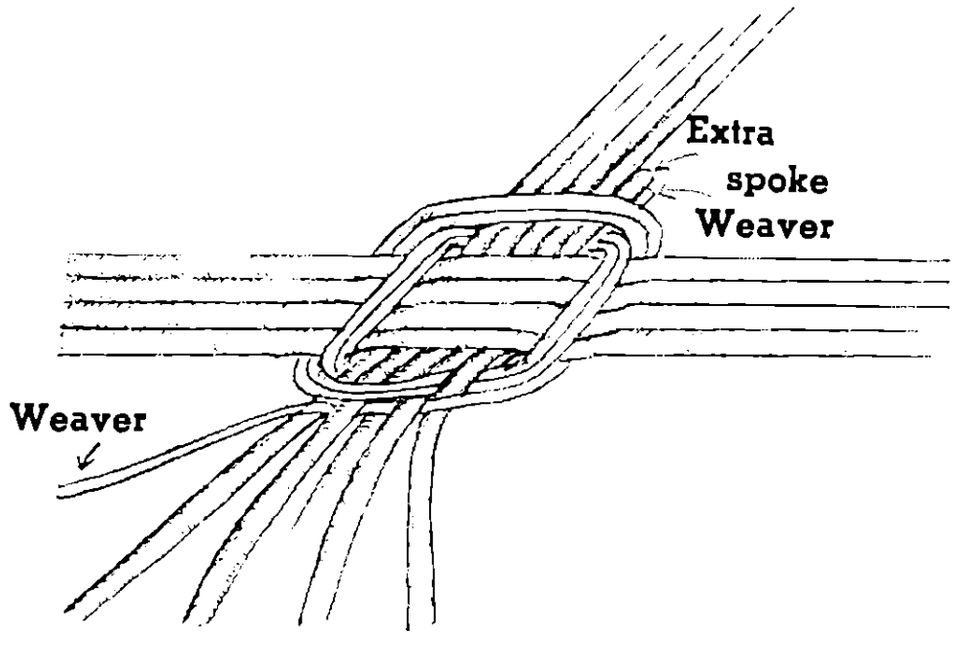
PROCEDURE

1. Cut eight pieces of No. 3 round reed (3/32″ diameter) 16″ long. Cut one piece 10″ long. Use a knife or razor blade.
2. Cut 1″ slits through the center of four of the 16″ pieces. Use a knife or razor blade.
3. Slide the other four long spokes through the 1″ slits. Slide the 10″ spoke in at the end.

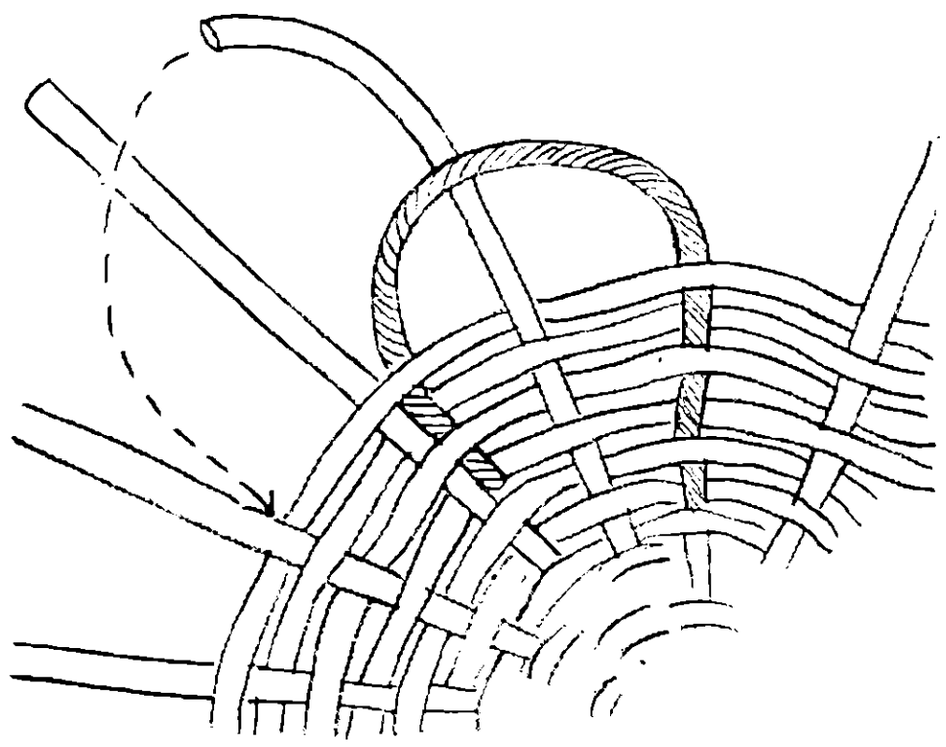


4. Soak the assembled spokes in water. Put them in a dishpan or sink. Also soak one of the long No. 1 pieces of reed. This is the weaver. Soak from twenty to thirty minutes or until soft and pliable.
5. Remove reed from water. Slide the end of the weaver through the 1″ slits alongside the 10″ spoke. Bring the weaver under the 10″ spoke and the four long ones lying alongside, over the next bundle, under the next, and so on until the weaver has wrapped around the bundles twice. Then go under the one 10″ spoke and wrap around twice more. As you begin the fifth time around go over the 10″ spoke, under the next one, over the next one, and so on round and round the mat. Separate the spokes as you weave, gently forcing them to become evenly spaced.

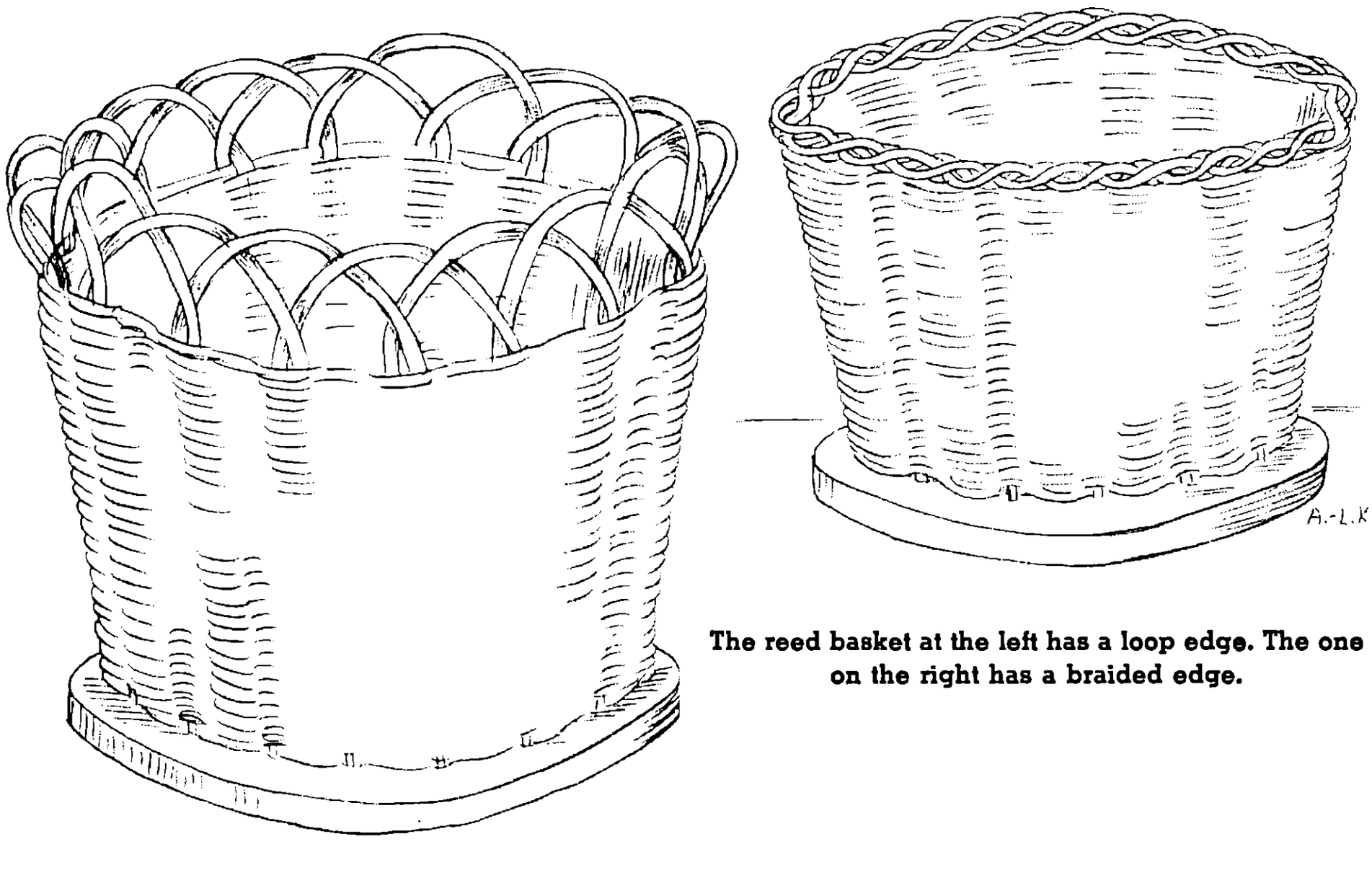




6. Start a new weaver. At the end of the weaver tuck the end down along the far side of the last spoke. Insert the end in at least ½″. Start the new reed by poking the end of it down the opposite side of the same reed. Weave until the woven part of the mat is about 6″ in diameter.
7. Finish the edge with loops. Each spoke is carried past one and pushed down alongside the second one. Reed should be moist. (See illustration at right.)
8. While still moist shape each scallop or loop to the same size and shape.



REED BASKET



The reed basket at the left has a loop edge. The one on the right has a braided edge.

Materials Needed

6″ Circle of ¼″ plywood
No. 3 Reed
No. 1 Reed
No. 0 Sandpaper

Tools Needed

Knife
⅛″ Twist drill
Hand drill
Coping saw
File

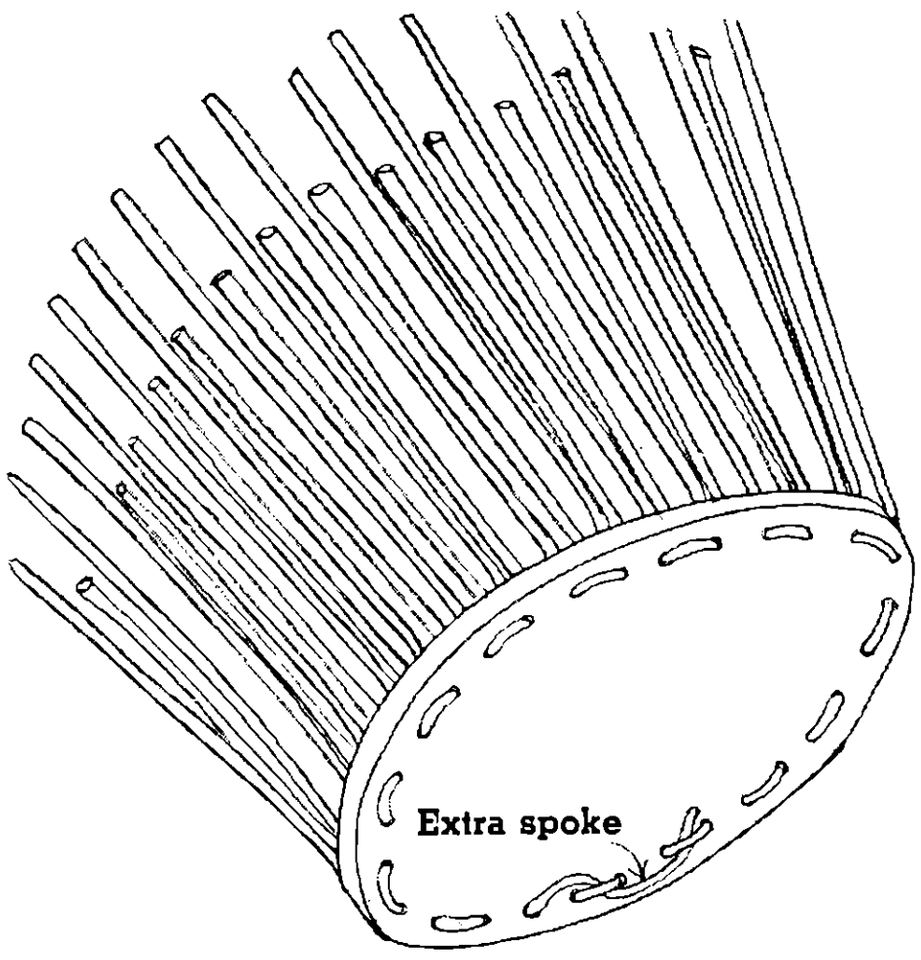
Skills Used

Sawing
Filing
Sandpapering
Drilling
Weaving
Braiding an edge

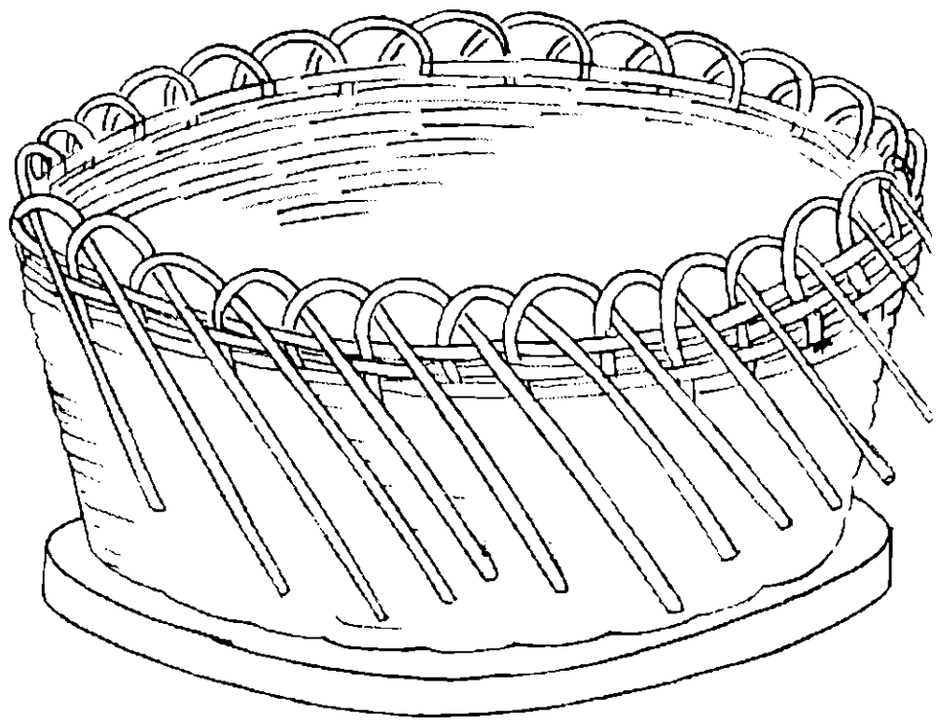
PROCEDURE

1. Saw, file, and sandpaper the 6″ circle of ¼″ plywood, preparing it for the basket bottom.

2. Mark off an odd number of holes approximately ⅝″ apart and in 3/16″ from the edge. There must be an odd number of holes—for example 29, 31, 33. Drill each hole clear through the wood with the ⅛″ twist drill. Sandpaper again.
3. Cut half as many No. 3 reed spokes as there are holes. (For example, if there are thirty-one holes cut fifteen spokes.) Make each spoke 20″ long. Cut one spoke 12″ long.
4. Soak the spokes. Insert one end of the spoke in one hole, the opposite end in the next hole. Pull up the spokes. Continue inserting spokes in the holes. The short 12″ spoke is woven in and out of two of the loops on the bottom and then brought up through the last hole.



5. Soak a weaver. Start at any spoke. Weave in and out the spokes round and round the basket. Go over one spoke and under the next. To end a weaver run the end of it down alongside a spoke. Start the new weaver by poking the end of it down the other side of the spoke.
6. Sides may be made to flare out slightly by forcing spokes out as the weaving is done. Weave until basket is 2″ or 2½″ high.
7. To make a simple braided edge on the basket do the following steps. Reed should be moist. Note—Younger children may prefer to make the simple loop edge described in step 7 on page 272 under the directions for finishing the reed mat.
   a. Pass one weaver around the next one all the way around the basket. Spokes will lie outside the basket.



   b. The second time around cross each spoke over the next two spokes. Spokes will lie outside the basket.
   c. The third and last time around each spoke is brought up over the edge and tucked through a loop in the inside. Go through the loop two spokes beyond the one being used.
8. Let the reed dry. Snip off the ends of the spokes after the reed is dry.

TRAY WITH WOVEN EDGE

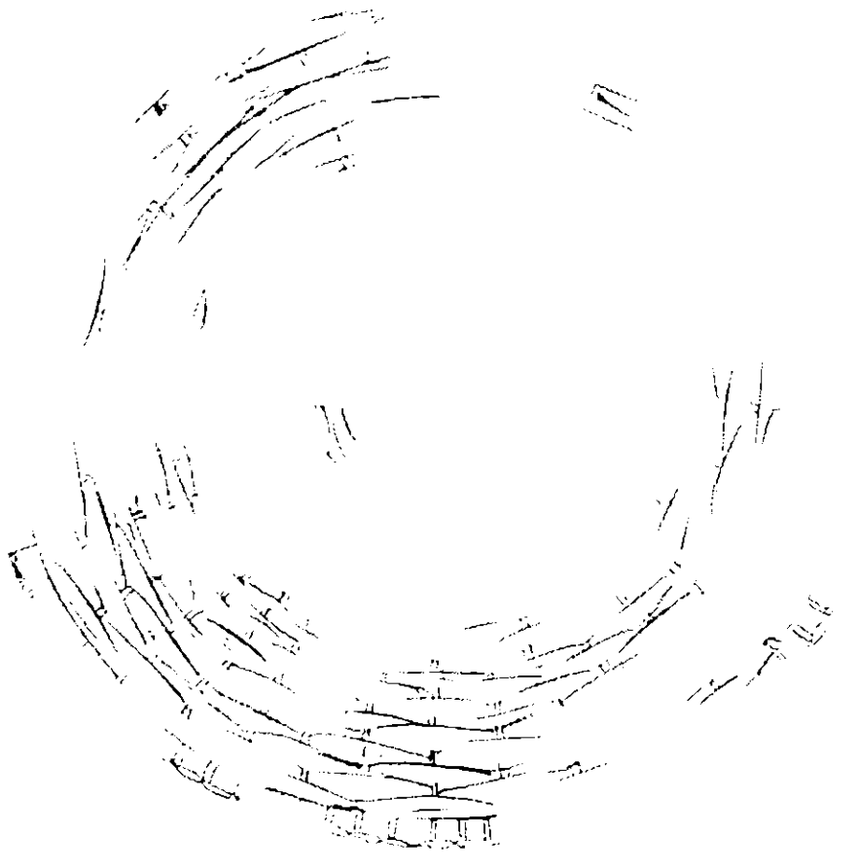
Materials, Tools, and Skills

Same as for Reed Basket just described

PROCEDURE

Cut a large oval-shaped piece of plywood approximately 10″ x 15″. File, sandpaper, and drill as in making the basket. Weave the same edge, making the weaving only ½″ high. Finish with braided edge. Spokes 16″ in length are long enough. Finish with spar varnish.

A RAFFIA MAT



Materials Needed

1 pc. Stiff cardboard, 8″ x 8″
4 yds. Ordinary store string—any color
Raffia—various colors

Tools Needed

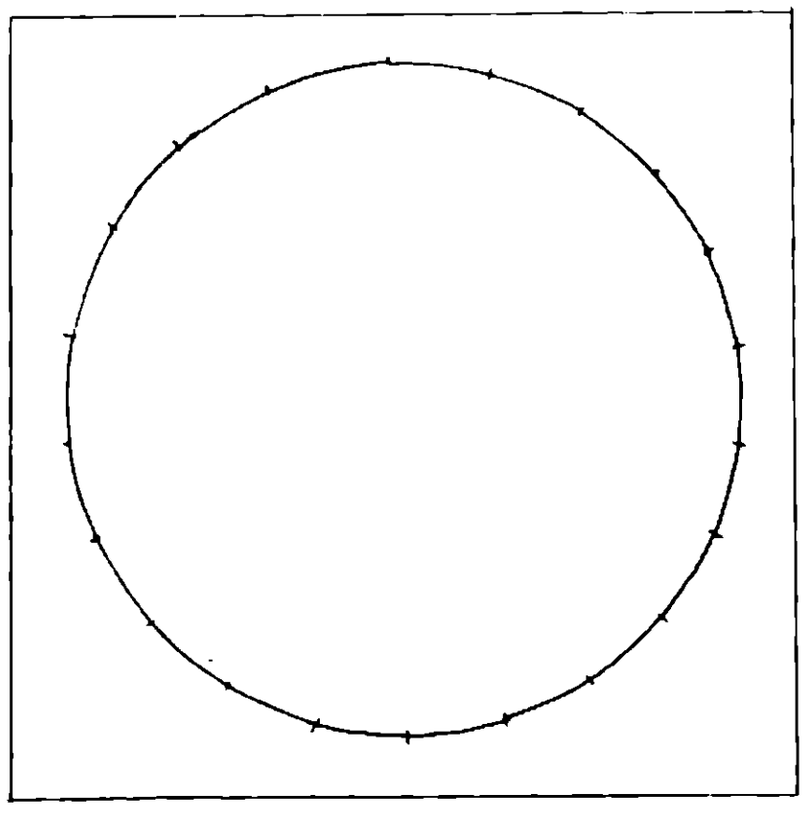
Tapestry needle
Scissors
Compass
Pencil

Skills Used

Drawing
Cutting
Weaving
Whipping the edge

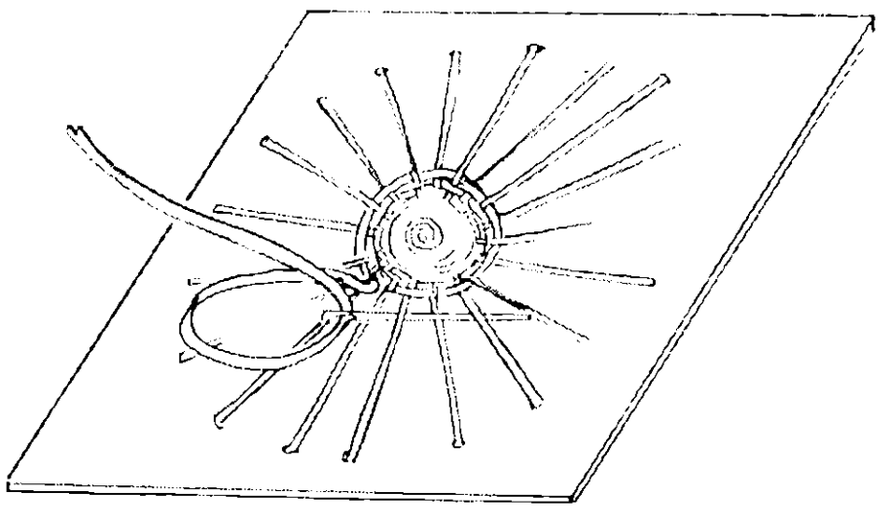
PROCEDURE

1. Find the center of the cardboard by drawing diagonal lines from corner to opposite corner. They will cross in the center. Place the compass on the center, use a 3″ radius and draw a circle. Mark off the circle with an uneven number of points about ¾″ apart.
2. Poke the needle through the center of the circle. Poke the needle through each point on the circle. Thread the needle with string. Tie a knot on the end. Come up through the center of the loom. Go back through any one of the outside holes. Come up through the center again. Go back through the next hole. Continue around the circle. If the string gives out, tie on a piece and continue. This threads both sides of the loom.



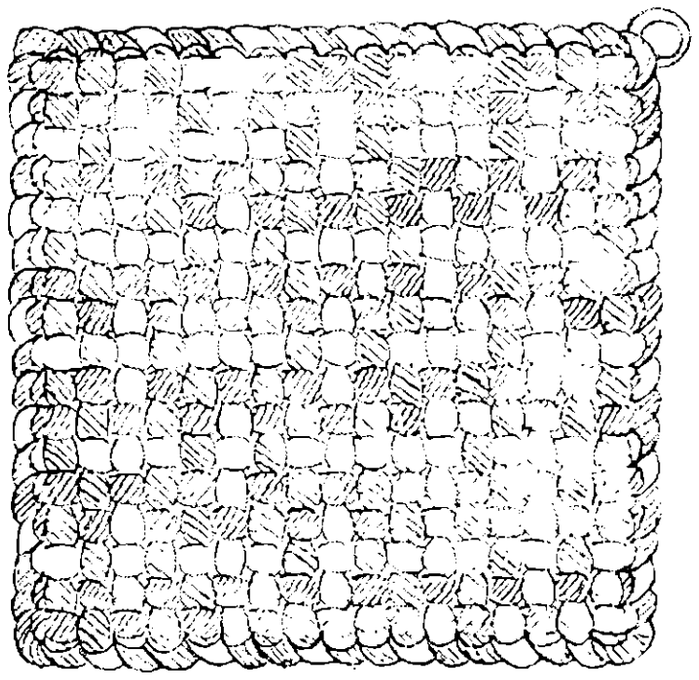
Start the mat by marking off the circumference of a circle with an uneven number of points.

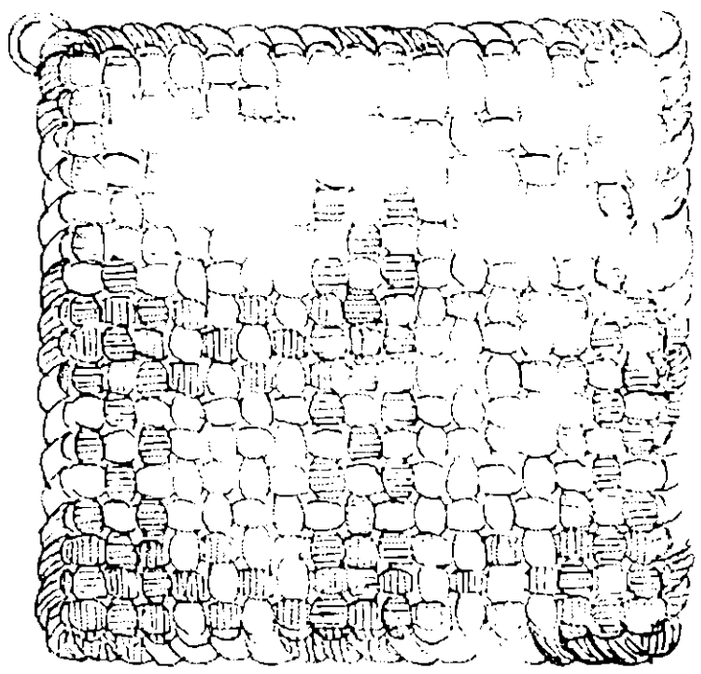
3. Thread the needle with raffia. The weaving is started in the center. It is a process of going over one string and under the next, going round and round the loom. It is not necessary to fasten the ends of the raffia. The weaving will hold them in place. Various colors may be used to make rings of different widths. Both sides of the loom should be woven.



4. Cut off the excess cardboard up to the strings. Do *not* cut the strings. The edge should then be finished with the over-casting stitch or the buttonhole stitch.

WEAVING WITH JERSEY LOOPS





SINGLY THESE MATS are used as pot holders. They may be sewed together to make rugs. The loop loom may be purchased from a store or it may be made at school.

Materials Needed

Jersey loop of various colors
Thread

Tools Needed

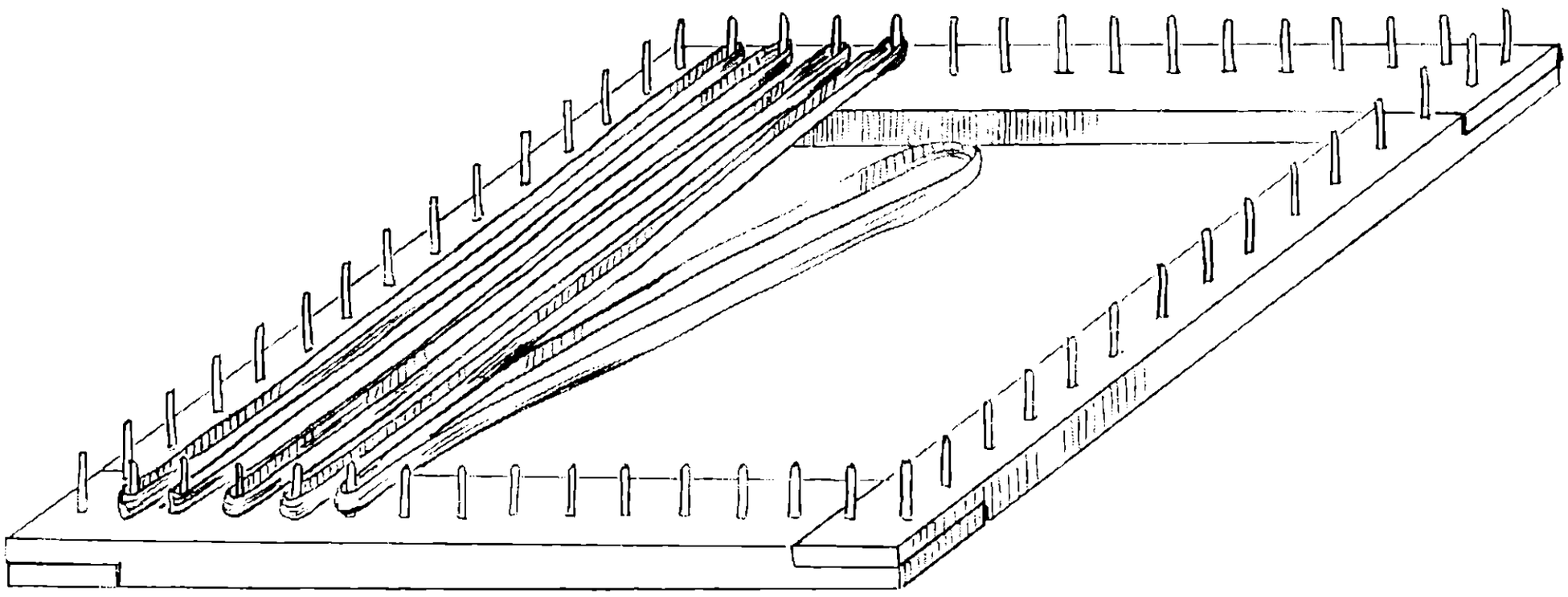
Loop loom
Needle

Skills Used

Weaving

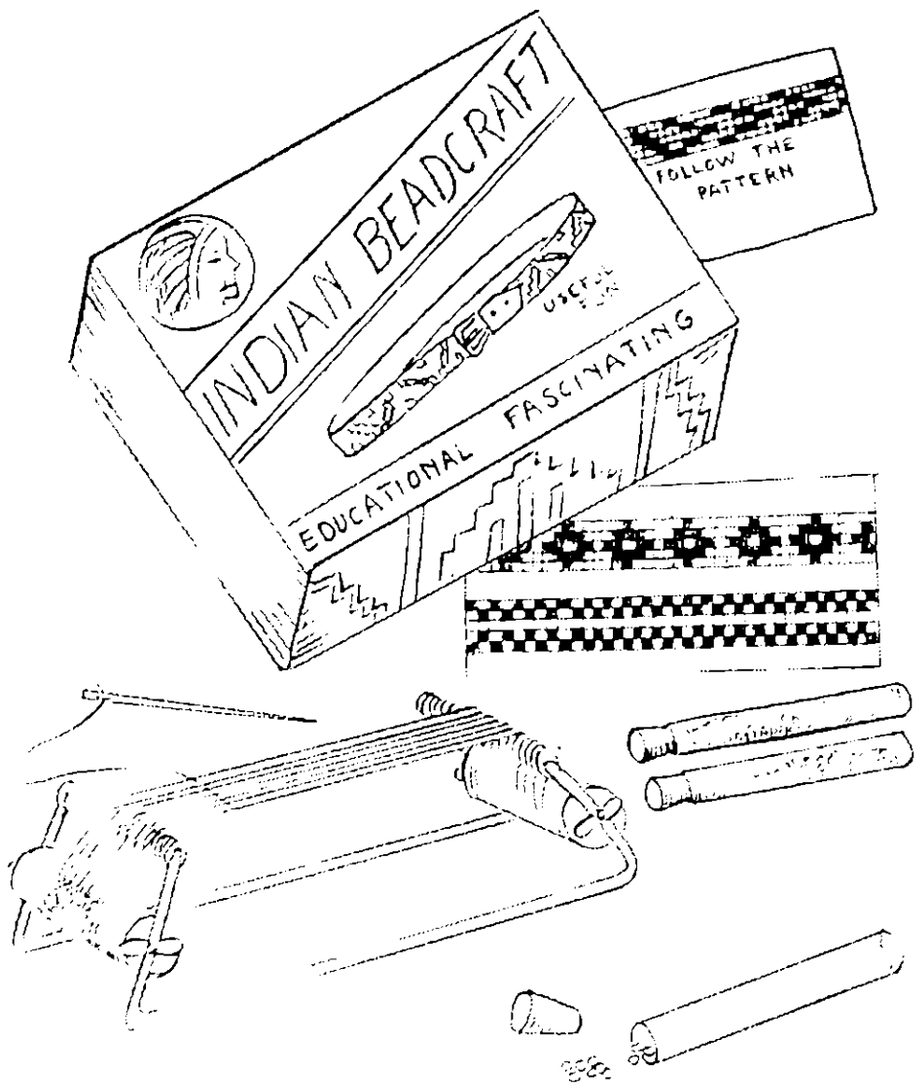
PROCEDURE

1. String the loom. Stretch one loop across the frame from the first nail on one side to the first nail on the opposite side. Stretch the second loop across the second nails. Continue until the loom is full.
2. Begin to weave. Pass a loop over and under the strung loops and fasten on the first nails. The second loop passes over the opposite loops that the first one crossed. Continue until the entire square is woven.
3. Take off the loom and secure the edges. Remove one corner loop. Pull the end of that loop through the end of the second one. Pull the end of the second one through the end of the third one and so on all the way around.
4. The last loop must be sewed in place with needle and thread.



Stringing the loom with jersey loops

INDIAN BEAD WEAVING



LOOM AND DIRECTIONS, with thread, needles, and beads, can be purchased in a kit for about one dollar. A good loom may also be made from a cigar box.

Materials Needed

Thread
Indian seed beads
Beeswax

Tools Needed

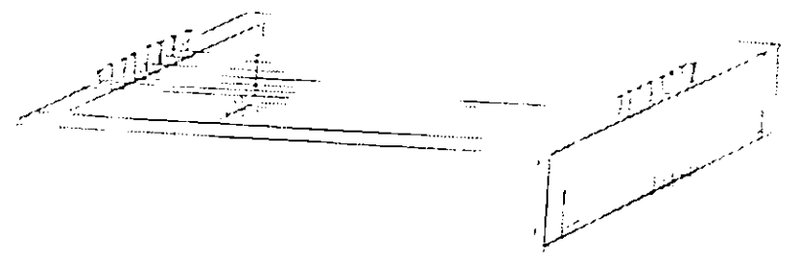
Indian bead loom
Fine bead needles

Skills Used

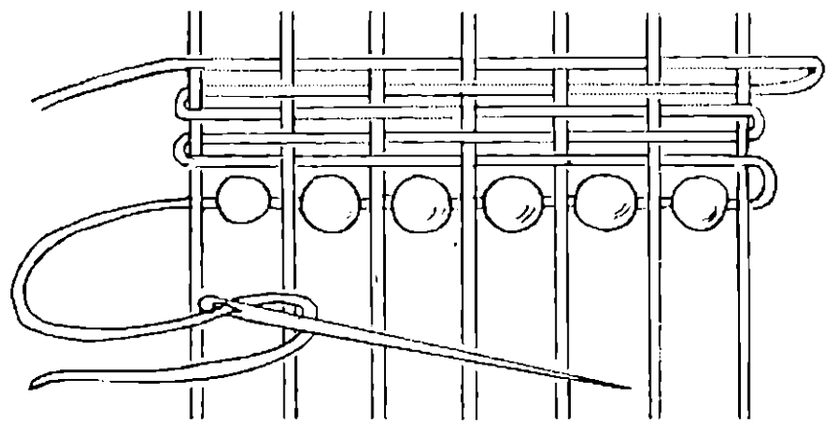
Threading a loom
Weaving with beads

PROCEDURE

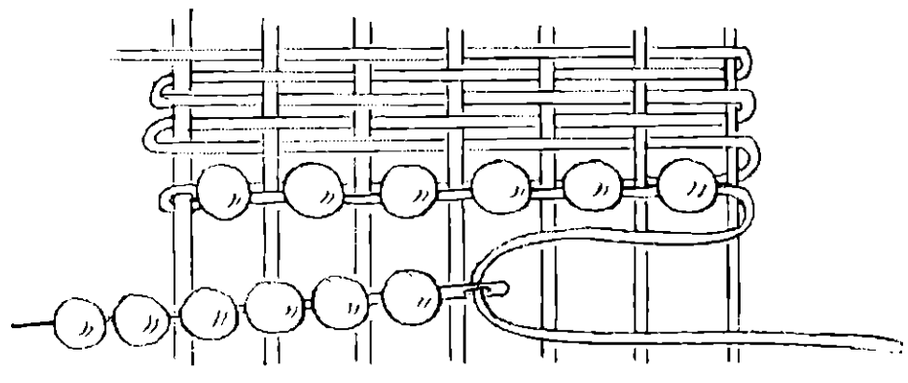
1. To make a cigar box loom, remove the lid of the box. Insert a row of ½″ No. 19 brads at each end, ⅛″ apart.
2. Thread the loom by winding thread around the box and between the brads. There must be one more thread than the desired number of beads in the width of the article.



3. Begin by weaving thread back and forth for about ¼″; then thread the desired number of beads on the needle. Drop the beads to the end of the thread. Put the forefinger under the warp threads and push the beads in place, one bead in each space. This leaves the thread *under* the warp threads as shown in the drawing.

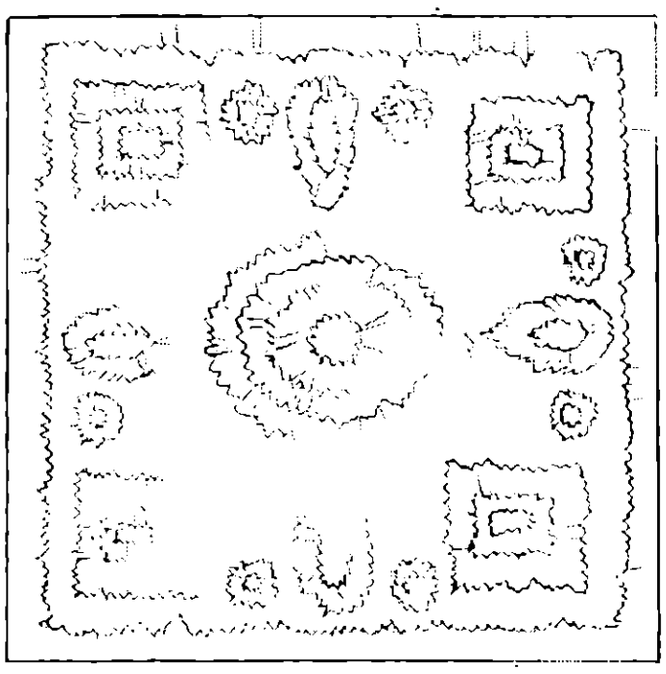


4. Still holding the beads in place with the finger, pass the thread back through the beads. This time the thread will pass *over* the warp threads holding the beads in place.



5. The next row is applied in the same way. Continue weaving until the beadwork is the desired length.
6. Finish by weaving at least ¼″ of material with the thread.
7. Line the beadwork with ribbon of the same width. Turn the ¼″ woven end inside between the beads and the ribbon. Let enough ribbon extend beyond the end of the beads for sewing on snaps or buckles or for tying in a bow.

TIE DYEING



TIE DYEING, as the name suggests, is done by tying the material in different ways before dyeing it. The folded parts, which are tied with cords, and those parts into which articles have been tied remain the original color of the material under the cords after the dyeing is done. The most popular tie-dyed project is the scarf or babushka. The design is obtained by the irregularity of color where the dyes seep in under the cords.

Materials Needed

1 sq. yd. White silk, rayon, or soft cotton material
Marbles, buttons, clothespins, spools, teapot lid, pencils, as desired
Dyes—any cold, household dye
Large pan

Tools Needed

Electric iron

Skills Used

Tying
Dyeing
Pressing

PROCEDURE

1. Wash the material in cold water. This removes any dressing that may be in the material.
2. Tie various objects into the material. The illustration shows the top of a clothespin tied in the center of the cloth and marbles tied in the corners. Another suggestion would be to tie a single knot in each corner and the top of a teapot in the center. Wrap the cord around two or three times before tying.
3. Mix the dye in the pan following the instructions given on the package.
4. Dip the material into the dye. The longer it stays in, the deeper the color will be. However, if it is left in too long, too much color may seep into the tied parts.
5. Rinse in cold water.
6. Untie the material.
7. Dry and then press with a hot iron.

SUGGESTIONS FOR FURTHER READING

Alexander, Vera C., *Cross-Stitch.* New York: Pitman Publishing Corporation, 1932.

Balderston, Lydia Ray, *Housekeeping Workbook—How to Do It—House Care and Cleaning.* Philadelphia: J. B. Lippincott Company, 1936.

Cook, Rosamond C., *Essentials of Sewing.* Peoria, Ill.: Manual Arts Press, 1924.

Couch, Osma Palmer, *Embroidery in Wools.* New York: Pitman Publishing Corporation, 1933.

Cox, Doris, and Barbara Warren Weismann, *Creative Hands.* New York: John Wiley & Sons, Inc., 1945.

Frater, Beatrice, Lillian Gallagher, and Dorothy Ellen Jones, *Instruction in Sewing.* Sandusky, Ohio: The American Crayon Company, 1949.

Handcraft Teacher's Guide for Elementary Schools. Cleveland, Ohio: Board of Education, 1950.

Hodkin, Mabel, *Rug Making and Designing in Cross-Stitch.* New York: Pitman Publishing Corporation, 1936.

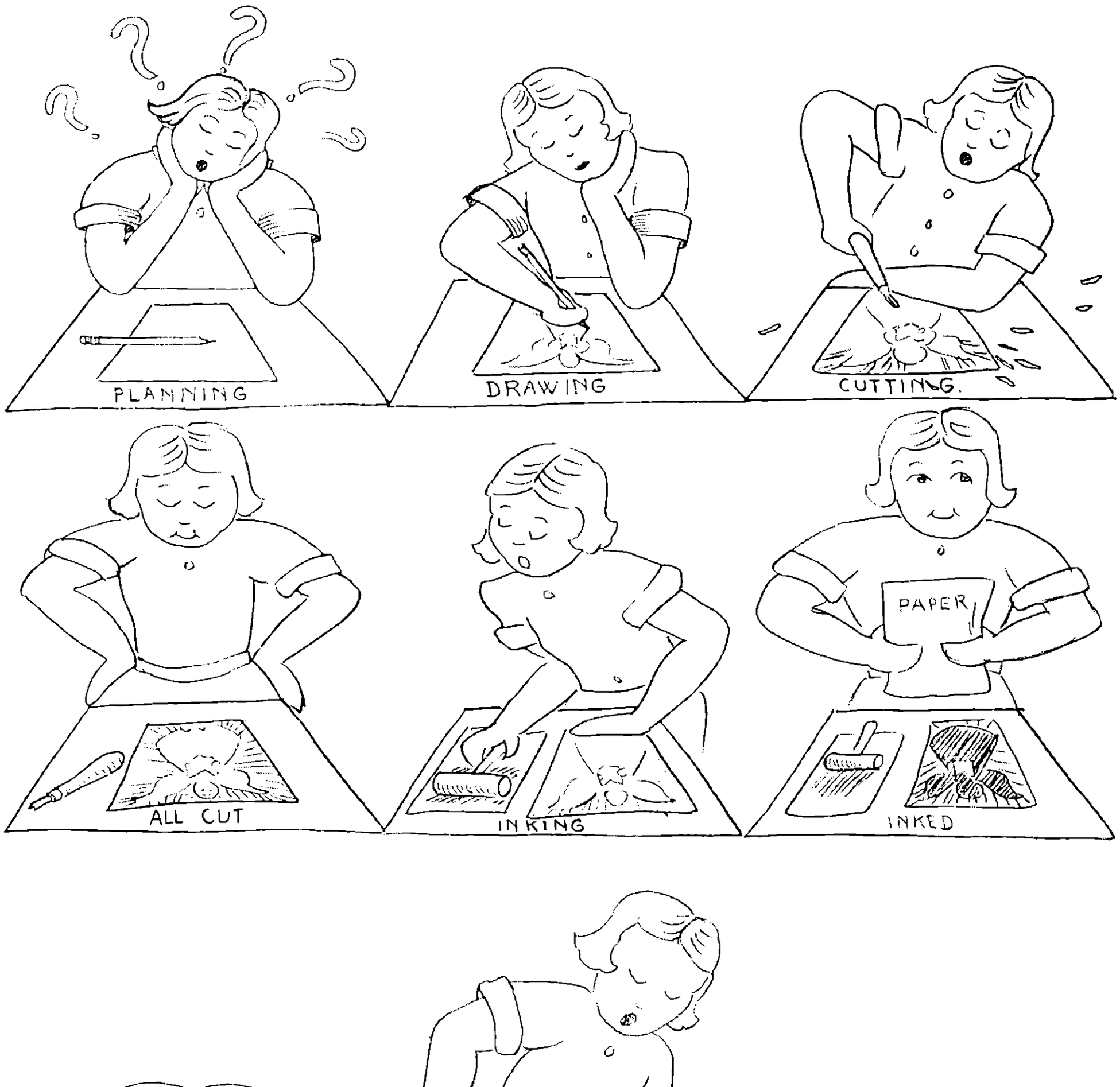
Johnson, William H., and Louis V. Newkirk, *Needlecraft.* St. Paul, Minn.: Webb Publishing Company, 1942.

Littlejohns, Idalia B., *Painted Fabrics.* New York: Pitman Publishing Corporation, 1930.

Newkirk, Louis V., and LaVada Zutter, *Your Craft Book.* Scranton, Pa.: International Textbook Company, 1946.

Parisi, Tony, *Craftsman's Instruction Handbook.* Sandusky, Ohio: The American Crayon Company, 1949.

Zweybruck-Prochaska, Emmy, *Hands at Work.* Sandusky, Ohio: The American Crayon Company, 1942.



Stages in making a linoleum block print

CHAPTER 11

Graphic Arts Crafts

Reproduction of Designs

Reproducing designs on materials through any of various processes is a fascinating craft and a very old one. There are many ways in which a child can apply design to paper, cloth, and glass.

Block printing is one of the oldest methods of applying a design to paper or cloth. In the elementary grades, simple linoleum block printing and wood block printing can be done. A simpler method of reproducing designs on paper is found in stick printing and potato printing.

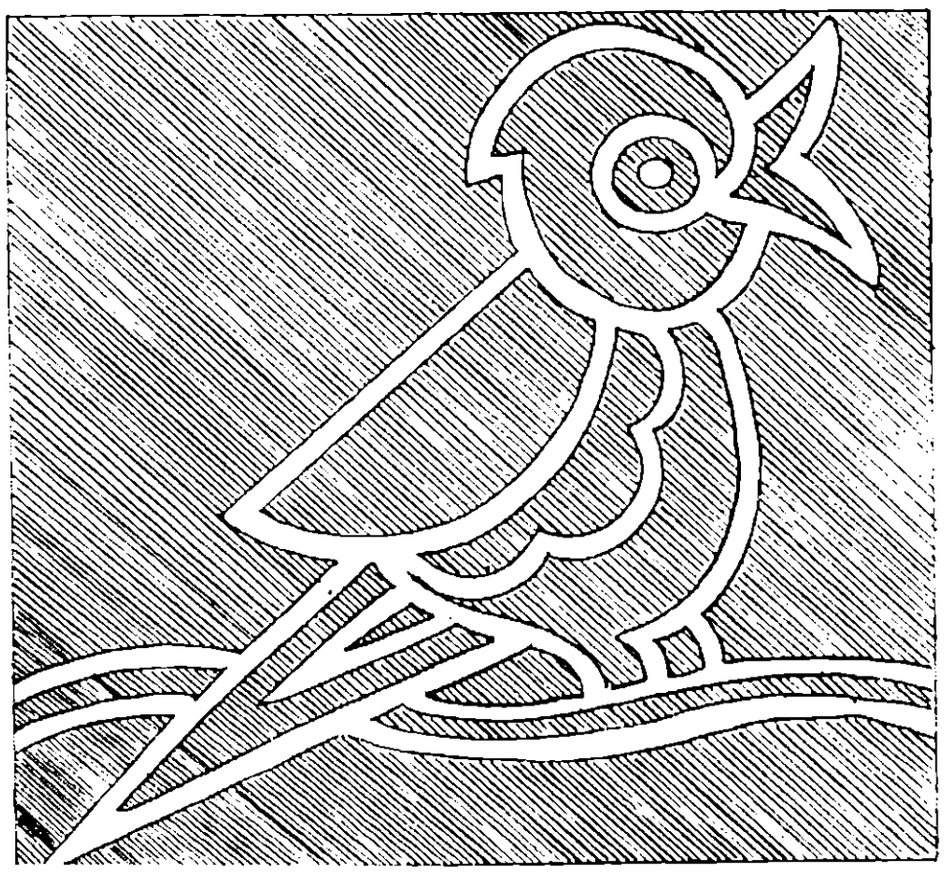
Stenciling with textile colors that are fade proof offers the child an easy medium for applying designs on cloth. Today a new kind of paint is available which can be used successfully in applying designs to china, metal, and glass.

Blueprint making is another graphic arts process which children enjoy. They can expose negatives to the sun and learn to make blueprints to reproduce designs inexpensively and easily.

Linoleum Block Printing

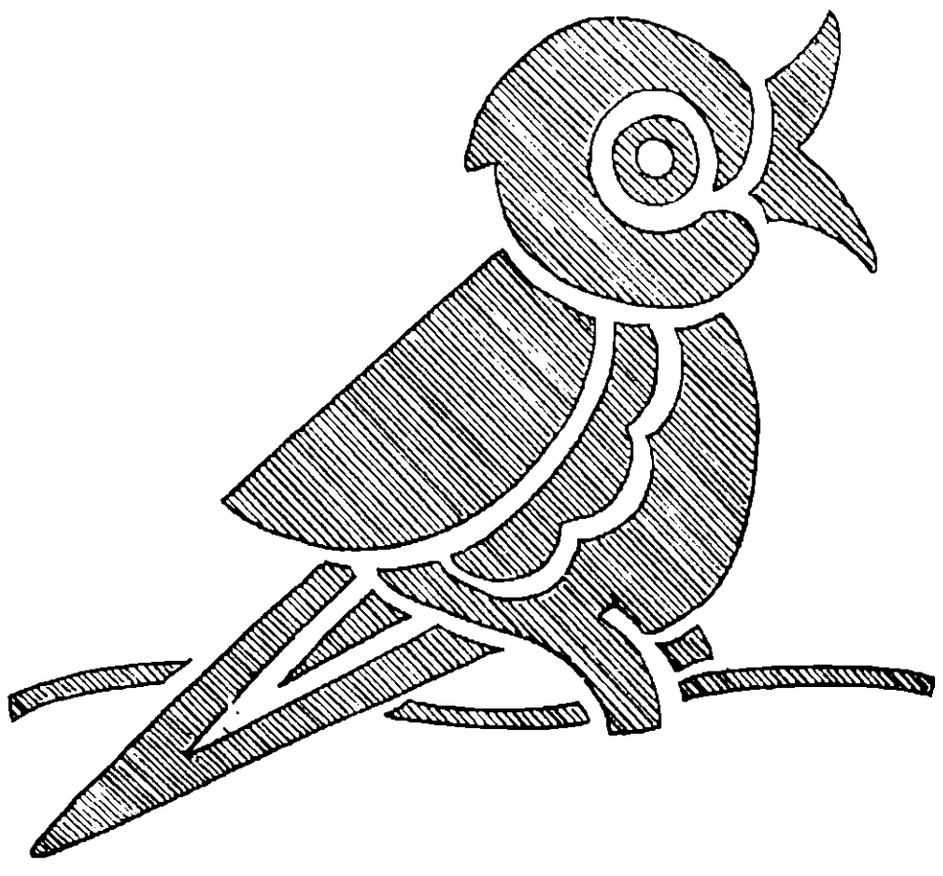
A design carved on a piece of linoleum can be transferred to a piece of paper or cloth simply by inking the linoleum surface and then pressing it against the paper or cloth. Water-soluble inks may be used on paper. Oil-base printer's inks are usually used on cloth.

The design may be carved in a number of ways. The simplest method is to cut an outline design. A gouge is used to carve a line design on the linoleum. When the linoleum block is inked with a color



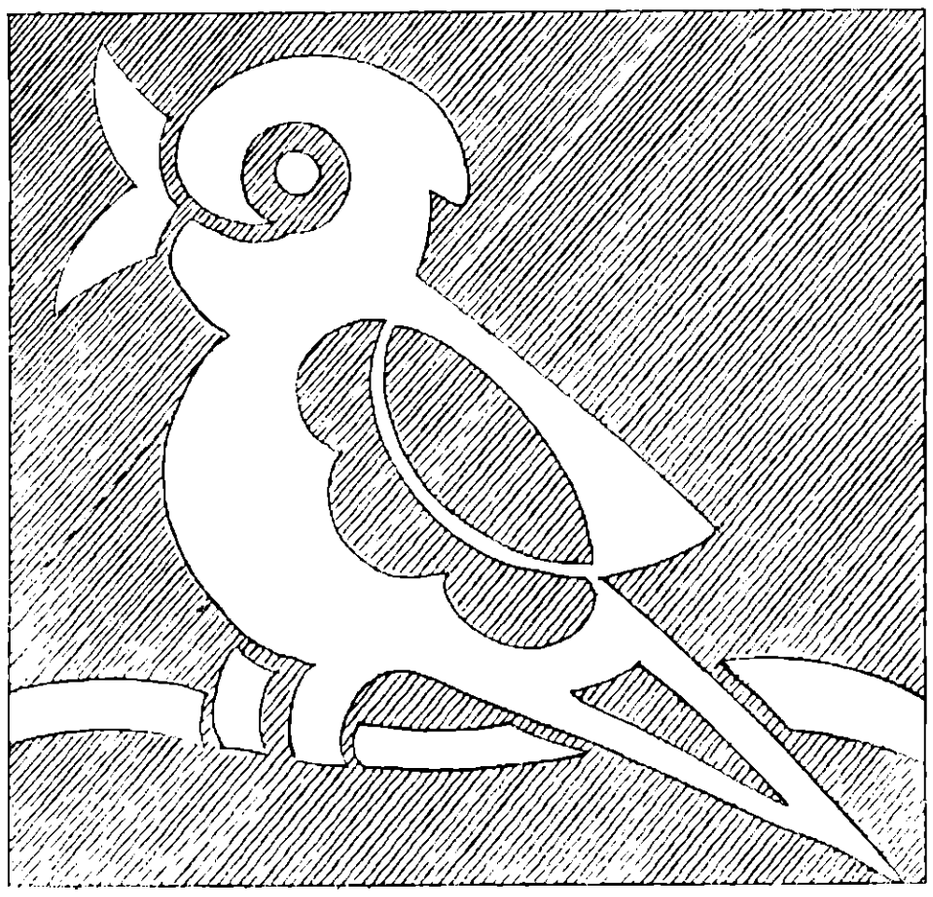
and then pressed against white paper, the design appears as white lines on a colored background. The background only is printed.

Another procedure is to carve the line design and then remove all of the background. When the linoleum block is inked with a color and pressed against white

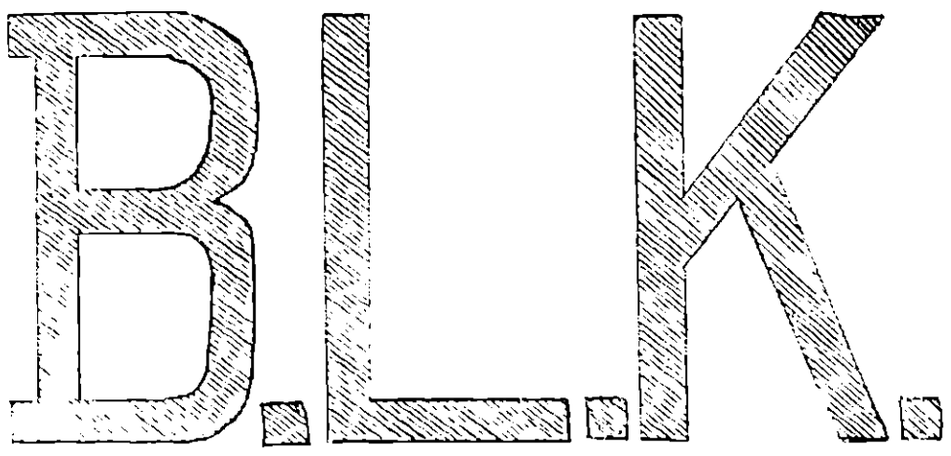


paper, the design is printed in the color, and the white paper is the background.

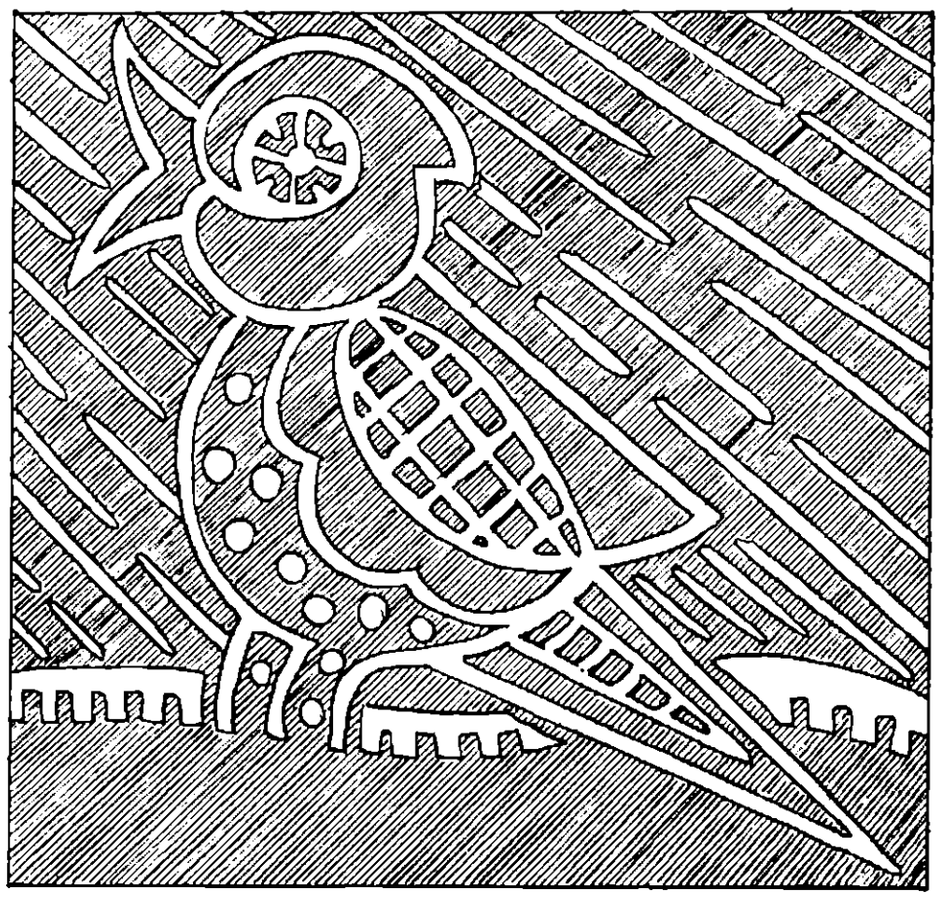
A third procedure is to carve out the entire design, leaving the background raised. This will give a white design on a colored background when printed with colored ink on white paper.



A little more difficult to carve is the type in which a line design is made by cutting away all of the linoleum except raised ridges or lines that form the design. When this is printed it will produce a colored ink outline design on the white paper.



Still another type of linoleum print is produced by carving texture areas in the block. Crosshatched lines, stripes, broken stripes, and polka dots are cut in various parts to add to the interest of the print.



These five methods produce one-color prints. The effect of two colors is obtained by using colored inks and colored paper. True two-color block printing is a little more difficult for the child, but it can be done successfully by some sixth graders. A separate linoleum block is required for each color. The blocks must be cut so the colored parts fit together properly when the blocks are printed. Three colors, or more, should be left for the junior high age group.

Stick Printing and Potato Printing

The principles of stick and potato printing are the same as for linoleum block printing. The essential difference is only that printing a design from a stick or from a carved potato is relatively simple. Children in the first grade can successfully print border designs with a clothespin or stick on the end of which they have filed notches or grooves. Printing from a design carved on the end of a spool is described on page 123 in the chapter on novelty crafts. Two-color printing is almost as simple as printing in one color.

The reason for printing from a potato is that carving a design on a potato is much easier than carving a design on linoleum. Children in grade three can usually do potato printing.

Woodcuts

Simple woodcuts, one of the earliest devices for printing pictures, can be made by children in grade five. The principles of the process are the same as for making linoleum cuts. Because wood is harder than linoleum, it is more difficult to cut. At the same time, much more complicated designs can be printed with woodcuts than with linoleum blocks.

Stenciling on Textiles

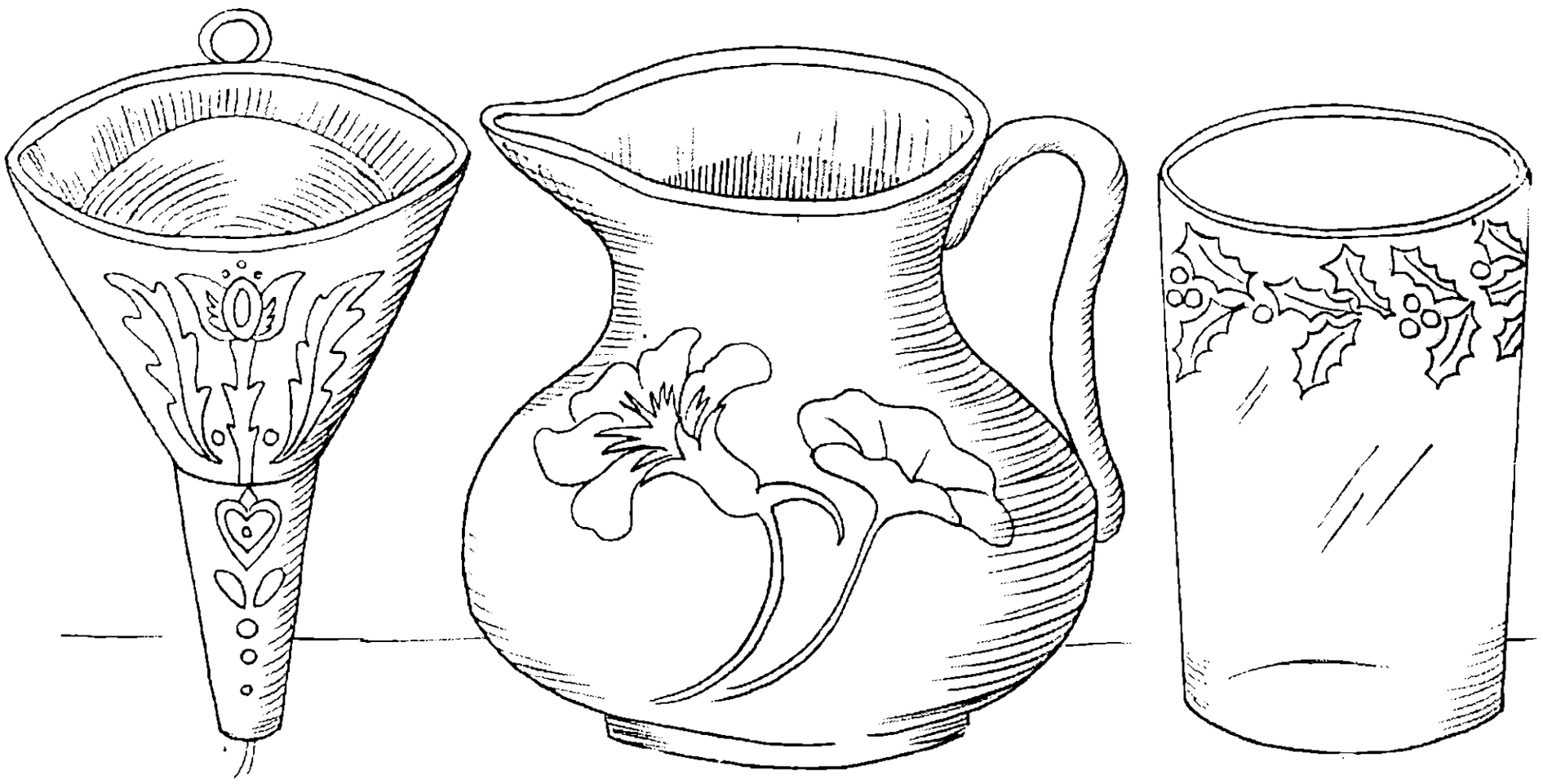
There is an element of suspense in this process of applying design to materials that holds the craftsman to his work until finished, and then makes him want to do more. Children in the first and second grades can be taught to do very simple stencil work. Older children will use more colors and achieve success with more intricate designs. This is an inexpensive activity that falls in both fields—textile crafts and graphic arts.

Unit, border, or surface designs may be stenciled on an unlimited variety of projects. Tea towels, curtains, drapes, luncheon cloths, table mats, napkins, dresses, skirts, blouses, scarves, neckties, shirts, babushkas, T shirts, toy boat sails, bibs and sun suits may be made more attractive by stenciling a personalized design on the material.

Colors are permanent and launder very well. Cotton fabrics are most satisfactory for children to use. White and pastel colors are preferable to darker colors because the textile paints on the market are transparent to some extent.



Stenciled designs



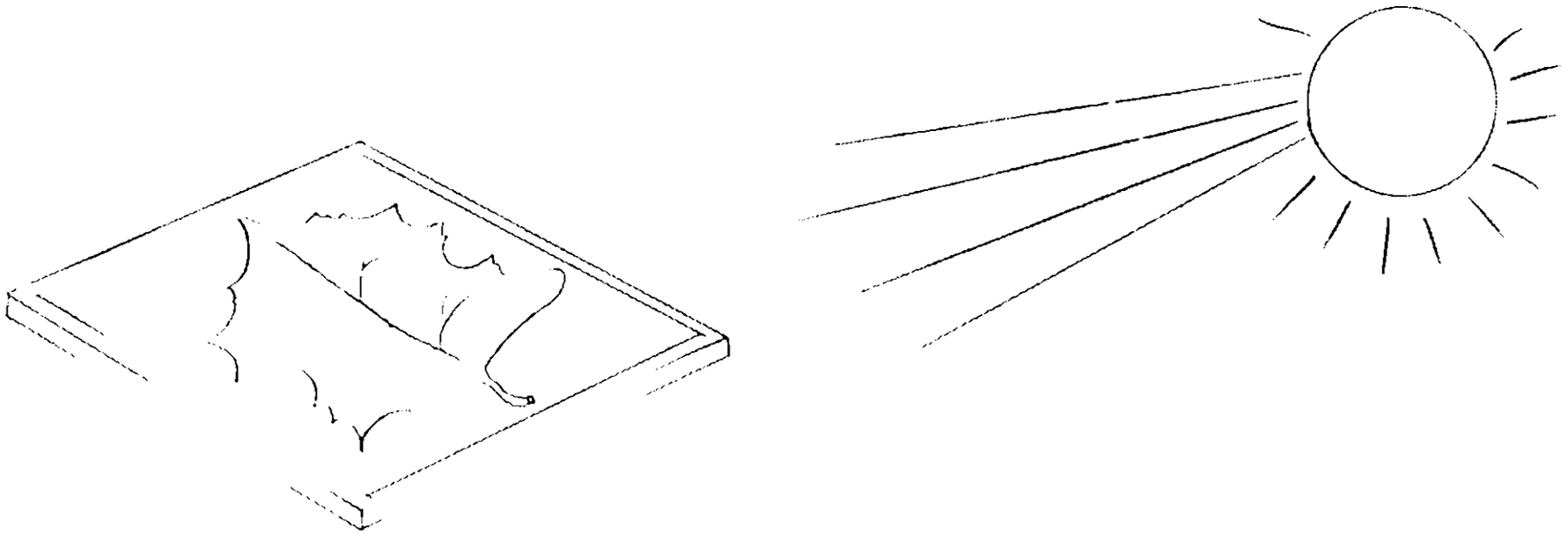
Painting on Tin, China, and Glass

A tin funnel becomes a gay and practical string holder, an old pitcher takes on added beauty, a peanut butter glass becomes a decorated iced tea glass when design is applied. Use a special paint manufactured for this specific purpose. It is a thermo-setting color which forms a permanent bond with the painted surface. Firing is done in an ordinary electric home oven. Colors will wash and wear as they are highly resistant to handling, soap and water, and ordinary food acids. Specific directions are given on page 292 for decorating a drinking glass. However, these same directions apply regardless of the object to be decorated.

Blueprint Making

Blueprinting is a photo-chemical process which can be done easily by primary grade children with relatively simple equipment. In addition to the materials used, sunlight and water are the principal requirements.

Blueprint paper is coated on one side with a chemical which is sensitive to light. Before the paper is exposed to light, it is a pale, yellowish green in color. After it has been exposed and developed in a solution of potassium dichromate, the chemical on the surface turns blue. Thus designs may be made by exposing to light only parts of the paper. This is accomplished by placing opaque objects



Expose the print to sunlight.

such as leaves or coins on the paper during its exposure.

During the process of exposing the paper, the yellowish green surface loses its color. After the paper has been exposed, it is washed in the developer. During that process, all exposed parts become dark blue. In places where light has not reached the paper, the chemical washes off, exposing the white paper. A blueprinted design appears white on a blue background.

Graphic Arts Projects

On the following pages are given a few applications of the graphic arts processes just discussed. Since the processes may be used to decorate surfaces of various kinds, graphic arts crafts are often used as a supplement to other craftwork. In textile crafts, for example, projects such as aprons, purses, babushkas, and marble bags can be decorated by stenciling or block printing as well as by stitchery. Many of the projects discussed here in detail, then, should be considered only as illustrations of applied graphic arts. Children and teachers will be able to think of hundreds of other articles which can be enriched through use of graphic arts processes.

In the table, several project suggestions are given under each process.

Graphic Arts Skills

In graphic arts crafts, many skills used in other crafts are put to work. For example, in stick printing the design to be printed is first filed on the end of a stick. The file for that work is the same tool as used in woodcrafts. And the procedure of filing is also the same. Measuring, cutting with a knife, and painting are other skills used in other kinds of craftwork as well as in graphic arts crafts.

In the table of skills given here, the graphic arts processes are followed by a brief analysis into fundamental skills.

Suggested Grade Levels for Graphic Arts Projects

GRADES 1 and 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Stick printing: book covers place cards wrapping papers Stenciling: illustrations paper place mats	Potato printing: book covers place cards wrapping paper Two-color stenciling: babushkas bibs napkins tea towels Blueprinting: flower prints leaf prints paper designs	Linoleum block printing: designs on cloth illustrations pictures wall hangings Stenciling: scarves table mats towels wall hangings	Linoleum block printing: border designs on aprons, towels, skirts Stenciling: boat sail lunch cloths neckties sun suits T shirts Glass painting: bottles glasses glass plates glass vases Framing wood-cut designs Blueprinting negatives	Linoleum block printing: curtains dresses illustrations smocks Stenciling: blouses curtains drapes dresses shirts skirts Blueprinting drawings

Suggested Grade Placement of Graphic Arts Skills

GRADES 1 and 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6
Stick printing: filing wood printing Single-color stenciling: cutting stencil with scissors crayoning stencil	Potato printing: cutting measuring printing ruling Two-color stenciling: brushing in color with stencil paint cutting stencil with scissors making unit designs setting the color Blueprint making: developing the print exposing the print	Linoleum block printing: gouging lines inking the block printing Two-color stenciling: making border designs repeating unit designs	Linoleum block printing: cutting raised backgrounds, designs, and outlines Three-color stenciling: cutting stencil with knife Glass painting: designing firing painting Making woodcuts: cutting designing framing printing	Linoleum block printing: making textured areas making two-colored blocks Making many-colored stencils

A LINOLEUM BLOCK PRINT

PRINTING FROM AN engraved linoleum block can be done by the procedure described here, if the surface on which the printing is to be done can be laid out flat. Directions are given for printing in one color on paper. Suggestions are also given for printing on cloth.

Materials Needed

Design (the one used here measured 4″ x 5″)
¼″ Battleship linoleum, 4½″ x 5½″ (⅛″ thickness may be used)
Water-soluble ink for printing on paper
Oil-base ink for printing on cloth
Turpentine for cleaning
Soft, absorbent paper
Carbon paper
Pencil
Heavy board larger than the linoleum block

Tools Needed

Linoleum cutting tools (such as Speed ball handle with No. 1 and No. 5 gouges)
Brayer roller, 4″ size
Sheet of glass or metal, at least 8″ x 10″

Skills Used

Designing
Carving
Printing

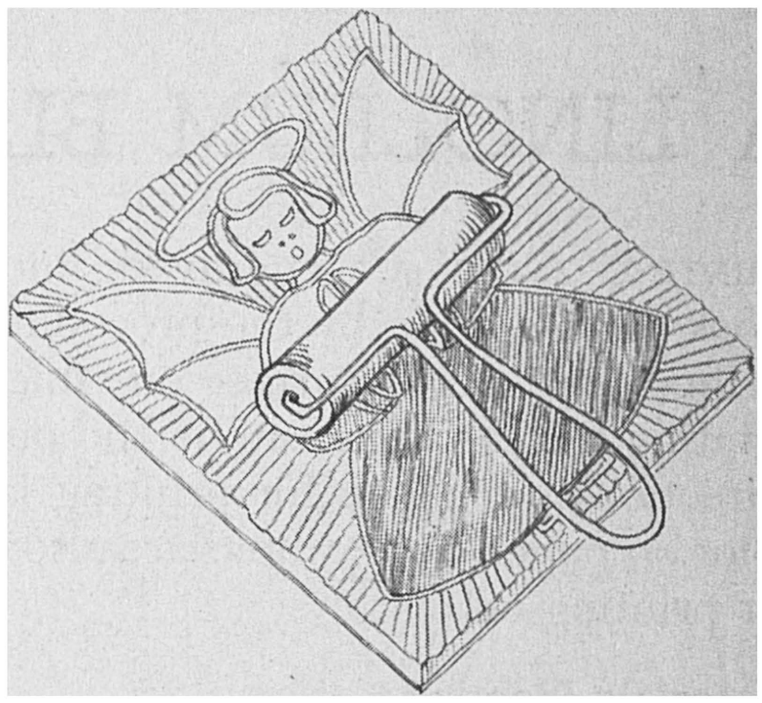
PROCEDURE

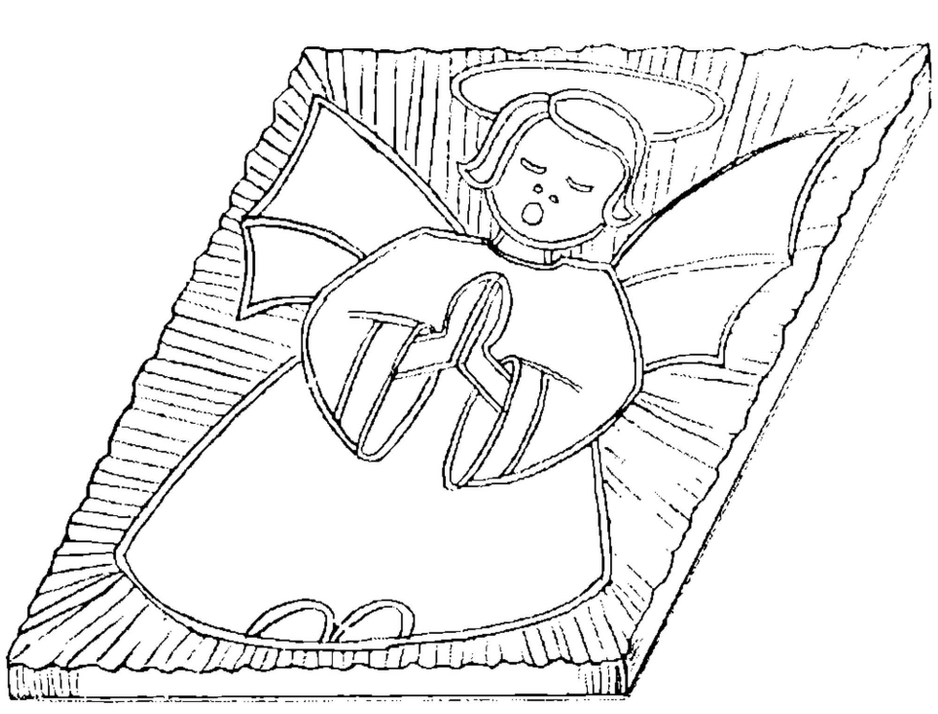
1. Cut the linoleum to size. This may be done with the cabinet saw or coping saw if the linoleum is ¼″ thick. A knife or tin snips may be used to cut ⅛″ linoleum. The heavy linoleum is better for children because they often carve through the ⅛″ thickness and the block tends to break.
2. Trace the pattern on the linoleum. Use carbon paper and a sharp pencil. White or yellow carbon is preferable to blue or black, but any color can be used. Press hard with the pencil, retracing over each line two or three times.
3. Carve out the design. Use a No. 1 gouge, and cut as deep and wide an outline as the tool permits. Gouge out



every line in the entire design. Hold the tool as shown in the photograph. The child will find it easier to carve the linoleum if he gives his wrist a slight twist to the right and then to the left as he pushes. There will be little danger of cut fingers if the hands are held in the position shown. Keep the left hand behind the tool at all times. The block may be turned to make the direction of a line easier to cut.

4. Cut away the background. After the outline of the design has been cut, change the gouge in the handle to a large U-shaped one, size No. 5. Use this gouge to carve away all of the background. Place the gouge on the outside edge of the design and carve *away* from the raised design. Always work away from the areas that are to be left uncarved. Then, if the tool slips, there is less danger of damaging the design. An accidental slip can be mended by gluing the chip of linoleum back in place.
5. Ink the linoleum block. Cover the bench or table with newspaper. (This makes it easier to clean up.) Put a dab of ink out on the glass. If the ink comes in a tube, squeeze out about an inch of it. If it comes in a can, lift out as much as you can put on the tip of a knife. Use the brayer to roll out the ink on the glass until it is smoothly spread out. Then, roll the brayer over the ink until the roller is covered evenly with ink. Next, roll the brayer over the design on the linoleum block, rolling up and down and then from side to side. Make sure that all of the raised parts of the design are coated with ink.





6. Make a trial print. On a folded newspaper on the floor, place the paper to be printed. Place the inked block face down on the paper. Place a block of wood on top of the linoleum block. Have the heaviest child in the class step on the board. Be sure he steps on all four corners of the block as well as on the center. Remove the board and pick up the linoleum block carefully. Examine the print to see if more carving will improve it. Also check to see if the right amount of ink was used. When too much ink is applied it will ooze out along the raised parts and it will make

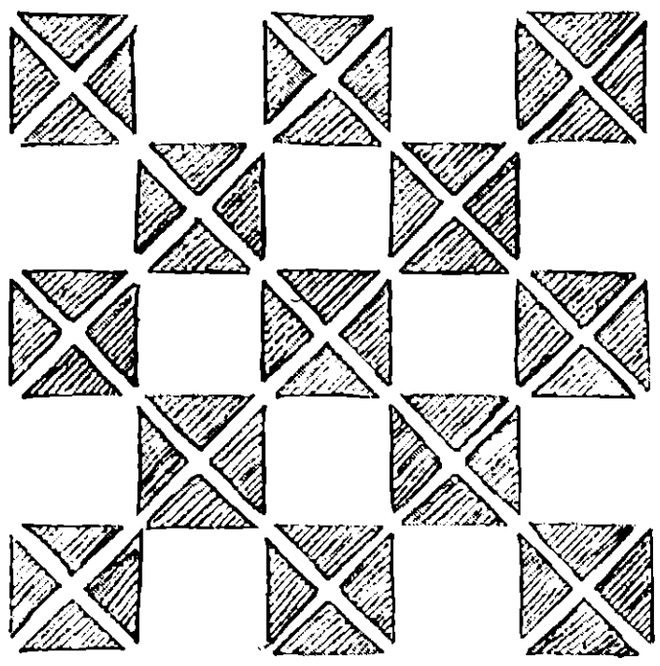
solid masses of color. The texture of the paper should show through. If too little ink is used, the design will not be clear or entirely colored.

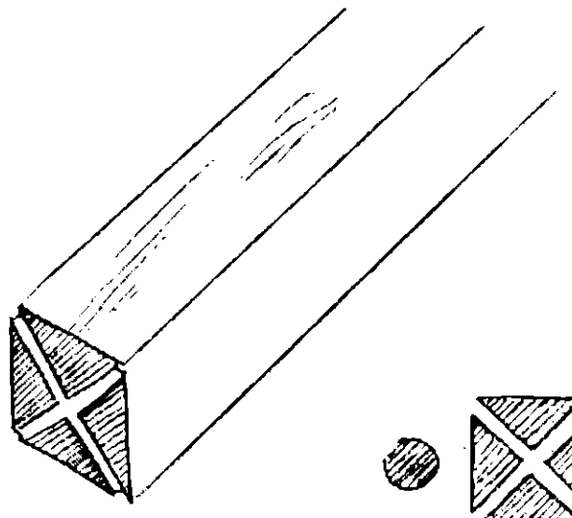
7. Re-ink the block for each print by rolling the brayer over the linoleum.
8. Clean the linoleum cut, brayer, and glass before putting them away. When using water-soluble inks, wash the brayer and glass with water, and then dry. Do not put the linoleum block into the water. Use a moist paper towel to wipe off the ink. When using oil-base inks, everything used must be cleaned with turpentine.
9. If the printing has been done with oil-base inks on textiles, the colors must be set. Let the material dry for two or three days. Put a piece of clean wrapping paper on the ironing board. Place the printed material right side up on top of the paper. Wet a clean cotton pressing cloth with white vinegar and wring it out. Place this moist cloth on top of the printed material and press with a very hot iron.

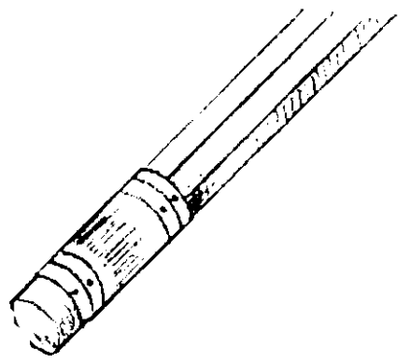


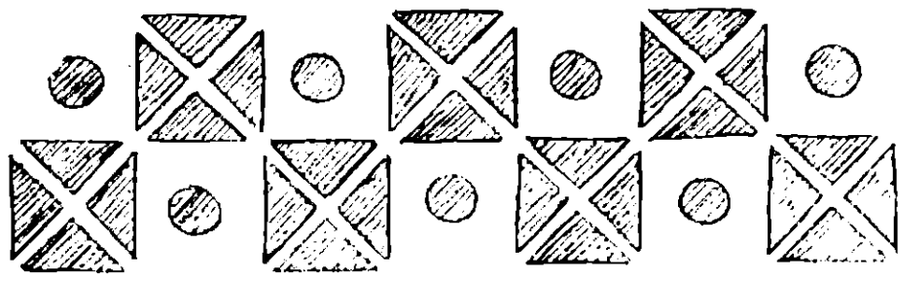
Making a trial print

STICK PRINTING A DESIGN









THIS IS THE simplest type of printing. Five- and six-year-olds can make border and surface designs by this method.

Materials Needed

Pencil with eraser on the end
Clothespin
Stick of wood, ½″ x ½″, ⅛″ x ⅞″, or ½″ x ⅞″, and 4″, 5″, or 6″ long
3 pcs. Felt, 2″ x 3″, or an old wool sock
Old saucer or lid from a tin coffee can
India ink, any dark colors

Tools Needed

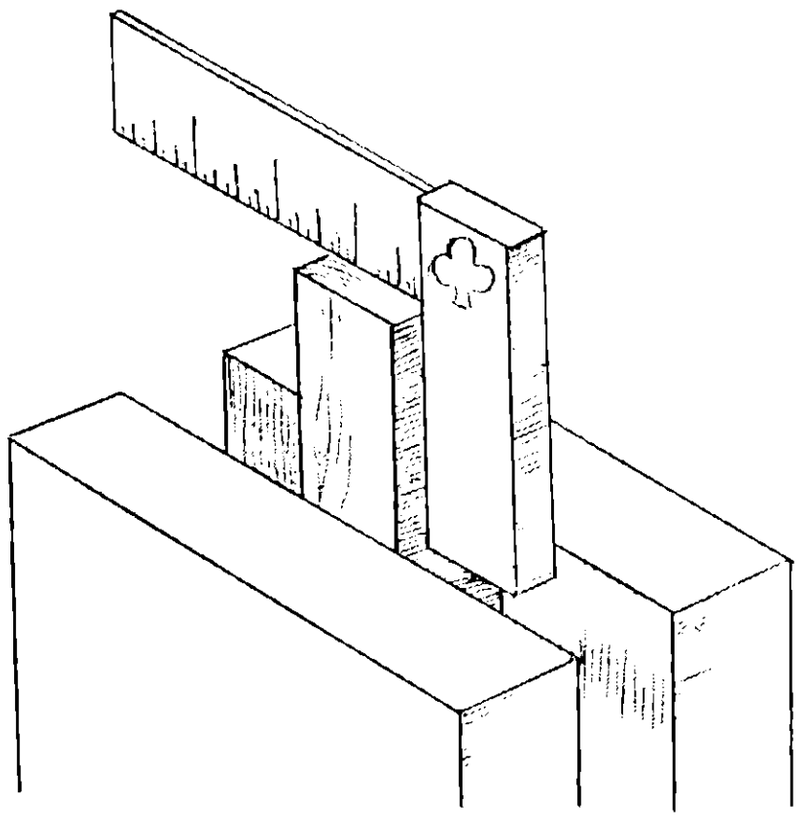
Half-round wood file
Vise
Try square

Skills Used

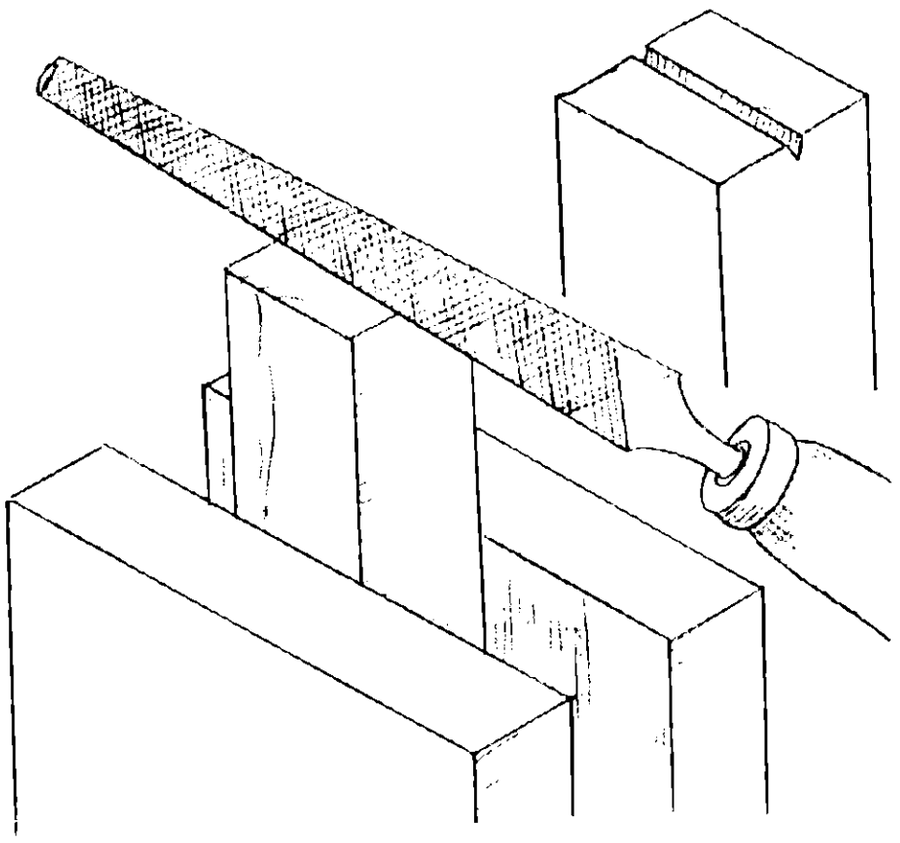
Designing
Filing
Printing
Measuring
Ruling

PROCEDURE

1. Place the stick in the vise with one end up. File the end until it is smooth. Check with the try square to be sure the end of the stick is flat. Use the edge of the half-round file to cut grooves in the end of the stick. Plan the grooves to make definite designs. If the child spoils the design he can saw off the end of the stick and start over. Use the miter box when doing this.

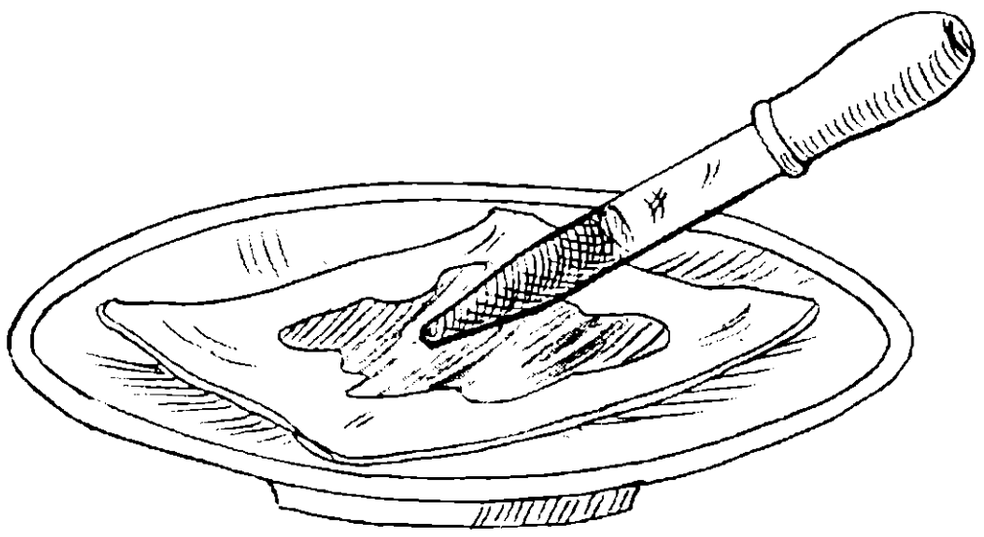


The end of the stick should be filed flat and smooth.

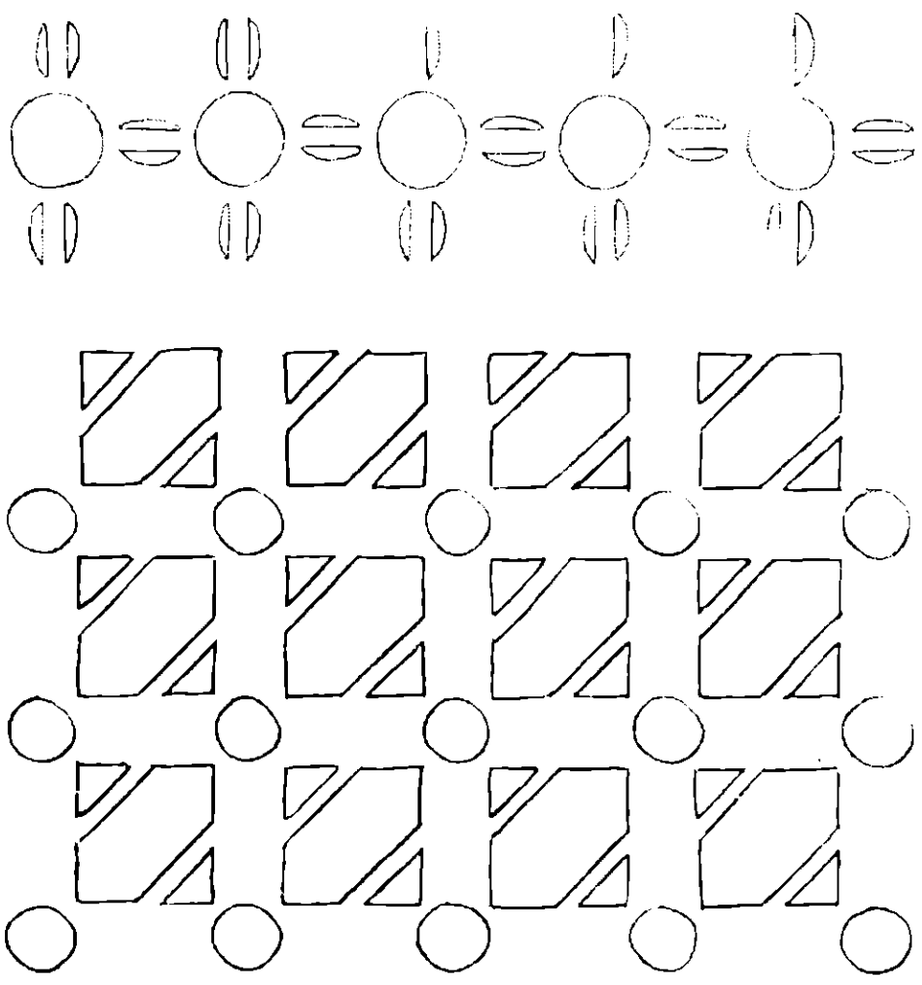


Use the edge of the file to cut grooves in the end of the stick.

2. Place three layers of felt (pieces of an old wool sock may be substituted) in an old saucer. Add enough ink to soak the pad but not enough to ooze out along the edges when the pad is pressed. An eye dropper is a good tool to use when adding the ink.

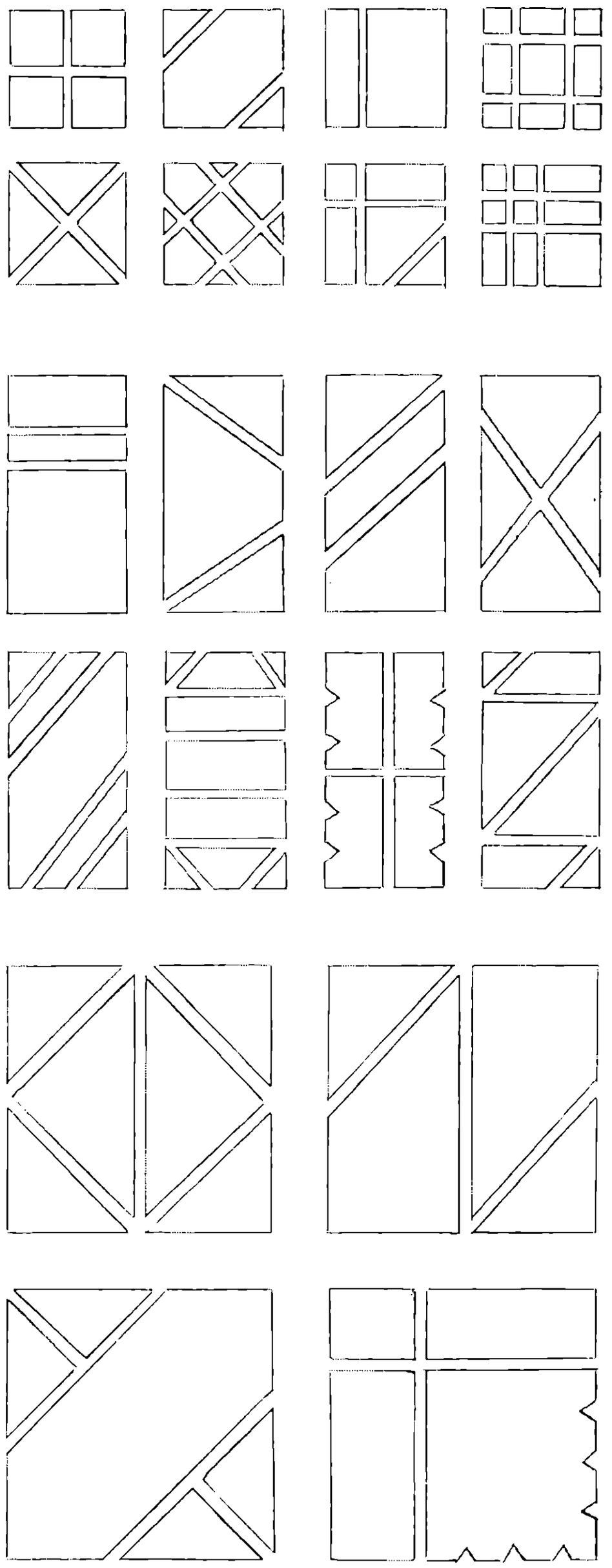


3. Spread newspaper on the bench or table. Use a paper towel or other practice paper to experiment with patterns. Press the end of the stick into the ink pad. Then press on the paper. Use both ends of a clothespin and the eraser end of a pencil to add variation to the carved sticks. Paper ruled in ½" squares will help the younger children to print in straighter rows.



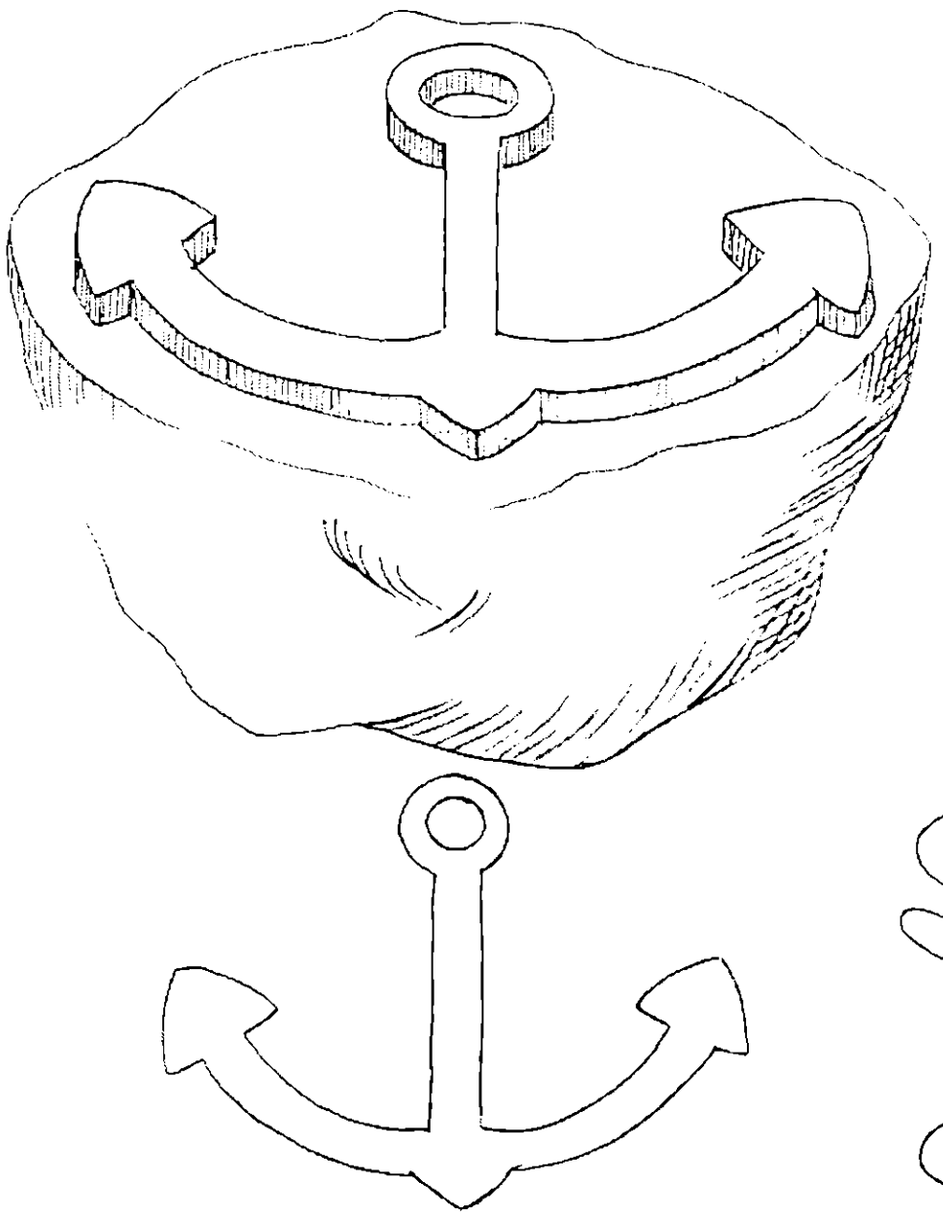
Above. Both ends of a clothespin. **Below.** A stick print combined with eraser end of a pencil.

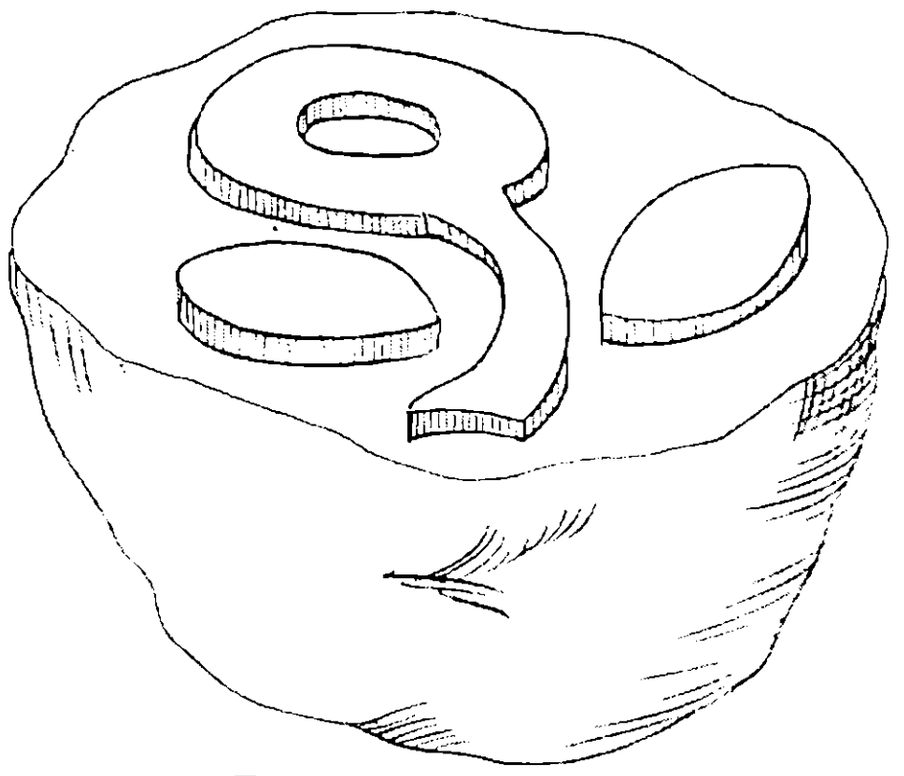
4. Let the ink dry in the end of the stick. The ink pad may be re-inked whenever it dries up. Both stick and pad may be re-used.

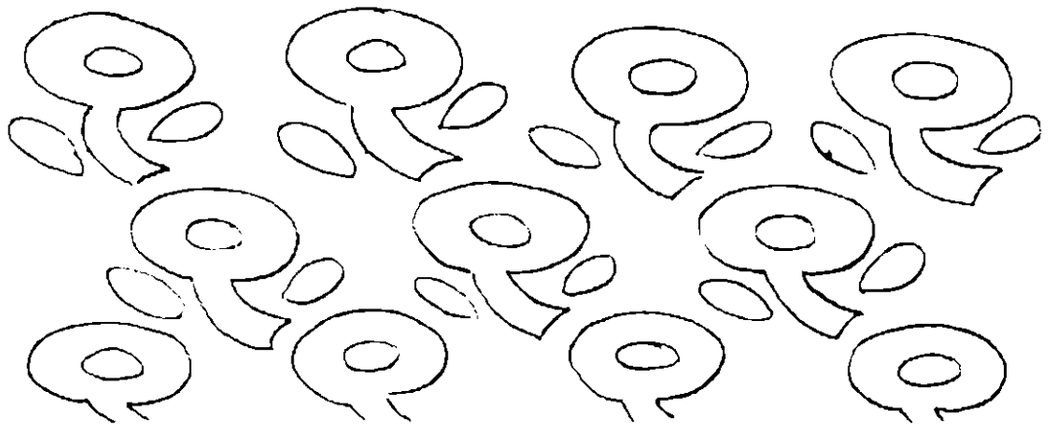


Suggested designs for ends of sticks

MAKING A POTATO PRINT







POTATOES ARE EASILY carved for printing. However, they do not keep for more than a day or two after being carved. Therefore, plan to print very soon after carving the design. One potato makes at least two designs. If these are used immediately they may be sliced off and two more designs may be cut.

Materials Needed

1 Scrubbed potato
Water-soluble printer's ink
Soft, absorbent paper
Blotter
Pencil

Tools Needed

Paring knife
Brayer, 4″ size
Sheet of glass or metal, at least 8″ x 10″

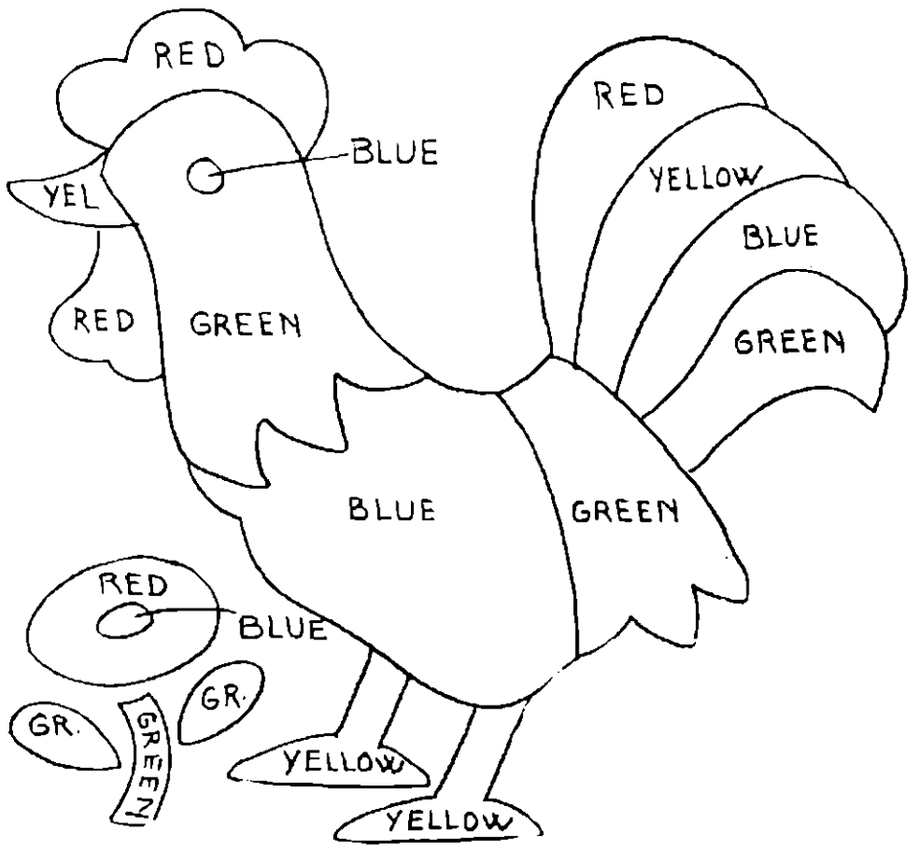
Skills Used

Designing
Cutting
Printing

PROCEDURE

1. Slice the potato through the middle with one straight cut. To get a larger carving surface, slice the potato lengthwise. Blot the cut surface to take up as much moisture as possible.
2. Sketch the design on the cut surface of the potato. Avoid designs with small or fragile parts.
3. Carve away all the background around the design. Leave the design raised. Cut at least 3/16″ deep.
4. Blot the surface of the design again to remove excess moisture. Put a small amount of ink on the glass and spread it with the brayer. Continue rolling the brayer over the glass until it is smoothly coated with ink. Then roll the brayer over the design carved on the potato.
5. Put the paper which is to be printed on a pad of newspaper. Press the potato print onto the paper. Press hard but do not let the potato slip or the edges of the design will be blurred.
6. Clean both brayer and glass with water.

STENCILING A DESIGN ON CLOTH



Materials Needed

Transparent stencil paper (one sheet for each color to be used)
Design (Choose one that does not have fine detail.)
Textile paints—red, yellow, blue, black, white
"Extendor" for textile paints
Thinner for textile paints
Drawing board or old bench top
Newspaper
Thumbtacks
Discarded china plate or one of glass or metal
Paper towels or napkins

Tools Needed

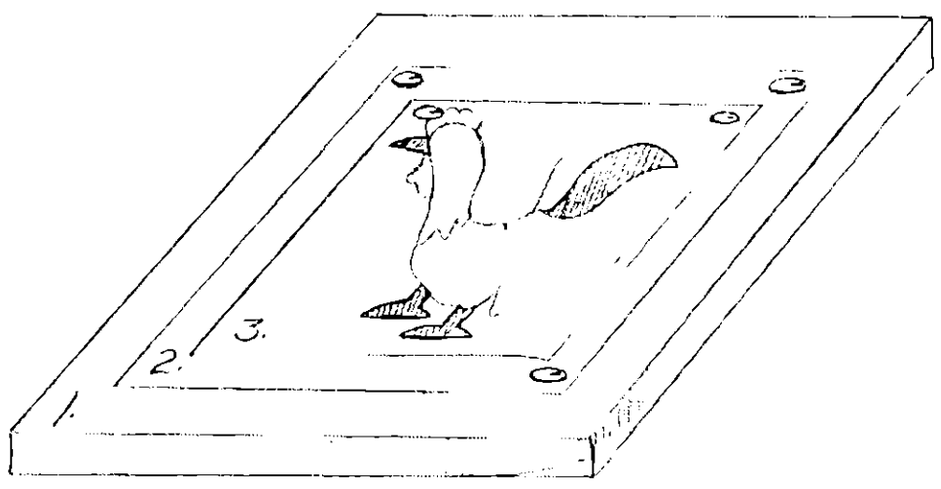
Stencil knife or single-edge razor blade
Discarded table knife
Stencil brushes (Cheap, large-size paste brushes when clipped until bristles are only ¼″ long make excellent stencil brushes.)

Skills Used

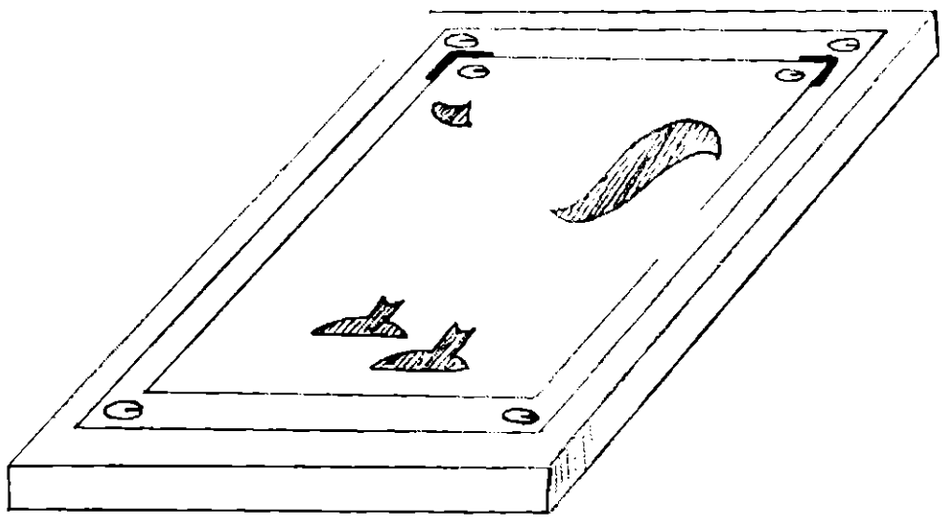
Designing
Cutting a stencil
Brushing in the color

PROCEDURE

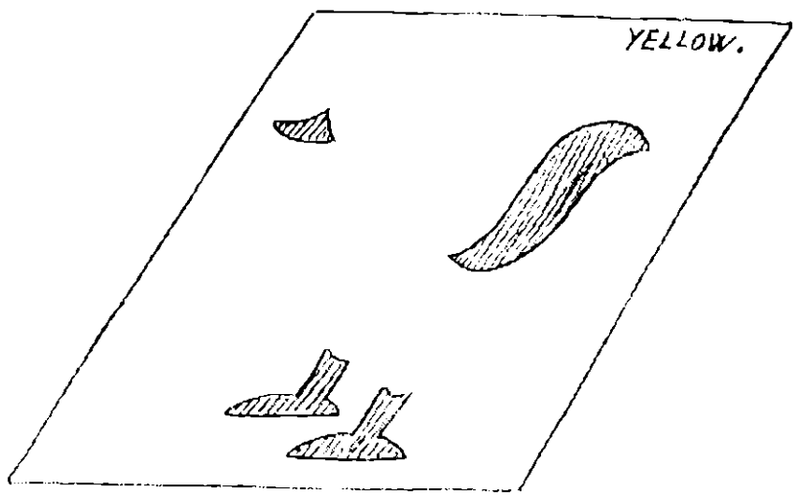
1. Choose the article or material to be stenciled. Select material that is light in color and fairly smooth in texture. Cotton fabrics are best for children.
2. Wash all new material before using, to remove any sizing that may be in it. This assures better colorfastness. If stenciling is done before washing, some of the color in the design will wash out with the sizing the first time the fabric is washed.
3. Draw or select a design that is rather bold in character for the first attempt. Avoid fine detail until some skill in stenciling is developed.
4. Plan the colors to be used, keeping in mind the background color of the material. Any color may be used on white. However, when a colored material is used, the selection of colors becomes limited by at least one. For example, do not plan to use yellow or white on a yellow background. Limit beginners to three or four colors. Also, beginners should color the pattern with water colors or colored pencils before attempting to cut the stencil.
5. Thumbtack the pattern to a drawing board or tape it to the back of an old magazine. Cut pieces of stencil paper large enough to cover the design and to leave a border of at least ½″ on all edges. Cut as many pieces of stencil paper as there are colors in the design. Place one piece of stencil paper over the design and tack or tape it in place. With the stencil knife cut out all the parts that are to be one color. For example, in the design illustrated here, cut out all the yellow sections. Before removing this first stencil paper from the



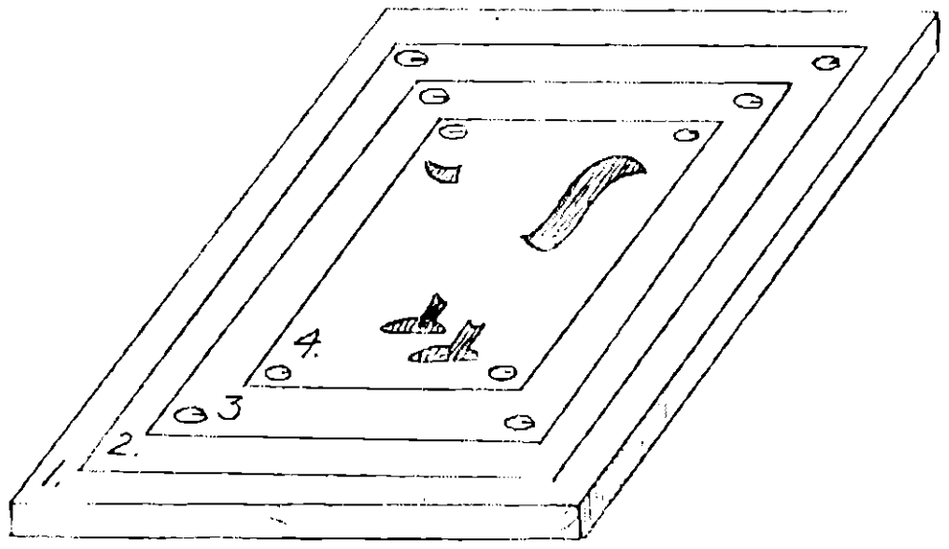
1. Drawing board
2. Design
3. Yellow stencil cut



board, carefully mark around the upper corners so that the next piece of stencil paper can be put in exactly the same place. Also mark the upper right corner of the stencil paper "yellow."



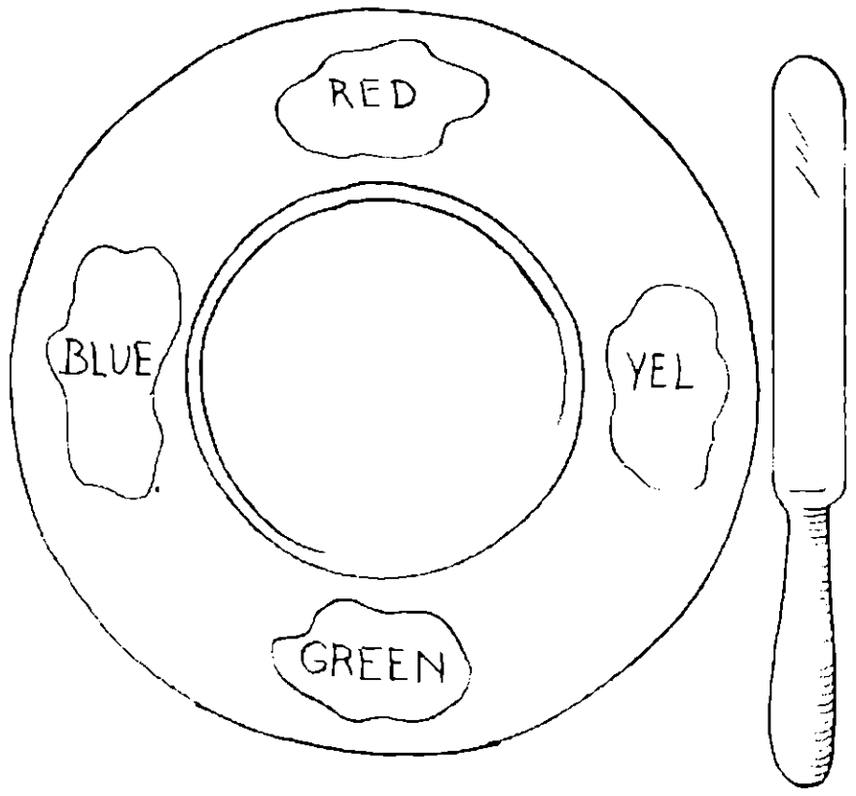
6. Cut the green, red, and blue stencils in the same way. Be sure to fit each new piece of stencil paper into the marked corners of the board. Also mark the color of each stencil in the upper right-hand corner.
7. Cover the drawing board or workbench with a thin layer of newspaper. This will absorb any excess paint that comes through the material. Stretch the material over the newspaper and thumbtack in place. When stenciling a T shirt it is necessary to slide a piece of cardboard up between the two layers of material to prevent the paint coming through onto the back of the shirt.
8. Use an old plate or pie tin to mix the colors. Use a discarded table knife to lift dabs of "extendor" from the jar. "Extendor" is mixed with each color. It makes the paint go further and it helps the color to penetrate the material. Put out a dab of extendor for each color to be used. In this example four dabs are needed. Clean the knife by wiping with a paper napkin or towel. Use the knife to take out a bit of yellow and add it to one dab of extendor. Clean the knife, then take out a little red. Do the same with blue. The knife must be thoroughly cleaned each time it is used for another color. Very small amounts of color are needed to stencil several patterns. Avoid waste by mixing only what is needed.



1. Drawing board
2. Newspaper or blotter
3. Material
4. Stencil

To make green add some of the yellow and some of the blue to the fourth dab of extendor. Lighten the remaining blue by adding a bit of white.

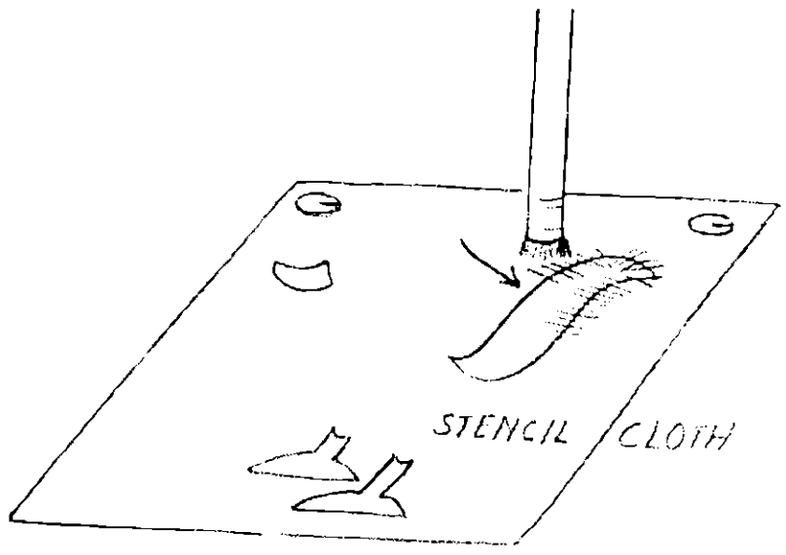
Colors are mixed with the brushes. Use a large-size stiff paste brush with the bristles cut off to ¼" in length. Four dozen of these can be purchased for the price of one stencil brush. Best results are obtained when a different brush is used for each color.



9. Place the stencil for the lightest color on the material. In this example the yellow stencil would be used first. Thumbtack it in place. Wipe the yellow brush clean of color; then dip just the tips of the bristles into the yellow paint. It is much better to have too little color on the brush than to have too much. Brush the color into the material by placing the brush on the stencil and rubbing toward the material. This keeps the brush from slipping under the cut edge of the design. Work the color well into the fabric. Effective shading is obtained by making the edge of each cut-out spot solid with color. Then, as you brush in toward the center of the spot, use less color, leaving the fabric unpainted at the very center. Before removing the first stencil mark the upper corners on the fabric with light pencil marks. If repeat patterns are to be made on the same article, as in a border design on an apron, continue with the same stencil until all the yellow is complete.

Each succeeding color is applied in the same way, leaving the darkest color until last.

Neatness and cleanliness are very important. Accidental spots or finger marks on the material are as colorfast as the design.



10. Clean the brushes and the plate or palette with paint thinner. Dip a paper napkin in the thinner and wipe off the stencils. Do this on newspaper to facilitate cleaning up.
11. The color is set in the following manner. Allow the design to dry for two or three days. Although dry to the touch in a few minutes this longer time is necessary for the color to "set" into the fibers of the materials. Then steam the design with white vinegar. Cover the ironing board with clean wrapping paper. Spread the design smoothly over the paper. Wring out a press cloth in white vinegar. Spread it over the design and press it with a very hot iron. Laundered with the same care given to any fine cotton fabrics, the colors will stay bright and clear.

DECORATING GLASSWARE

CHILDREN IN GRADE five can usually succeed in painting designs on plain glassware, tinware, crockery, or china. The detailed instructions given here are for decorating a drinking glass.

Materials Needed

Discarded china plate (for mixing colors)
Set of paints (such as "Dek-All," made by the American Crayon Co. Paints must be made for this specific purpose.)
Turpentine
Paper napkin or tissues
Dry cleaning fluid (non-inflammable type)

Tools Needed

Kitchen oven
Fine brushes, Nos. 1 and 2

Skills Used

Designing on curved surfaces
Painting on curved surfaces
Firing

PROCEDURE

1. The surface to be painted must be thoroughly clean. Wash the glass in soap and water and rinse and dry. Then dip a cloth or paper napkin in dry cleaning fluid and rub over the entire surface to be painted. Dry with a clean cloth. Do

not touch this cleaned surface to be painted, as the skin will leave a film of oil or moisture on the surface that will tend to resist the paint.

2. Draw the design on rather thin paper. Slip the design inside or under the glass and fasten it in place with tape. If the article is tin or china and is not transparent, trace the design with hard carbon paper. An extremely soft pencil can be used to draw directly on the surface of the article.

3. Paint the design on the glass. Put small dabs of each color to be used around the edge of the old saucer. Paints are easily mixed to obtain other colors. To make tints, add white to the colors; to make shades, add black. Apply the color with careful strokes, keeping accurately to the outline of the design.

   One color may be painted over another. For example, the dogwood blossom may be painted white; then pink shading on the petals and the yellow and brown centers may be painted over the white. If the colors are to blend, paint the second color over the first while it is still fresh and wet. This might be done in shading the petals with pink. If definite outline is desired, as in the flower center, do not apply the second color until the undercolor is set. This takes but a few minutes. If paint dries out on the saucer or becomes thick, moisten it with a few drops of turpentine. Dip the handle of the paint brush in clean turpentine, and let a few drops fall from the brush handle into the paint. Brushes and palette are cleaned with turpentine.

4. Set the color. If the article is not going to require constant washing, air-drying for several days is all that is necessary. However, if the article is to receive constant washing or much handling, the color may be made more lasting through baking it in an ordinary kitchen oven. Place the decorated objects in a cold oven. Turn on the heat to the lowest temperature possible for five minutes. Increase the temperature 25° every five minutes until 300° is reached. Bake at 300° for fifteen minutes. Then turn off the oven and allow the painted glass or other articles to remain in the oven until cool.

MAKING A BLUEPRINT

THIS IS A very elementary introduction to the process of blueprint making; nevertheless it is basic in its approach and it does open a new area of experimenting and understanding for the child. No elaborate equipment is necessary. Through this simple method many copies of a design may be accurately and inexpensively made. Curiosity is aroused in the child as he watches the pale greenish paper turn white under the sun and then become dark blue in the developer. Use this curiosity as an incentive for research work in blueprint making and other printing.

Materials Needed

Leaf from a tree, photograph negative, or bold drawing on thin tracing paper
1 pc. Heavy cardboard, at least 8″ x 10″
Sheet of window glass, same size as cardboard
Blueprint paper (Purchase at office supply stores. Have it cut to size or cut it in the dark.)
Crystals of potassium dichromate
2 Shallow pans of water
Masking tape

Tools Needed

Scissors

Skills Used

Exposing and developing blueprint paper

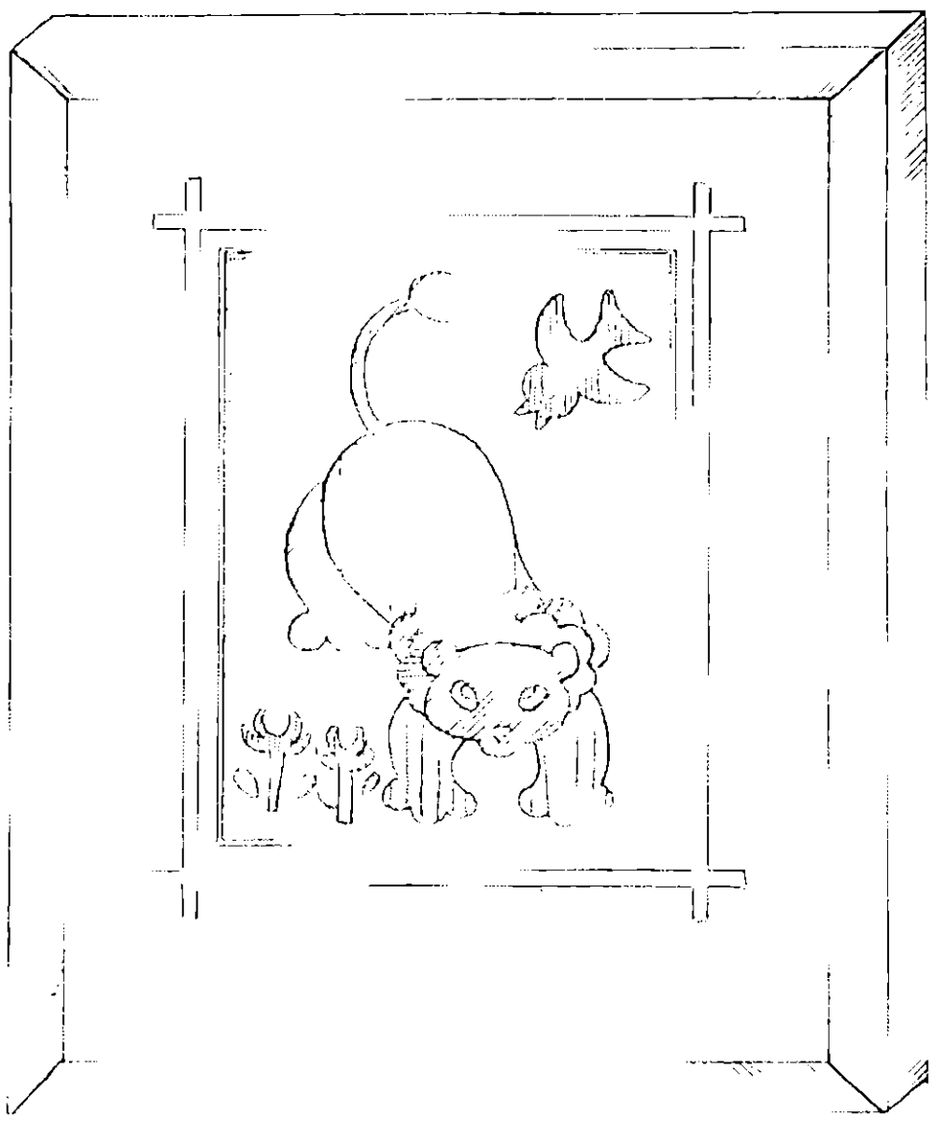
PROCEDURE

1. To make it safe to handle, tape the four edges of the sheet of glass with masking tape. Clean the glass and polish it.
2. Fill the two pans half full with clean cold water. Add potassium dichromate crystals to one pan and stir thoroughly

with a clean stick or discarded wooden spoon. Crystals should be completely dissolved.

3. Blueprint paper must be kept in a box that is as light-tight as possible. Paper exposed to light prematurely is, of course, ruined. Therefore, this step must be done quickly. Reach into the box and pull out one sheet of blueprint paper. Put it, sensitive side up, on the cardboard. Over the blueprint paper and in the desired position, place the leaf or negative or drawing to be printed and put the glass on top of it to hold it in place. Expose the blue print paper to the sun until it fades out to a yellow-ish white. Depending on the brightness of the sun, this will take from two to five minutes.
4. Remove the blueprint paper immediately and wash it for about a minute in the pan of water. Then draw the paper slowly through the pan in which the crystals have been dissolved. When the print shows definite blue and white contrast, remove it from the solution and wash it thoroughly in the pan of clean water. This water should be changed as often as necessary to keep it clean.
5. Spread the blueprint out on a clean surface to dry. Glass or marble surfaces make excellent drying areas.

MAKING AND PRINTING A WOODCUT



THIS SIMPLIFIED VERSION of a woodcut makes it possible for the child to print in many colors. Fifth and sixth graders will enjoy making and framing these woodcut prints. They are very effective when bold patterns are printed on soft, absorbent paper and then matted with a coarse-textured paper and framed with a hand-made frame. Directions for making the block and the print and for matting it and framing it are given here.

Materials Needed

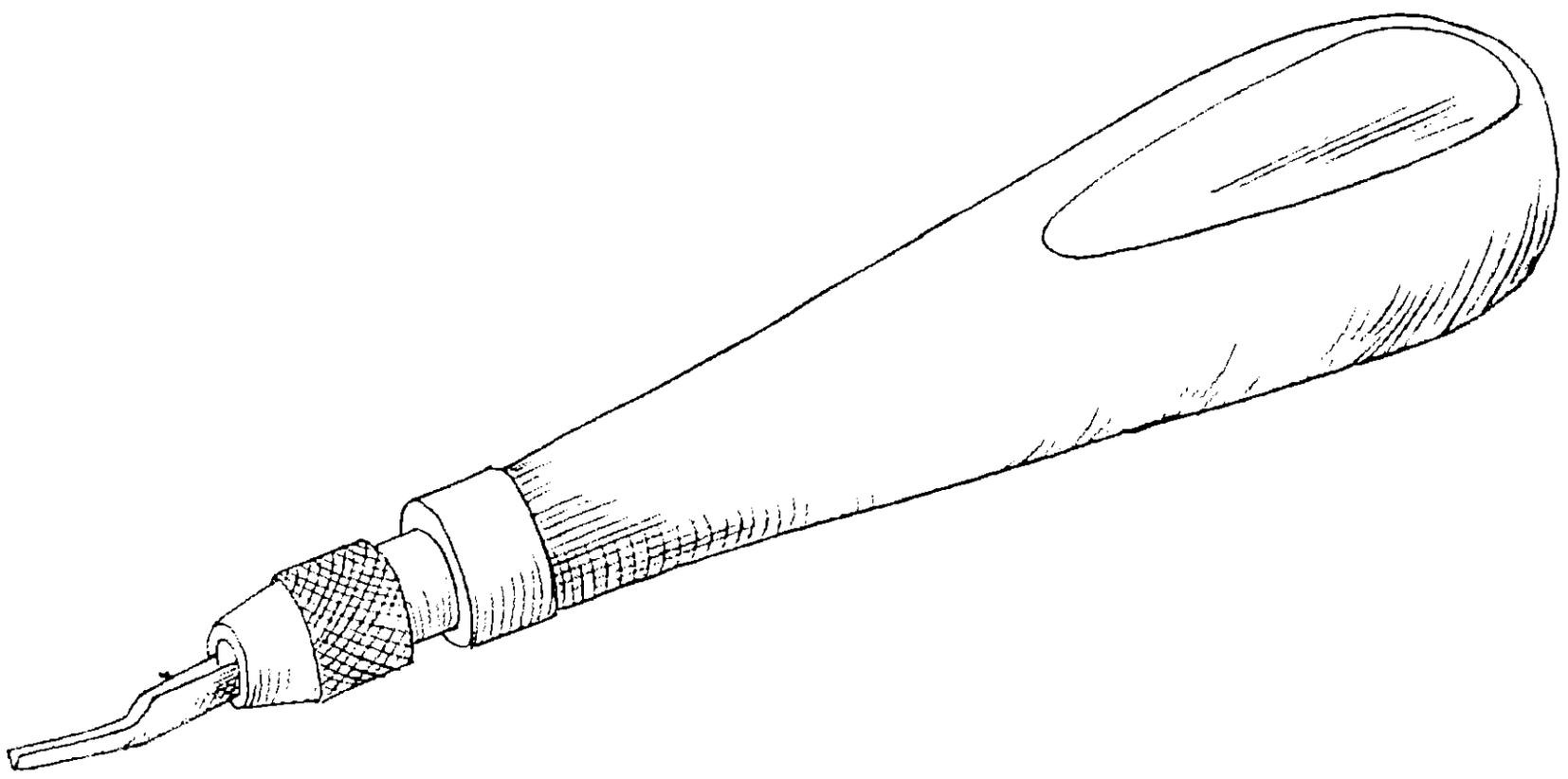
A clean soft rag
Soft absorbent paper such as manila, bogus, or water color paper
Heavy cardboard or paper—light neutral shade of cream or gray—approximately 15″ x 18″
Several newspapers
Blotter
Show card colors
Thick board of very soft wood—from the end of an orange crate, for example
Sandpaper
Glue
Carpet tacks
½″ No. 19 Brads
6 feet ½″ Quarter round moulding (buy at local lumber yard)

Blue

Brown

Rust

Green



Actual size of gouge for cutting

Tools Needed

Small U-shaped gouge (such as Speed Ball Linoleum Cutter No. 5)
Miter box and saw
Hammer
File

Skills Used

Designing	Filing
Carving	Sandpapering
Printing	Nailing
Sawing	Gluing

PROCEDURE

1. Make the block. Draw the design to fit the block of wood. Make large bold areas. Avoid fine detail. Sandpaper the surface of the wood just enough to remove splinters. Do *not* make it smooth. Trace the design onto the wood with carbon paper.



Use a U-shaped gouge to cut a definite outline at least ⅛″ wide and ⅛″ deep on all the lines of the design. A sharpened umbrella stay inserted in a dowel rod handle may be substituted for the regular linoleum cutter. See the directions for using this tool on page 285.

2. Make the print. This step should be done as quickly as possible. Place a thick pad of newspapers on the floor. On the newspapers place the soft, absorbent paper that is to be printed. Paint the surface of the wood block with a rather heavy coat of clear bright colors. Paint each area separately. Do not let paint run down into the carved outlines.

   Take a damp cloth and wet the entire surface of the paper to be printed by wiping the cloth over the paper. Use the blotter to take up excess moisture from this paper.

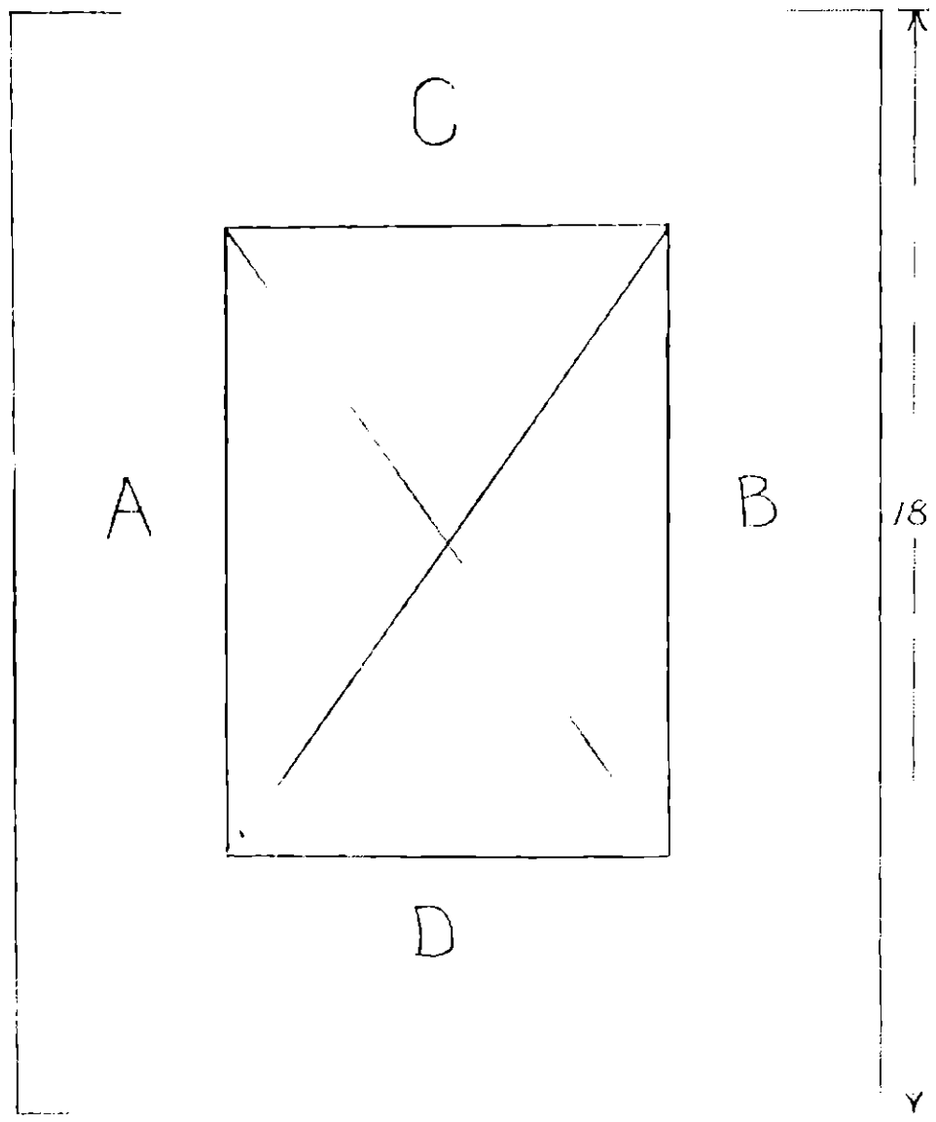
   Place the woodcut, painted side down, on the paper. Put a newspaper over the woodcut, then step on it. Step from corner to corner, shifting your weight to all parts of the woodcut. Allow two or three minutes for this process.

   Remove the printed paper to a drawing board and tack or tape the edges down so that it will dry flat.

   This process may be repeated until the desired number of prints are made.

3. Cut the mat. The outside dimensions should be 15″ x 18″ for the materials listed here. This, of course, may be varied. The inside dimensions should be 1″ shorter and 1″ narrower than the

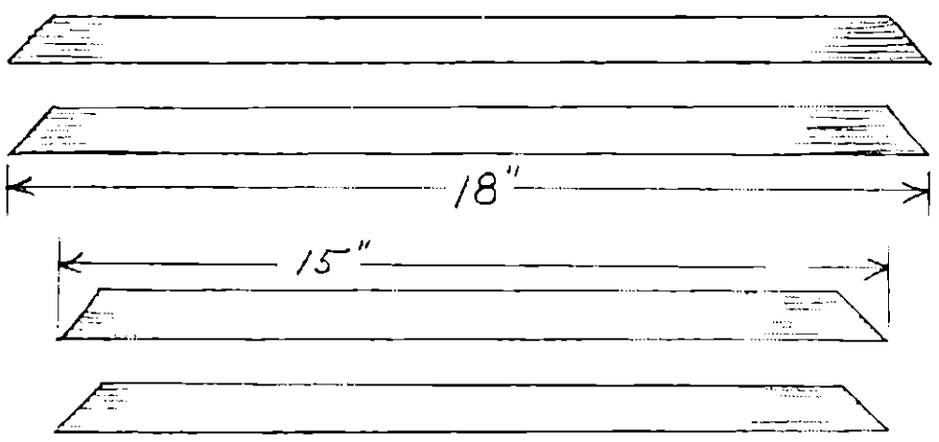
print so that it may be fastened behind the mat with ½″ allowance all the way around. The side margins should be equal in width, the lower margin a little wider than the upper one.

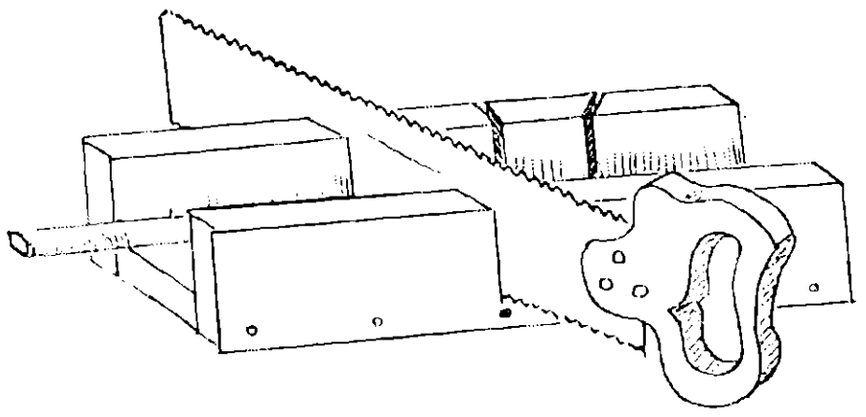


Cutting the mat. A=B; D is wider than C. Inside cut is 1″ shorter and 1″ narrower than print.

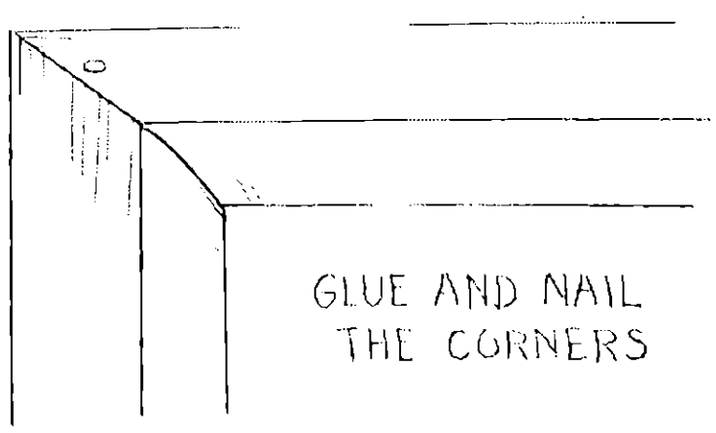
Draw a single line of color ½″ from the inner edge of the mat. Use a crayon that matches one of the prominent colors in the print.

4. Make the frame. Cut two pieces of ¼″ round moulding 18″ long and two pieces 15″ long. Flat surfaces go to the outside and to the back of the frame. Curved part goes inside toward the block print and matting. Cut off all ends at 45° in the miter box. File and





sandpaper the ends carefully. Sandpaper the surfaces until smooth. Glue the corners together and nail them. Stain the frame or paint it to match one of the predominant colors in the print. Finish with shellac.



5. Assemble the parts. Use tape to fasten the block print behind the mat. Glue and tack the mat to the back of the frame. Put a screw-eye into the top of the frame.

SUGGESTIONS FOR FURTHER READING

Dryad Handicrafts, *Handicrafts for Children.* Peoria, Ill.: Manual Arts Press, 1940.

Newkirk, Louis V., *Integrated Handwork for Elementary Schools.* New York: Silver Burdett Company, 1940.

Parisi, Tony, *Craftsman's Instruction Handbook.* Sandusky, Ohio: The American Crayon Company, 1949.

Polk, Ralph W., *Essentials of Linoleum-Block Printing.* Peoria, Ill.: Manual Arts Press, 1927.

Rice, William S., *Block Printing in the School.* St. Paul, Minn.: Bruce Publishing Company, 1929.

Sprague, Curtiss, *How to Make Linoleum Blocks.* Pelham, N. Y.: Bridgman Publishers, Inc., 1928.

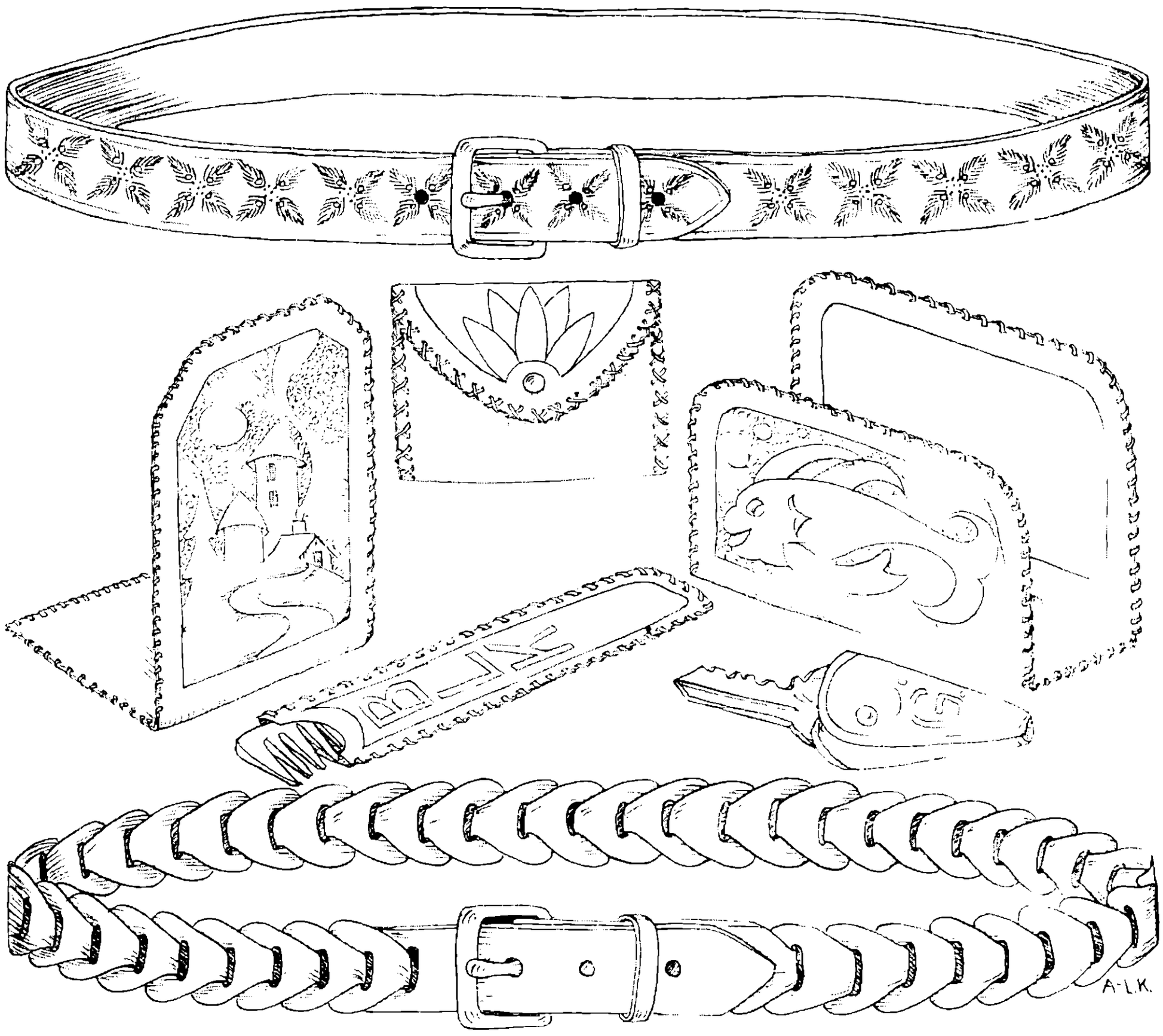
Watson, Ernest W., *Linoleum Block Printing.* Springfield, Mass.: Milton Bradley Company, 1929.

CHAPTER 12

Leather Crafts

Leather Projects Are Useful

Leatherwork becomes increasingly popular. Children enjoy making toys and decorative objects, but they also like to make practical and useful objects. Leather is used for making key cases, comb cases, belts, coin purses, book ends, and book jackets. Every boy and girl enjoys wearing a belt that he or she has made. Making a belt involves a good many of the tool techniques that are commonly used in leatherwork. Other projects included in this chapter call for the use of still more tools and involve other tool processes. These projects are best suited for the upper elementary grades.



Types of Leather for Craftwork

There are many types of leather available in a wide variety of grains or colors. Many leathers are embossed by the manufacturer to imitate the grains of more expensive leathers. Cowhide is best for belts, key cases, and other objects that are to be given hard wear. Cowhide can be stamped, tooled, and carved. It is easily colored with dyes or stains. Calfskin is the ideal tooling leather. Steerhide may be used for tooling or stamping. In the elementary grades it is wise to limit the choice to these three—cowhide, calfskin, and steerhide—if any tooling or stamping is to be done. However, scraps of any leather may be used when lacing key cases, comb cases, or change purses if no design is to be applied. Small lots of odd skins and remnants are seldom listed in catalogues but often may be obtained at real bargain prices.

Leather may be purchased cut to measure or to a pattern, or it may be bought in kits with all necessary parts for the project included. These will be higher in cost than leather purchased by the skin. The use of ready-cut leather and kits is advisable in camps, playgrounds, or classrooms where equipment and tools, or time, is held to a minimum. The purchase of whole skins is recommended for teachers who have the experience and equipment to handle them. In addition to being the more economical method of purchase, much may be learned by the student from handling the whole skin, planning its use, and doing the actual cutting.

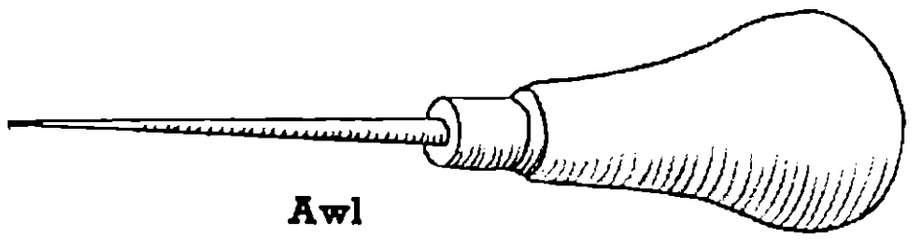
Tools and Equipment for Leather Crafts

Tools and equipment necessary for leatherwork are inexpensive when compared with those necessary for many other crafts. The following tools would be sufficient for a class of twenty. The number of tools should be doubled for a class of forty. It would be better for half the class to work on leather while the other half works with another craft material than to order too many tools.

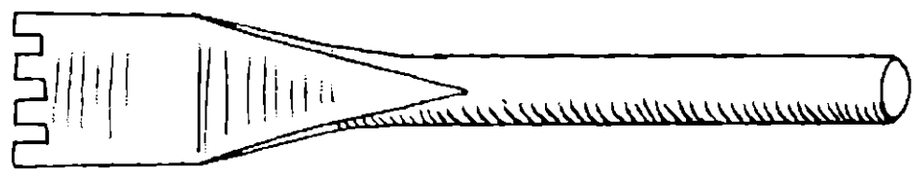
- 10 Awls. Used for piercing, sewing, and finishing lacing. A nutpick makes a satisfactory substitute.
- 2 Thonging chisels, 4 prong, ⅛″. Used for making slits for lacing. Makes four slits at a time.
- 1 Single thonging chisel, ⅛″. Used for making slits at a corner or around a curve.
- 1 Tracer. Used for tracing designs on leather.
- 1 Deerfoot. Used for smoothing down backgrounds.
- 10 Modelers, double end. The small end used for tracing designs, the large or broad end used for smoothing down backgrounds or raising designs.
- 1 Eyelet setter. Used to spread eyelets so that they may be flattened with a mallet or hammer.
- 1 Single edge creaser. Used to make a crease along the edge of leather which is not laced.
- 1 Revolving punch. Used for punching holes in leather for eyelets, posts, belts, snaps, and wide lacing. A six-tube punch is recommended.
- 1 Drive punch. Used for making holes in places which cannot be reached with a revolving punch.
- 2 Wooden mallets. Used for striking tools such as the thonging chisel, drive punch, and eyelet setter.
- 2 Ball tools. Used for stippling.
- 1 Snap fastener set. Used for setting snap buttons.
- 2 Sharp knives. Used for cutting leather.
- 5 Slabs of marble, zinc or plate glass. Used for tracing and tooling.
- 5 Pine cutting boards. Used for cutting leather.
- 5 Small sponges. Used to moisten leather.
- 12 Assorted steel saddle stamps. Used for stamping designs.

Leatherwork Processes

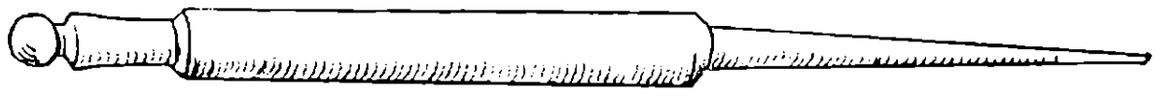
The skills and tool techniques in leatherwork developed at this level should be limited to those in which the



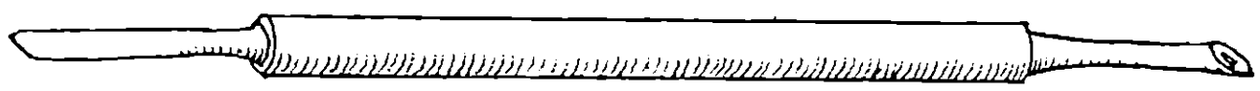
Awl



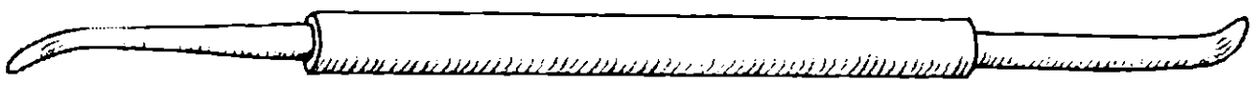
Four-prong thonging chisel



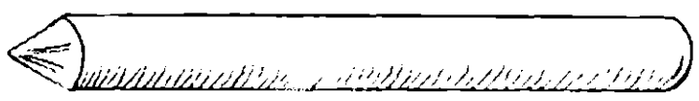
Tracer



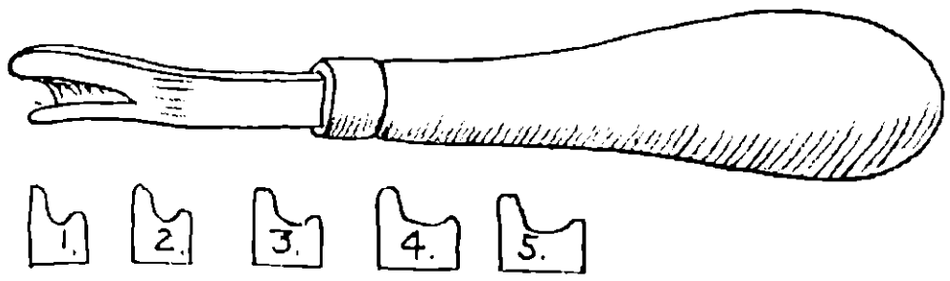
Deerfoot



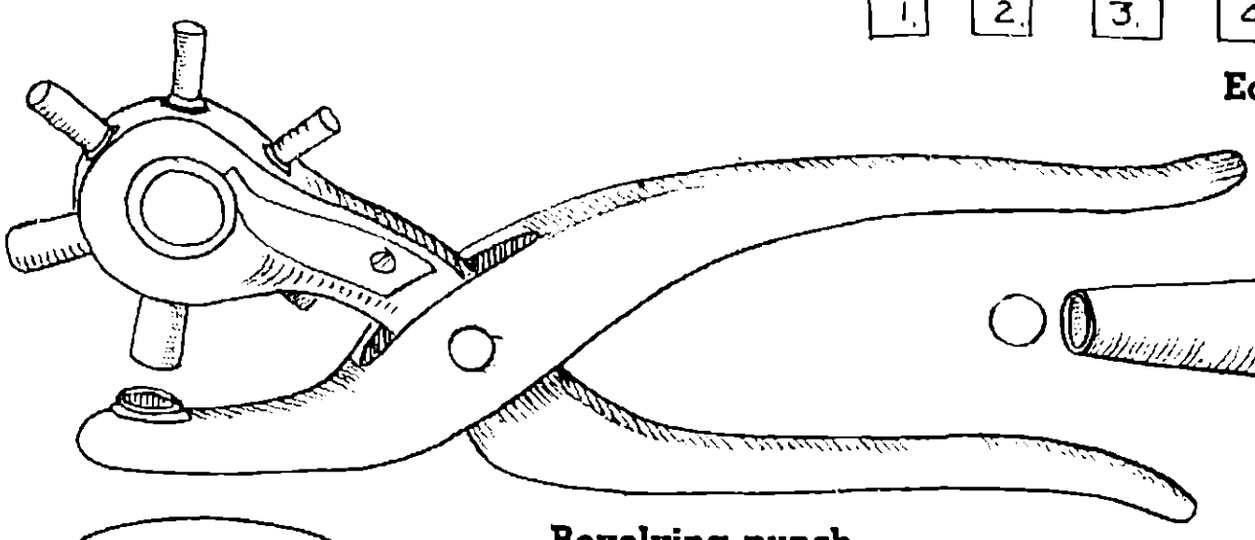
Double end modeler



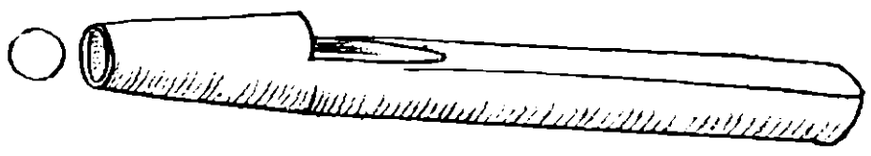
Eyelet setter



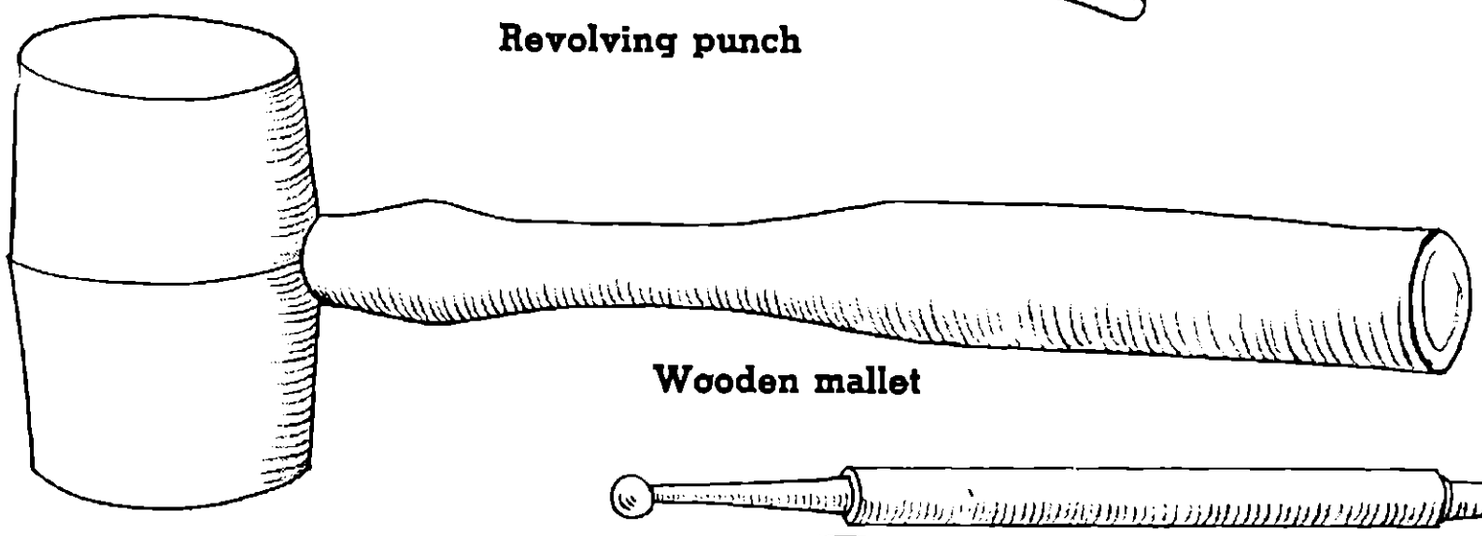
Edge creaser



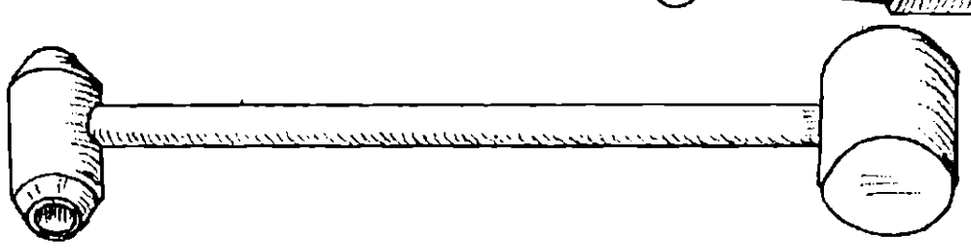
Revolving punch



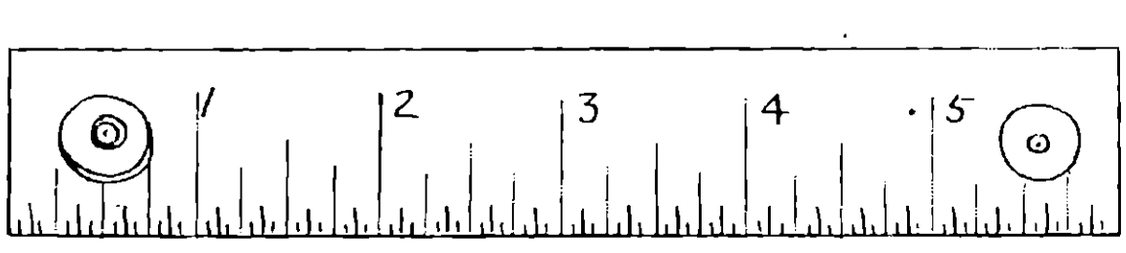
Drive punch



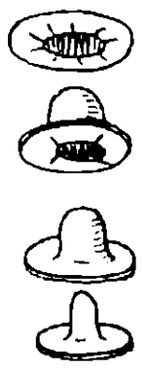
Wooden mallet



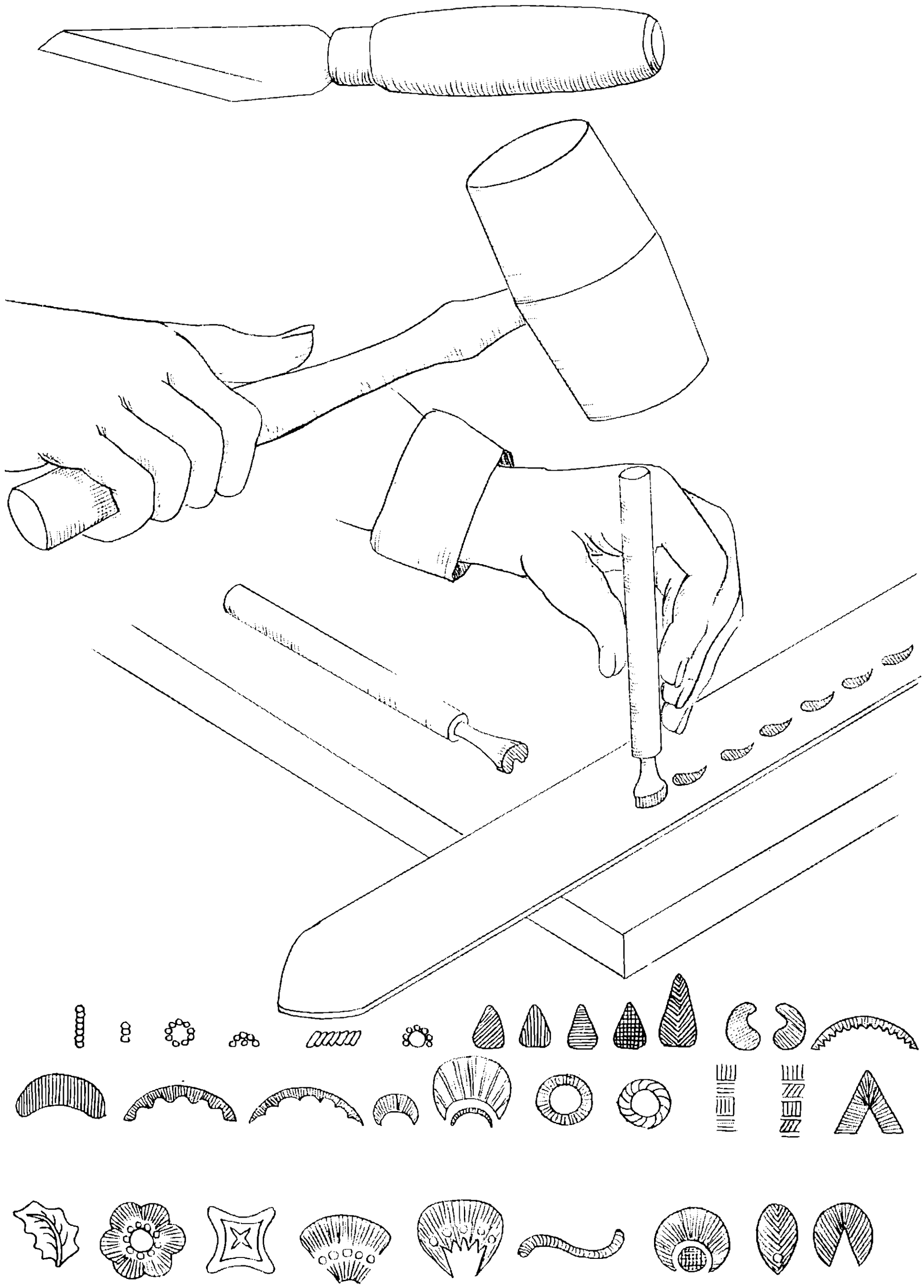
Ball tool



Snap fastener set



Four parts of the snap

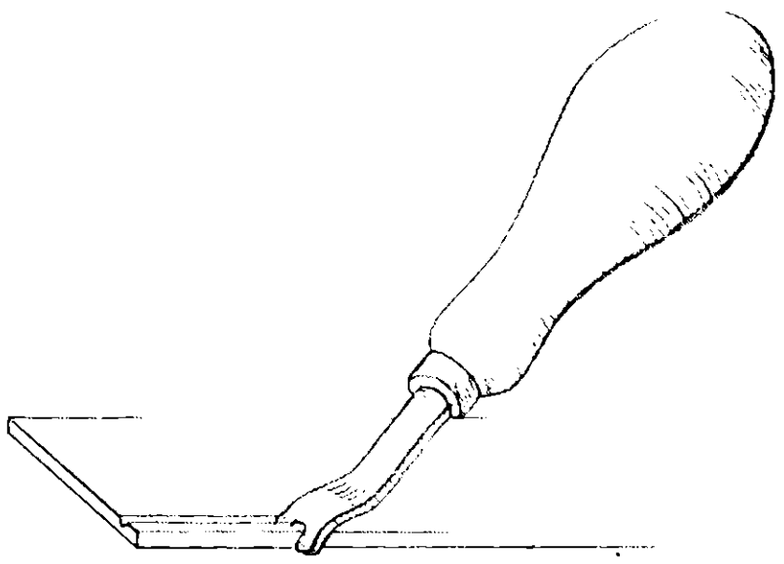


Some of the saddle stamps available

child can achieve a degree of success. The projects included in this chapter require the use of the following processes:

1. *Designing.* Two factors must be considered, the outside shape of the object and the ornament to be applied. Beginners should work for simplicity in design.

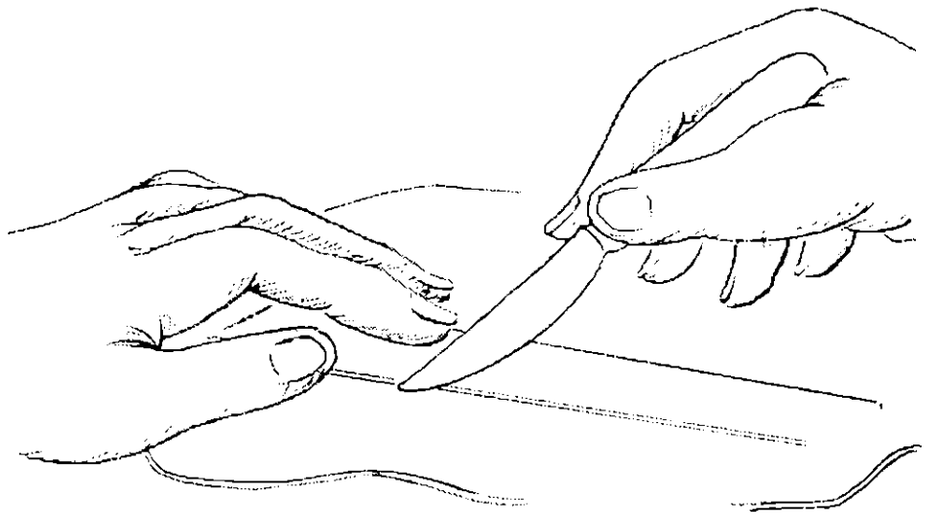
2. *Cutting.* Leather may be cut with a very sharp knife or with very sharp tin snips. When a knife is used, the leather should be placed flat on the pine cutting board. If straight lines are to be cut, a steel straightedge should be used. The knife should be drawn along the straightedge and enough pressure used to cut through the leather with the first stroke. When cutting curves, use a pair of sharp tin snips.



Using the edge creaser



Top and end views of creased leather



3. *Moistening leather.* Wet both sides of the leather with a sponge for edging, stamping, or tooling. Leather is too wet when water comes out ahead of the tool being used. It is too dry if the surface scratches or breaks.

4. *Edging.* A tool called an edge creaser is used to make a depressed line along the edge of the leather. This is used on any edge that is not to be laced. Moisten the leather. Place the leather on a hard, smooth surface such as a marble slab. Pull the edge creaser along the edge of the leather.

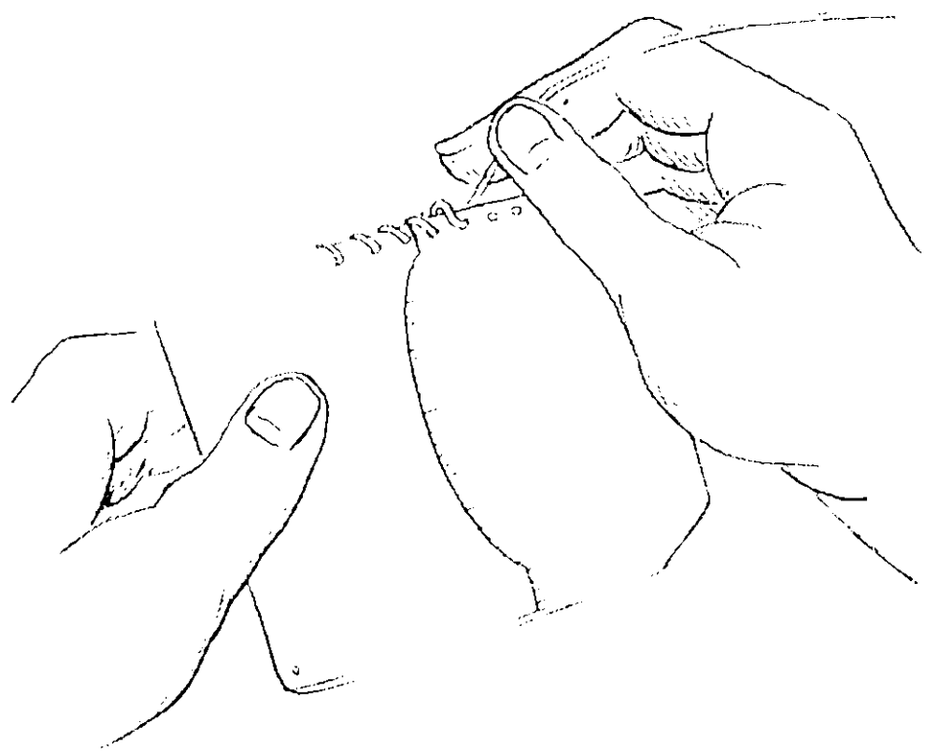
5. *Stamping.* Children will need to practice combinations of units to form good designs. This may be done on scrap leather or on cardboard. Place the moistened leather on the pine cutting board. Place the stamp in the desired position. Strike the stamp with a mallet. Make the cuts deep and clear.

6. *Simple tooling.* Moisten the leather and lay it on the marble slab. Place the pattern right side up on the finished side of the leather. The pattern for the design should be on thin, strong paper. Use the tracer or small end of the modeler as you would a pencil. Press hard as you go over the lines. Remove the pattern. Retrace the lines on the leather again, pressing a little harder this time, working on the marble slab or some other hard, smooth surface. Continue retracing, pressing hard each time until all lines are deep and clearly cut.

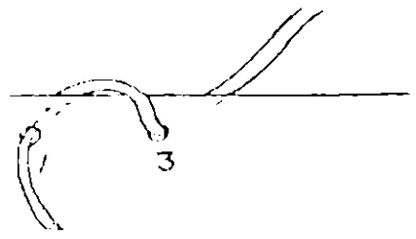
7. *Flat modeling.* This goes one step beyond simple outline tooling. Proceed as in outline tooling. Then wet the leather again if necessary. Use the broad end of the modeler to push down the leather around the design. Press hard on this tool as you push down the background. The deerfoot modeler may be used for this process. Designs will stand out more boldly with flat modeling than with simple outline tooling. To accent the design still more, the background may be stippled. Use the small end of the modeler or the ball tool to make small round impressions close together in the leather.

8. *Making thong slits.* Whenever a project is to be laced with thongs it is necessary to make slits. Make a pencil line $\frac{1}{8}''$ to $\frac{3}{16}''$ from the edge. Place the four-prong chisel on the line (leather should be on pine board) and tap the chisel with the mallet hard enough to cut through the leather. Move the chisel along the line until the end prong fits in the last slit cut. Continue in this manner until coming to the corner. At the corner or curve it is usually necessary to use the single-prong chisel. This single-prong chisel should also be used when almost all of the slits have been cut. In the last inch it may be necessary to adjust the spacing.

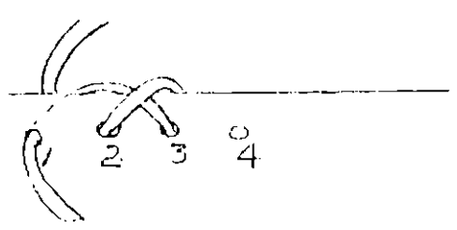
9. *Lacing.* There are many styles of lacing. The elementary school child should learn two of the simple styles.



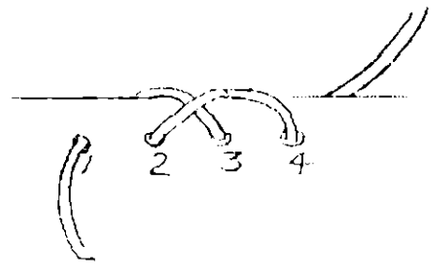
Plain whipstitch or overcasting is the easiest over-the-edge stitch. The lacing is put through a hole on the top, comes out at the bottom, over the edge, and through the next hole in the top. Care must be taken to keep the lacing from twisting. Keep it flat. Double-back whipstitch gives a cross-stitch finish on the edge. Start on the top. Go through hole *1* to the back and come over the edge and go through hole 3 from the top. Then come over the edge and go through hole 2 from the top. Next come over the edge and go through hole *4* from the top. Then use 3 and 5, *4* and *6*, 5 and 7, *6* and 8, and so on. When the lacing is completed, the appearance of the work may be improved by hammering the edge. Place the work on a smooth, hard surface and tap the lacing lightly with a smooth-faced hammer. This will flatten the laced edge, giving it a more uniform appearance.



Start on top. Go through hole 1. Come over edge. Go through hole 3.



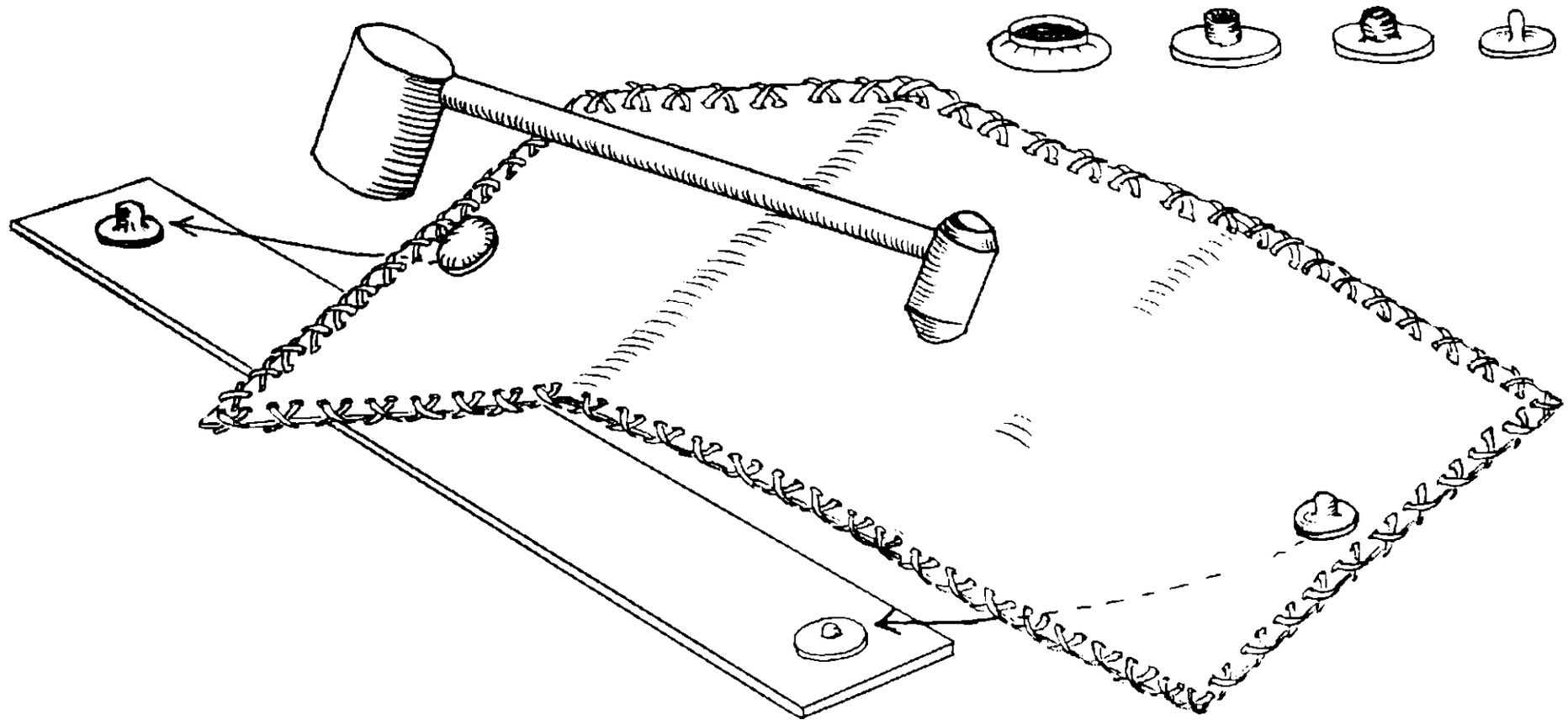
Come over edge. Go through hole 2.



Come over edge. Go through hole 4. Come over edge.



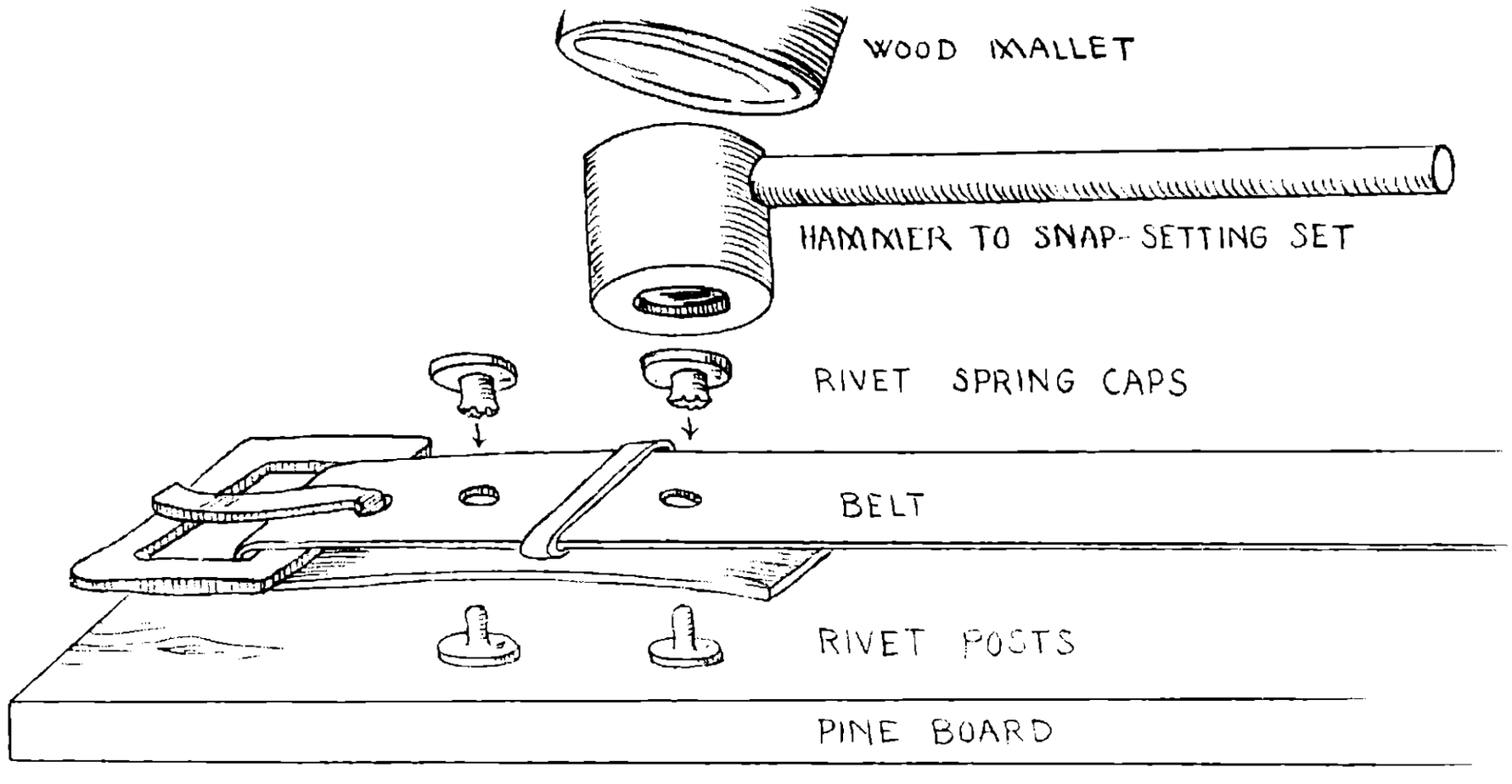
Go through hole 3. Come over edge. Go through hole 5. Then use holes 4 and 6, then 5 and 7, etc.



Setting the cap over the eyelet

10. *Sewing.* When sewing two pieces of leather together the child should punch holes at regular intervals equidistant from the edge. The running stitch or back stitch may be used.

11. *Setting snaps.* Snaps have four pieces, the cap and eyelet and the spring and post. Mark the place for the eyelet and punch a hole just large enough to push the eyelet through the leather. Push the eyelet up through the hole so that the small ring is up on the right side of the leather. Set this on the anvil end of the snap fastener set. Set the cap on the eyelet. Place the concave part of the hammer that comes with the set over the cap. Strike the hammer with a mallet. This will force the two parts together. Press the eyelet down hard over the part that is to hold the post. This will make a mark on the leather. Punch a small hole and push the post through it from the wrong side of the leather. Put the post on the anvil, set the spring on the post, set



Setting rivets on a belt

Suggested Grade Placement of Leathercraft Processes			
GRADE 3	GRADE 4	GRADE 5	GRADE 6
Assembling links Cleaning Cutting Polishing Punching Stamping	Cementing Edging Lacing (overcast) Making thong slits Setting snaps Simple tooling	Lacing (advanced stitches) Tooling (more advanced)	Bending metal Cutting metal Dyeing leather Filing metal Splicing lacing

the hollow part of the hammer over the spring, and hit the hammer with a mallet to fasten the post in place.

12. *Setting Rivets.* Rivets are used to hold two pieces of leather together; for example, when putting a buckle on a belt. Punch holes through the leather just large enough to insert the rivet post and rivet spring cap. Push the rivet post up from the bottom through both holes. Place the rivet spring cap over the post. Place the cap-setting end of the hammer from the snap fastener set over the rivet spring cap. Hit the hammer with the wooden mallet.

13. *Coloring Leather.* Leather may be dyed or painted any color desired. When leather is purchased in scrap pieces, a variety of colors and grains are obtained. If children in the elementary grades wish to change the color of natural leather, one of two simple methods should be used. Purchase ready-mixed vegetable dyes from a handcraft supply house and follow the directions that accompany the dye. The other method is the use of water-proof colored inks. Leather must be clean before it is dyed. Use a cleaning solution made for leather or saddle soap for this purpose. Edges should receive special attention when dye or stain is applied.

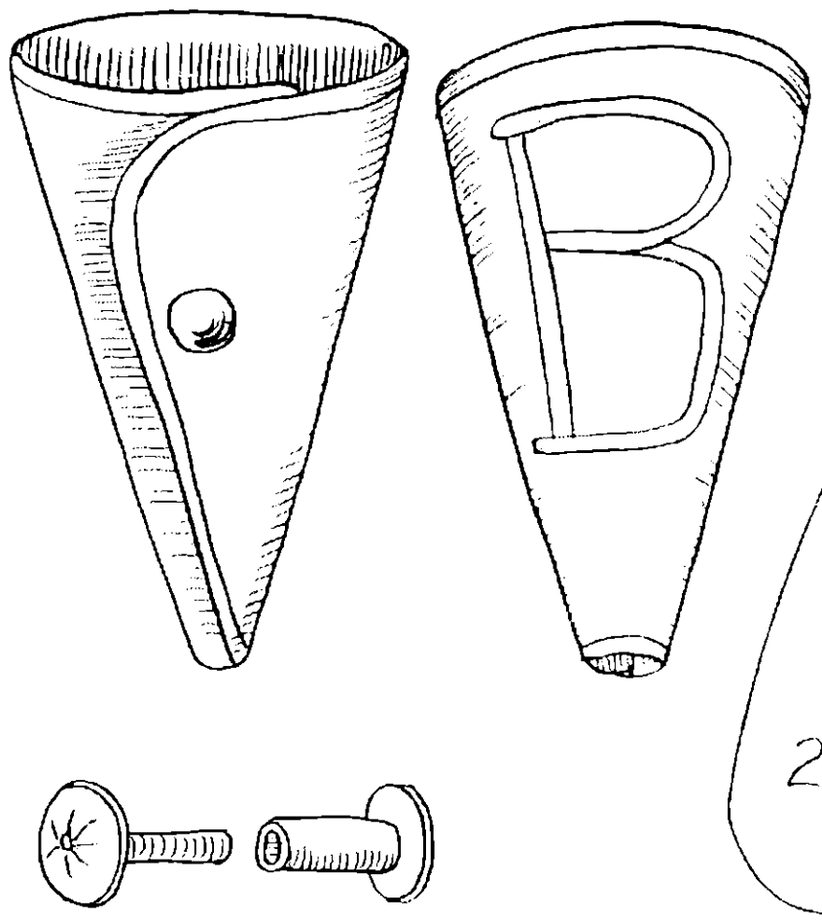
14. *Finishing Leather.* Leather should be polished with a soft cloth to give it the final finish. Either saddle soap or liquid or paste wax should be applied to the finished leather. When it is dry, the leather should be polished to give it a soft luster. Polishing with wax or saddle soap protects the leather and brings out its beauty.

Relative Difficulty of Leatherwork

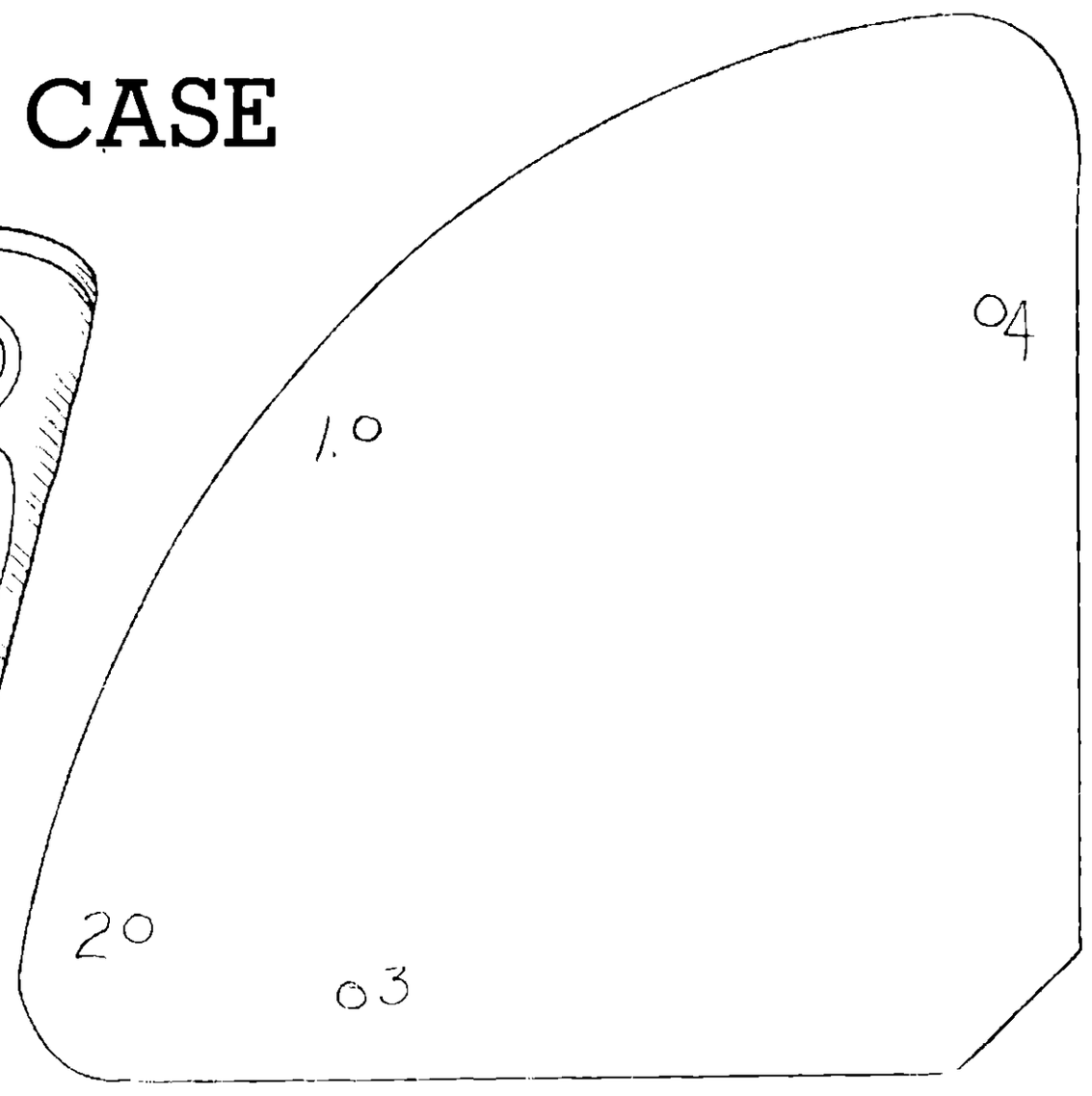
Simple leathercraft is well within the ability of upper grade children. The processes are somewhat more difficult than in some other crafts, so leatherwork is not recommended for children in grades one and two. Projects which may be made through only the simplest skills should be used in grade three. In the chart below, processes and suggested projects are classified according to relative difficulty.

Typical Projects			
GRADE 3	GRADE 4	GRADE 5	GRADE 6
Link belt Stamped belt (any ready-cut and ready-punched kit may be assembled)	Coin purse Key case	Billfold Comb case	Book cover Book ends

LEATHER KEY CASE



Post and snap



Full-size pattern

THIS IS A very simple and useful project. It is inexpensive because four key cases can be made from a 6″ circle of leather. The tool processes involved are basic ones that will be used in other leather projects. The design may be varied. Commercially made car key cases may serve as patterns for others. This case will hold four small keys. It is put together with a post and snap.

Materials Needed

3″ Square or ¼ of 6″ circle of durable scrap leather
1 Binder post, brass or steel, ½″ long
1 Snap set, regular size, 7/16″ (includes cap, eyelet, spring, and post)

Tools Needed

Knife
Tin snips
Revolving punch
Snap fastener set
Edge tool

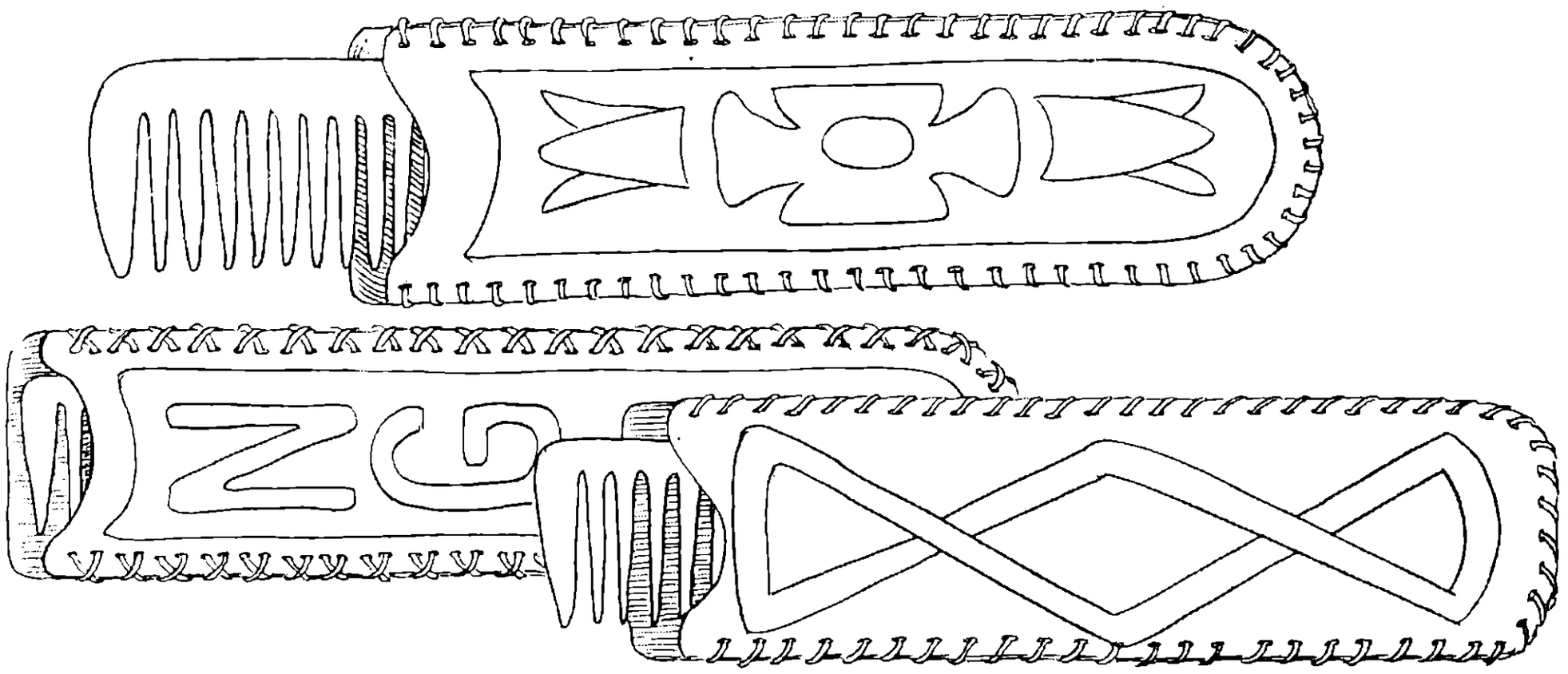
Skills Used

Cutting leather
Edging leather
Punching leather
Setting snaps

PROCEDURES

1. Trace the pattern on the leather with a pencil.
2. Cut out the key case. Use a knife and steel straightedge to cut the straight lines. Use tin snips to cut the curves.
3. Moisten the leather. Make a single crease line all around the piece of leather. See page 301.
4. Mark holes *1*, *2*, *3*, and *4*. At points *1* and *2* punch holes that will just fit the binder post. At points *3* and *4* punch holes that will fit the eyelet and post.
5. Push the eyelet through from the underside of hole *3*. Put the cap over it and set in place. See page 303 for further directions. Push the post through from the underside of hole *4*. Place the spring over it and set the two pieces.
6. Fold the key case together and snap it shut. Open again and use a modeling tool to make creases on the inside of the leather at the fold lines.
7. Fold the key case and screw the binder in place.
8. Color the cut edges if there is a definite difference. If light colored or natural leather is used the whole key case may be dyed.
9. Polish the finished work.

COMB CASE



Two NEW PROCESSES may be introduced with this project, those of tooling and lacing. The comb case is inexpensive yet it provides a real opportunity for further experience in leather work.

Materials Needed

2 pcs. Tooling calfskin, 1½″ x 6″
2 yds. Goatskin or plastic lacing
Cement (liquid rubber cement recommended)

Tools Needed

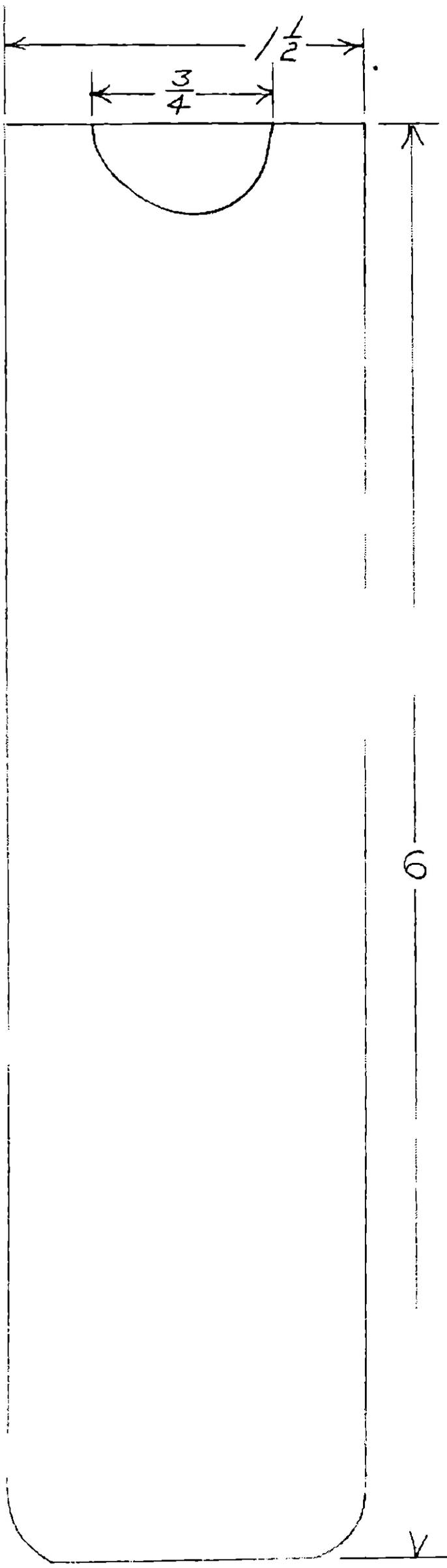
Sharp knife
Tin snips
Double end modeling tool
Thonging chisel
Wooden mallet

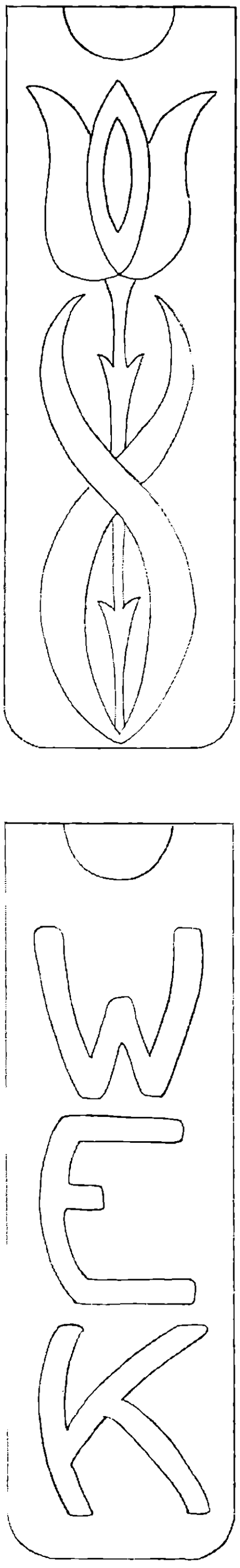
Skills Used

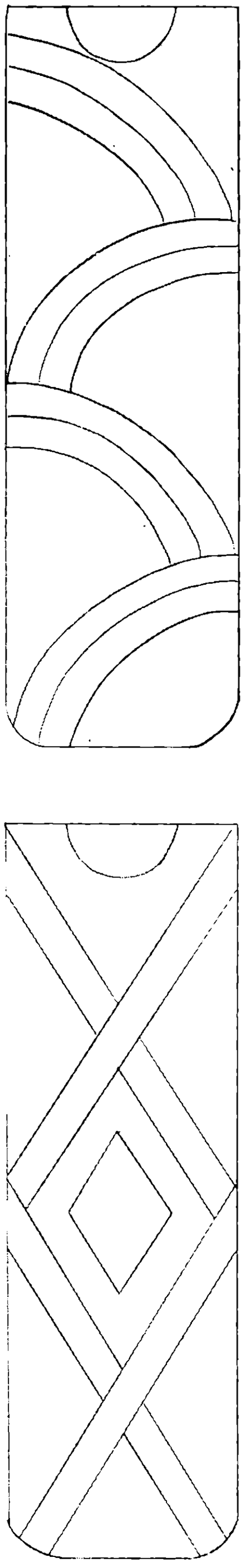
Cutting leather
Tooling leather
Cutting slits for lacing
Lacing with whipstitch

PROCEDURE

1. Cut two pieces of leather 1½″ x 6″. Use a sharp knife and a steel straightedge. Round off the corners on one end of both pieces as shown in the pattern. Use the tin snips. Cut a half circle in the square end of one piece. Use a ⅜″ radius as shown on the pattern.
2. On thin paper, draw a simple design for outline tooling.
3. Moisten the leather. Use paper clips to fasten the paper pattern over the top of the leather. Use the small end of the modeling tool to trace the design. Work on a marble slab or some other hard smooth surface. Press fairly hard.
4. Remove the paper pattern. Work over the lines with the same tool, pressing harder each time, until the lines show up clearly and distinctly.
5. Cement the edges of the two pieces together, leaving the top open. Put cement along the edge (not more than ⅛″ from edge) on both pieces. Press together.
6. Draw a pencil line ⅛″ in from the edges on the three sides that are to be laced. Use the thonging chisel and mallet to make slits along this line. Work on a pine board.
7. Color the edges if necessary. Dye the entire project if desired.
8. Lace the edges, using one of the stitches described on page 302. For beginners it is wise to start with the simple stitch, the plain whipstitch. Cement the beginning and the end of the lacing between the two pieces of leather or start and end with a knot.
9. Polish the finished work. Use saddle soap or wax as directed on page 304.



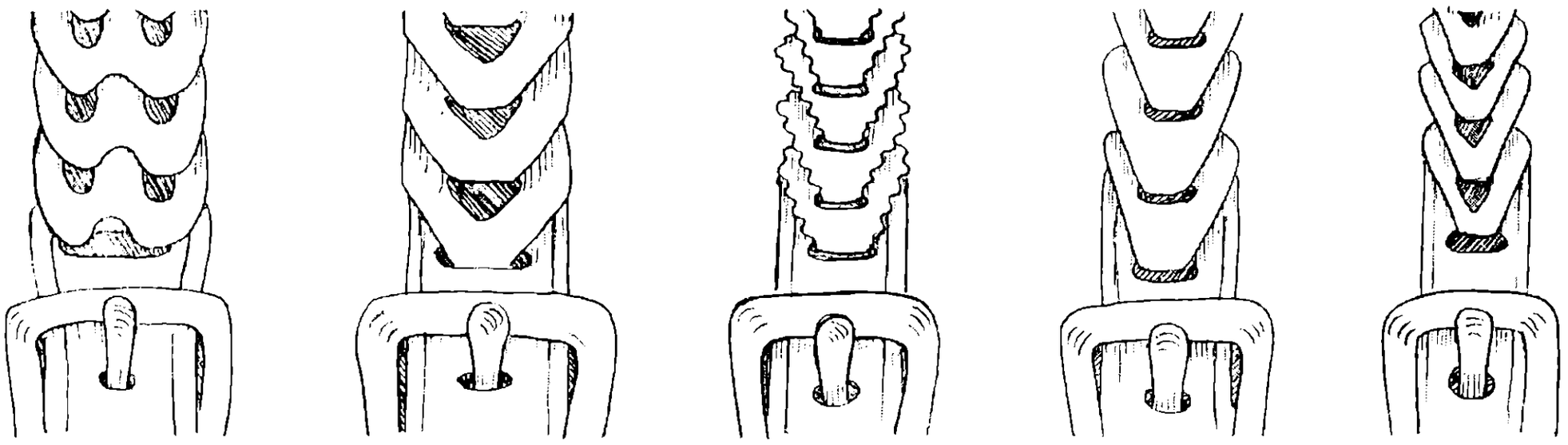




Above. Full-size pattern for a comb case

Right. Suggested designs for comb cases

LINK BELT



ALL CHILDREN LIKE to make belts. Boys and girls enjoy wearing them themselves and making them for gifts. The link belts described here are sturdy and attractive enough for any adult to wear with pride. The links may be purchased ready-cut. In fact, buying complete kits including buckles, snaps, loops, links, and tabs is more economical than buying the individual parts. Most handcraft supply houses carry these link belt kits. The links come in various sizes, shapes, and colors. This is an ideal leather project for camps, scout troups, and recreational groups as well as for school classes. Children from the third grade on through high school will enjoy this project.

Materials Needed

1 Link belt kit

Tools Needed

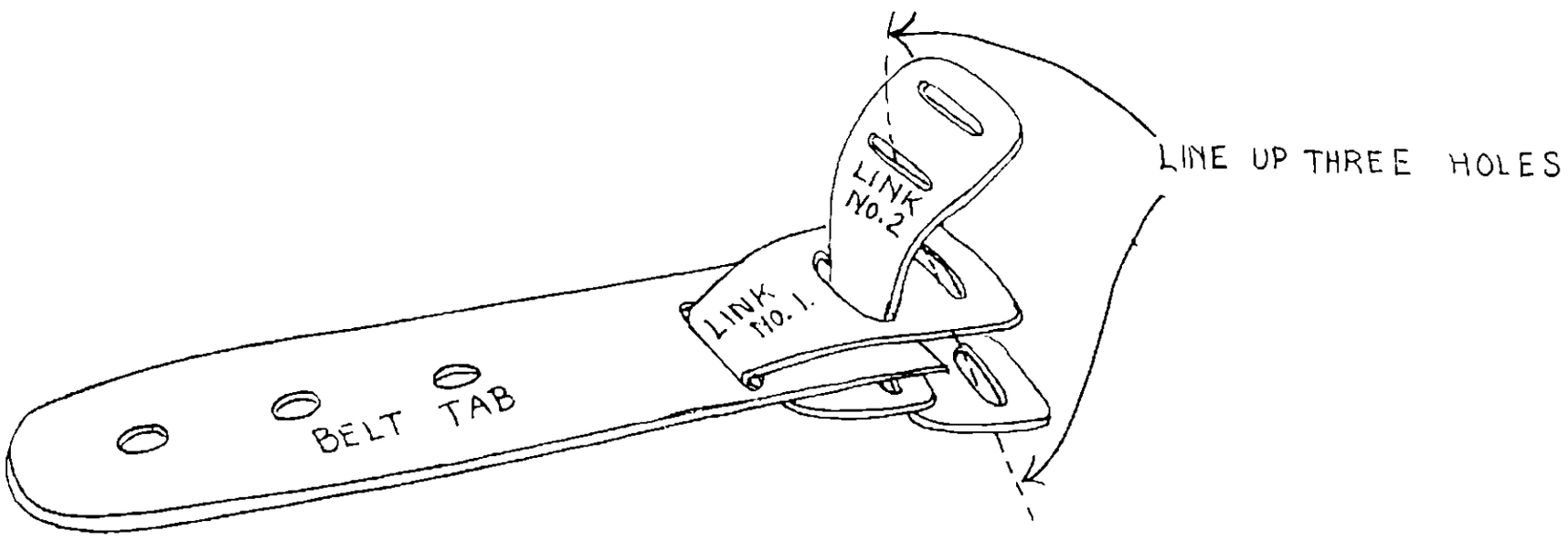
None

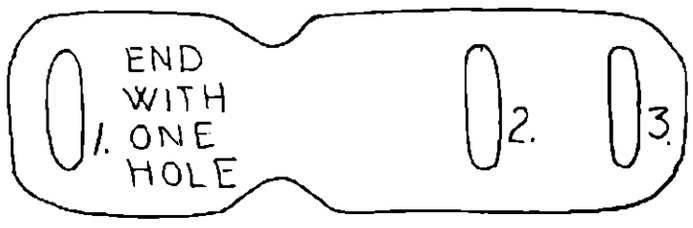
Skills Used

Assembling links
Following directions

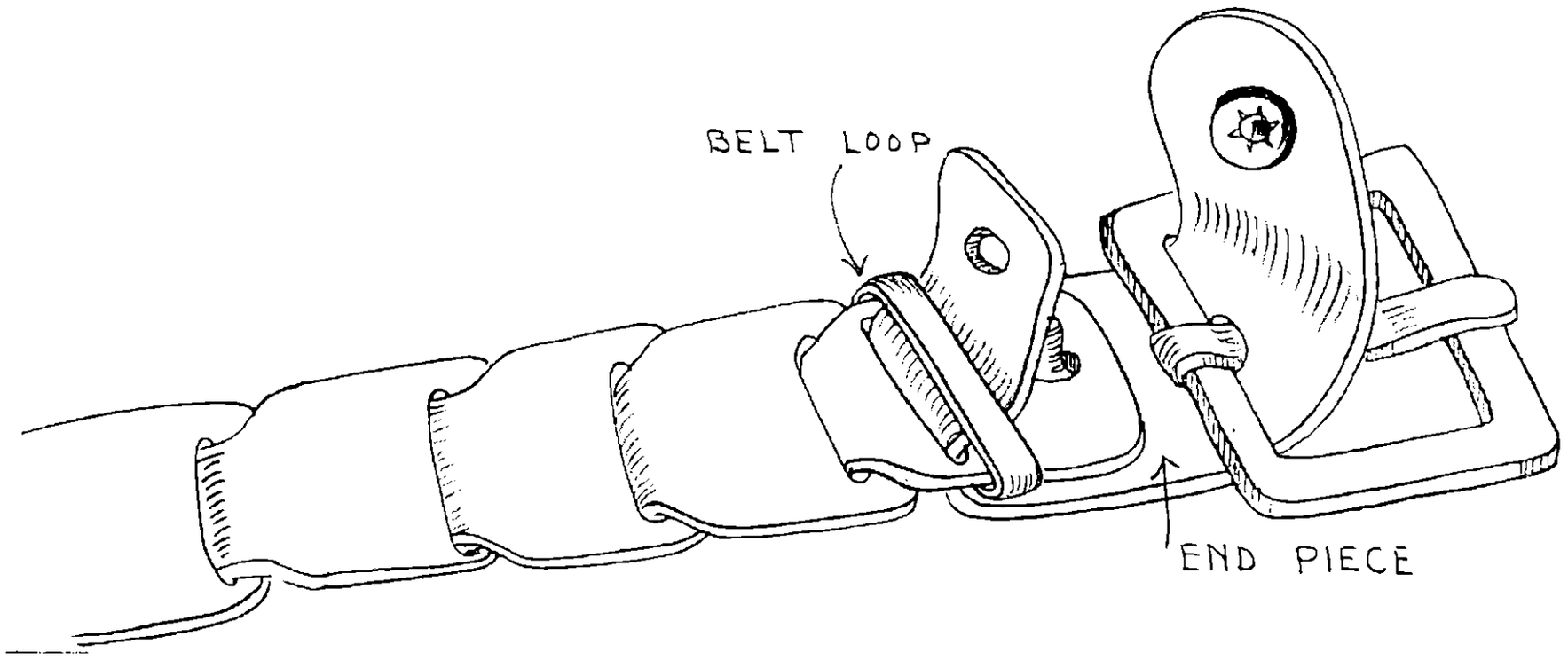
PROCEDURE

1. Start with the tab. Fold the first link in half at the end with one hole. Put the folded end through the second slit in the tab (not the end slit). Go through from the top. Line up slot No. 2 in the link with the end slot in the tab and with slot No. 1 in that link.





Beginning the assembly **One link**



Putting on the buckle

2. Take the second link and fold the end with slot No. 1. Working from the top or right side of the belt, put the second link through slot No. 2 in the first link, through the end slot in the tab, and through slot No. 1 in the first link.
3. Continue adding links in this manner until the belt is of the desired length. The belt will consist of three layers of leather when finished.
4. Fasten the buckle on. Slip the belt loop over the last link. Bring one end of the *end piece* (not a link but the piece with the snap on) through the last link. Slide the other end over the tongue part of the buckle and snap.

STAMPED LEATHER BELT

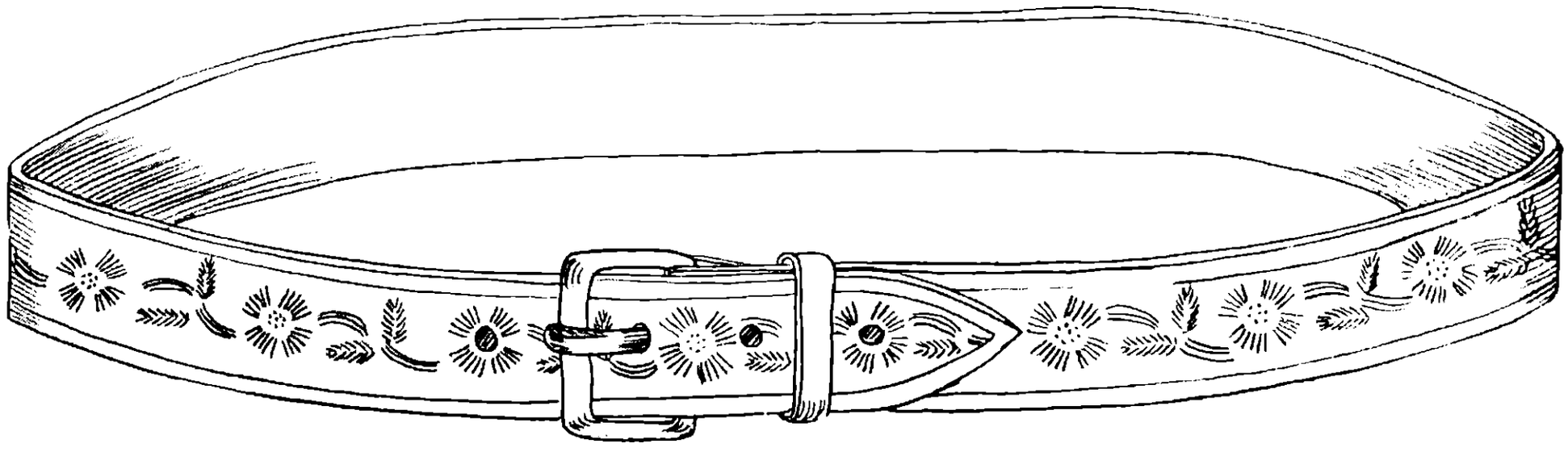
MORE SKILLS ARE used by the student in making this belt. He does his own designing and then stamps it into the leather. Several tool processes are involved. Neatness and accuracy are the measures of good workmanship in saddle stamping. Children in grades three through twelve will enjoy making these belts.

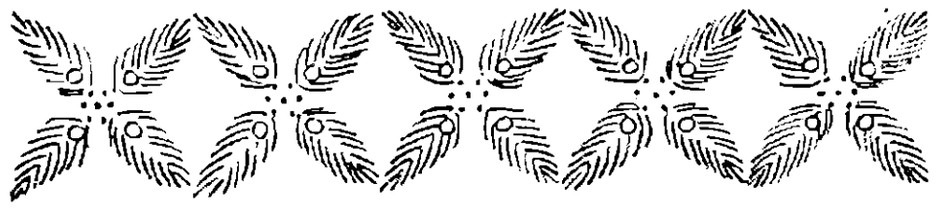
Materials Needed

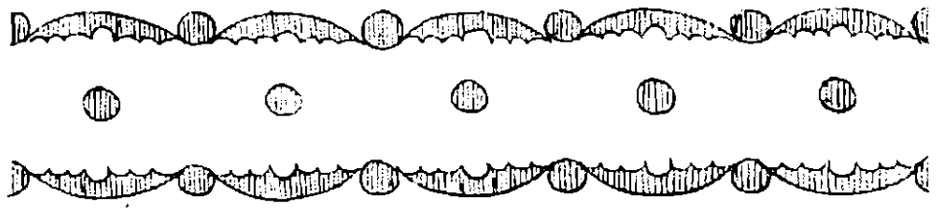
1 pc. Cowhide 1″ x 36″ (size may vary as desired)
1 Belt buckle to fit width (prong type)
1 Metal belt loop or piece matching leather ½″ x 3″
3 Rivets
Emery cloth, No. 0000

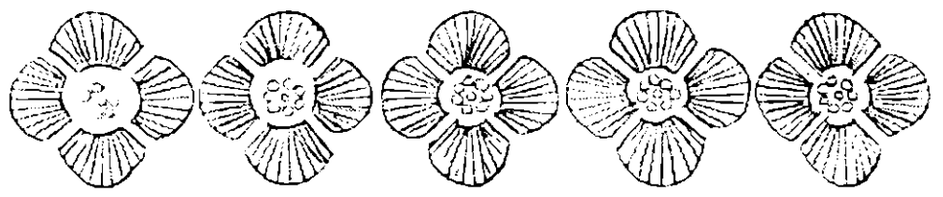
Tools Needed

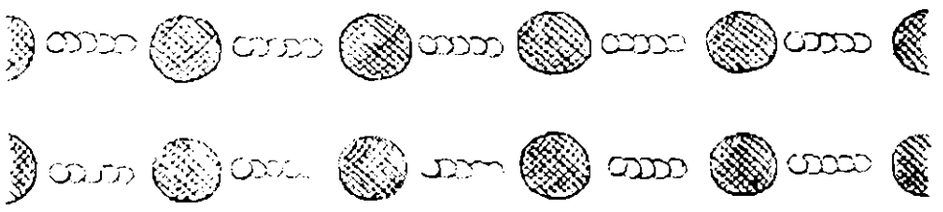
Knife
Edge creaser
Punch
Mallet
Hammer to snap-fastener set
Assorted saddle stamps











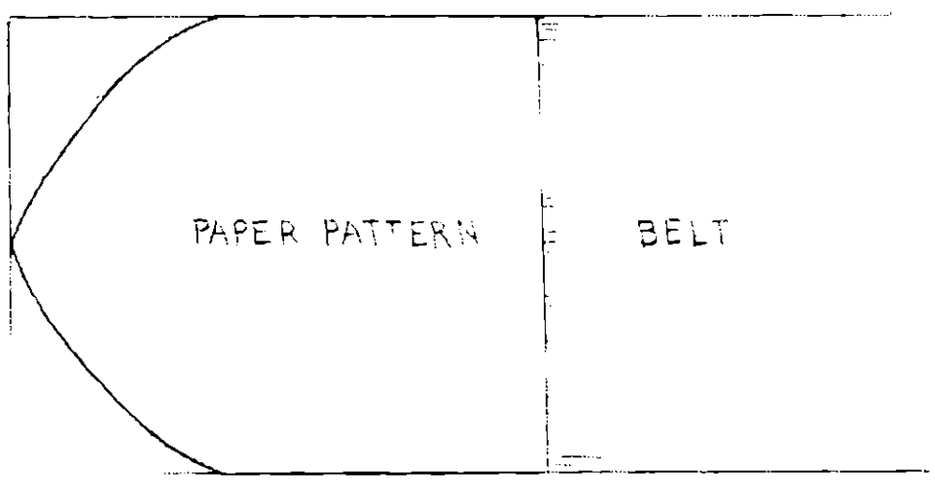
Skills Used

Cutting
Edging
Stamping
Punching
Riveting
Polishing

PROCEDURE

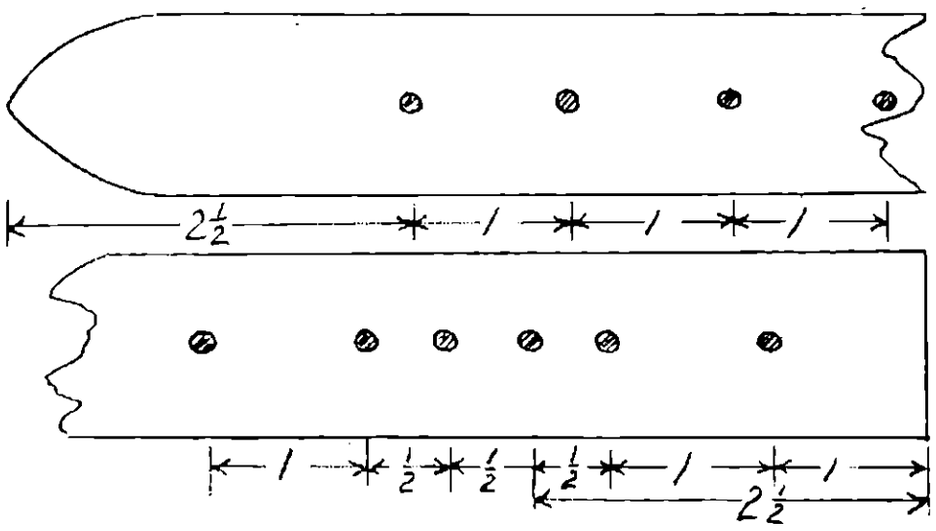
1. If belts are not already cut, use a steel straightedge and sharp knife to cut them to size. Make the belt 6″ longer than the actual waistline measurement.
2. Moisten the leather. See page 301 for complete directions.
3. Cut a rounded point at one end of the belt. Make a pattern by folding in half a piece of paper the same width as the belt. Draw and cut the pattern. Trace the pattern on the belt. Cut with a sharp knife or tin snips.



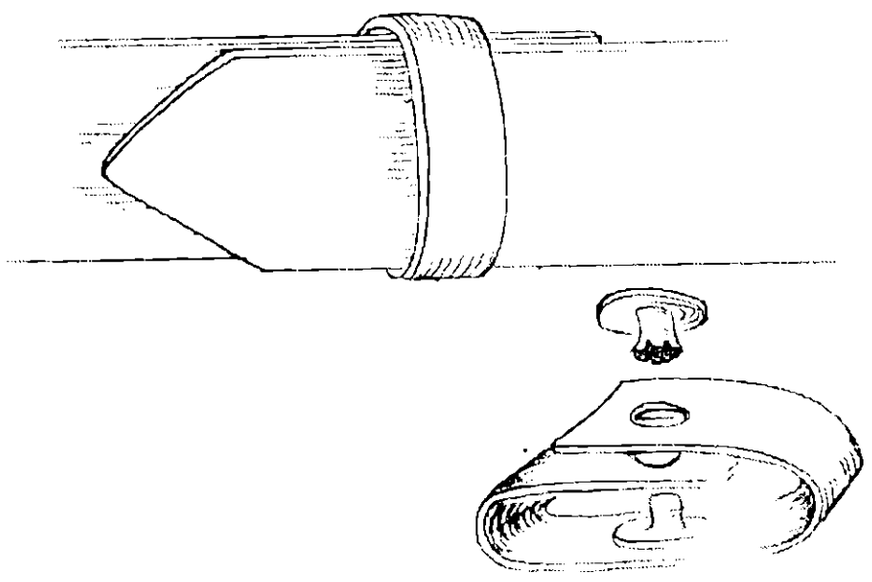


4. Use the edge creaser to make a crease around the edges of the belt. If a leather belt loop is to be used crease the edges of it too.
5. Use the saddle stamps to work out a design on a piece of moistened scrap leather or on a heavy piece of cardboard. From a dozen well-chosen saddle stamps a great variety of designs can be created.
6. Use a pencil and ruler to measure off the spacing for the design chosen. This helps to keep the design uniform.
7. Moisten the leather again. Place the belt on a hard, smooth surface, right side up. Place each saddle stamp accurately in place, then strike the stamp with the wooden mallet. Strike hard enough to make a deep, definite cut. Uniformity in depth of cut and in spacing will improve the appearance of the design. If the leather becomes dry before the work is finished moisten it again.
8. Let the belt become completely dry. Smooth the edges with No. 0000 emery cloth.
9. Clean the belt. Children are apt to get the leather dirty. Clean it with a special leather cleaner purchased from a handcraft supply company.
10. Punch the holes in the belt. At the pointed end, punch one hole 2½″ from the point. Punch three more holes at this end, making them all 1″ apart. At the opposite end cut a ½″ slot for the buckle. Do this by punching one hole

2½″ from the end and another one 3″ from the end. Then cut away the leather between these two holes with a sharp knife. Punch four more holes at this end. Make one ½″ on each side of the slot and another 1½″ from each end of the slot.

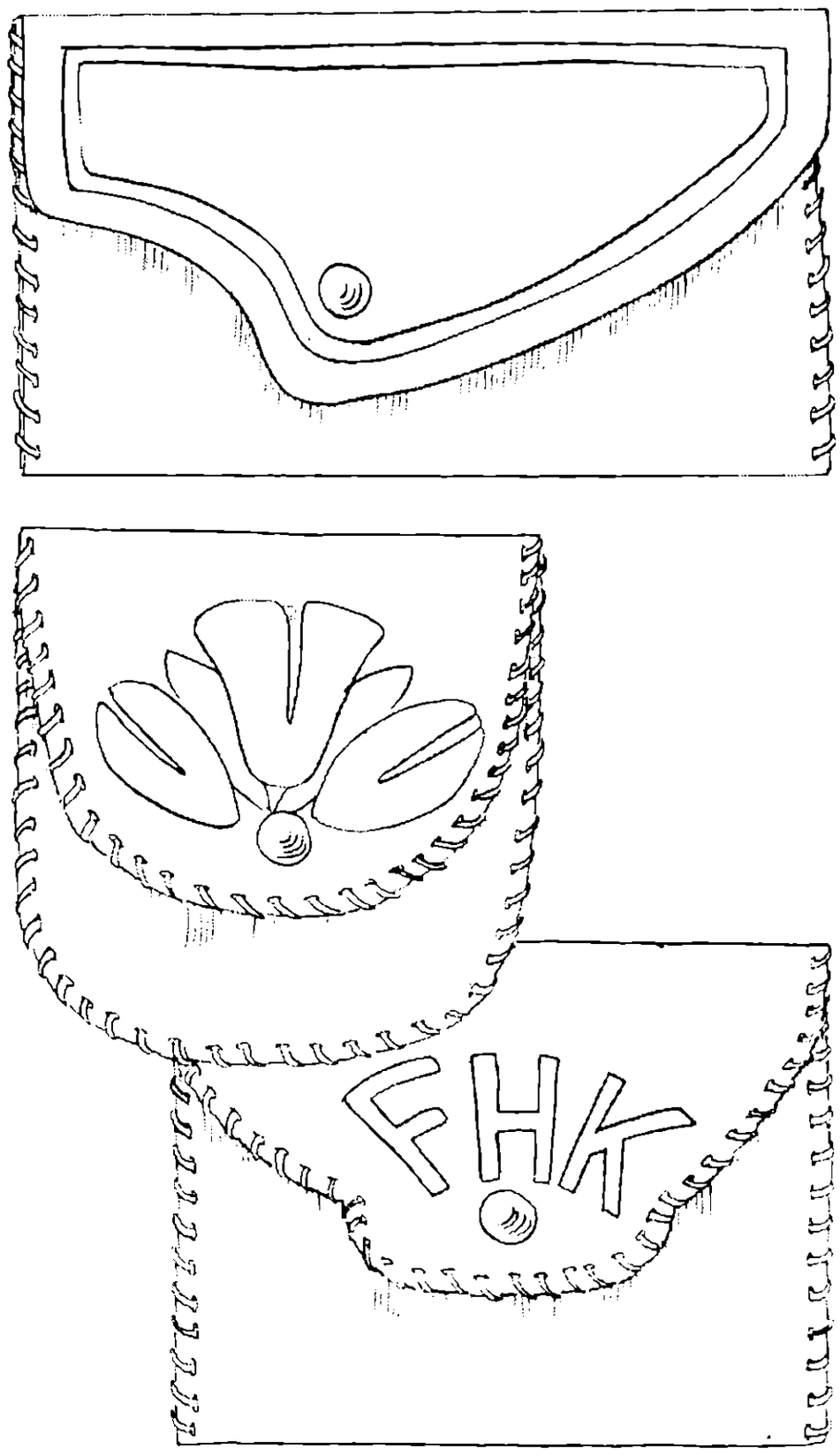


11. Dye the belt. The color brings out the design and helps to keep the belt clean. Use a commercially prepared liquid leather dye. Moisten the belt and place it on a pad of newspapers. Dip a small soft cloth in the dye and then rub it over the moistened belt. Be sure to dye the edges at the same time. One coat will give a light color. The more coats of dye applied, the deeper the tone will be. Dye the belt loop at the same time.
12. Make the belt loop. It should be just large enough to go around two thicknesses of the belt and to provide space for a rivet. Punch holes and fasten with a rivet. See pages 303–304 for directions for setting a rivet.



13. Polish the belt and belt loop.
14. Assemble the belt loop, buckle, and belt with rivets as shown in the illustration on page 303.

COIN PURSE



THIS PROJECT INVOLVES the process of lacing. If the leather is purchased ready-cut and punched for lacing, children in grades three and four will find it an easy project. Children in grades five and six may prefer to design, cut, and punch their own work.

Materials Needed

1 pc. Tooling leather, 3½″ x 7½″ (size may vary with design)
1½ yds.—3/32″ Plastic lacing to match (three times the length to be laced)
1 Snap set, 7/16″ size, to match
Cement (recommend rubber cement)

Tools Needed

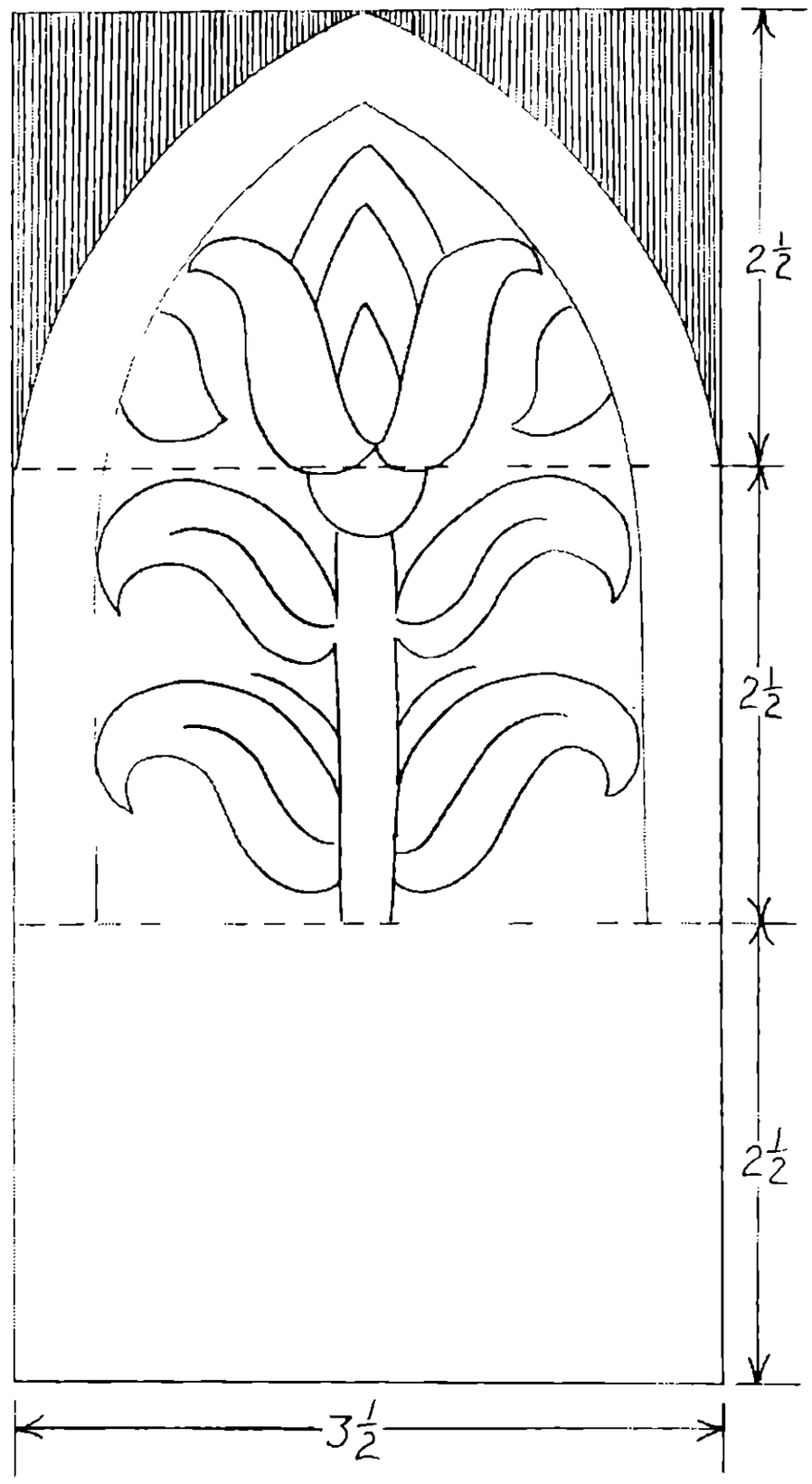
Knife
Tin snips
Thonging chisel
Mallet
Snap-fastener set
Punch
Tracer
Modeler

Skills Used

Cutting
Making thong slits
Simple tooling
Setting snap
Lacing
Cementing

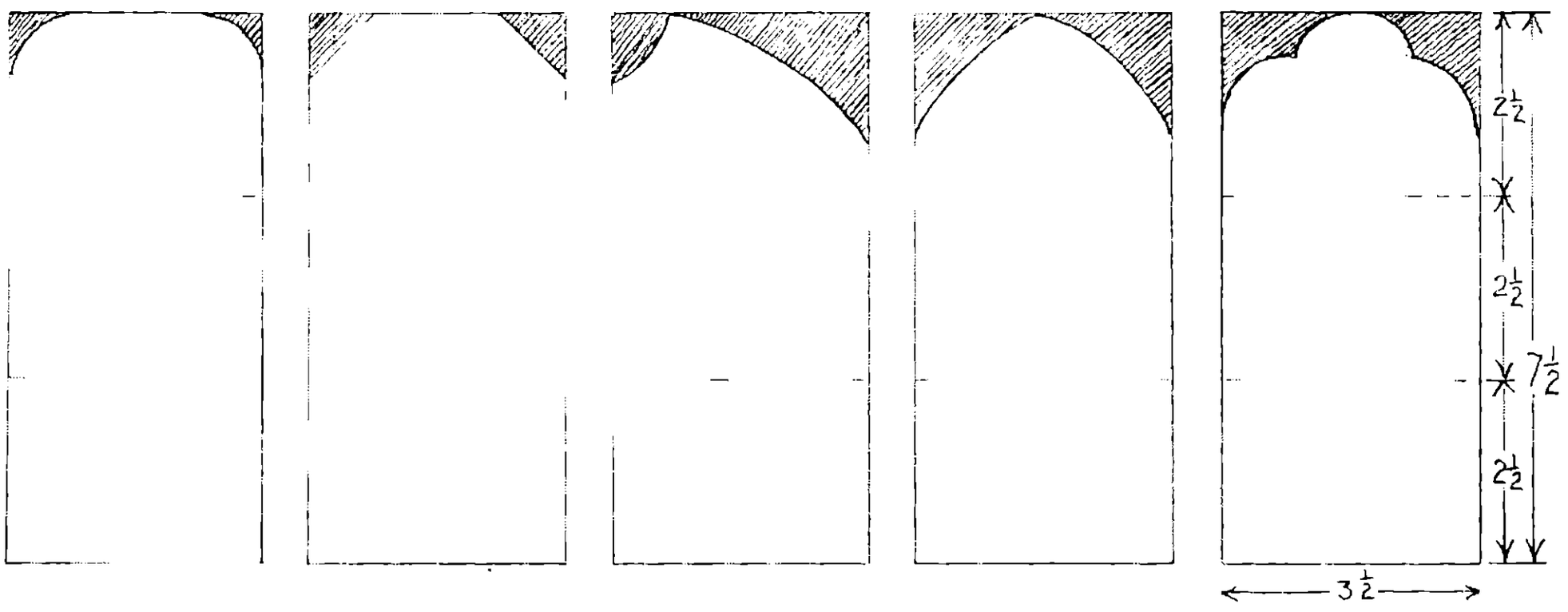
PROCEDURE

1. Cut a paper pattern 3½″ x 7½″. Design and cut one end for a decorative flap.
2. Trace this design on the leather with pencil. Cut straight lines with a sharp knife and a straightedge. Cut curved lines with the tin snips.
3. Draw a design for tooling in the flap and center sections of the paper pattern. Beginners should keep the design simple in outline and free from fine detail. Use strong, thin paper.



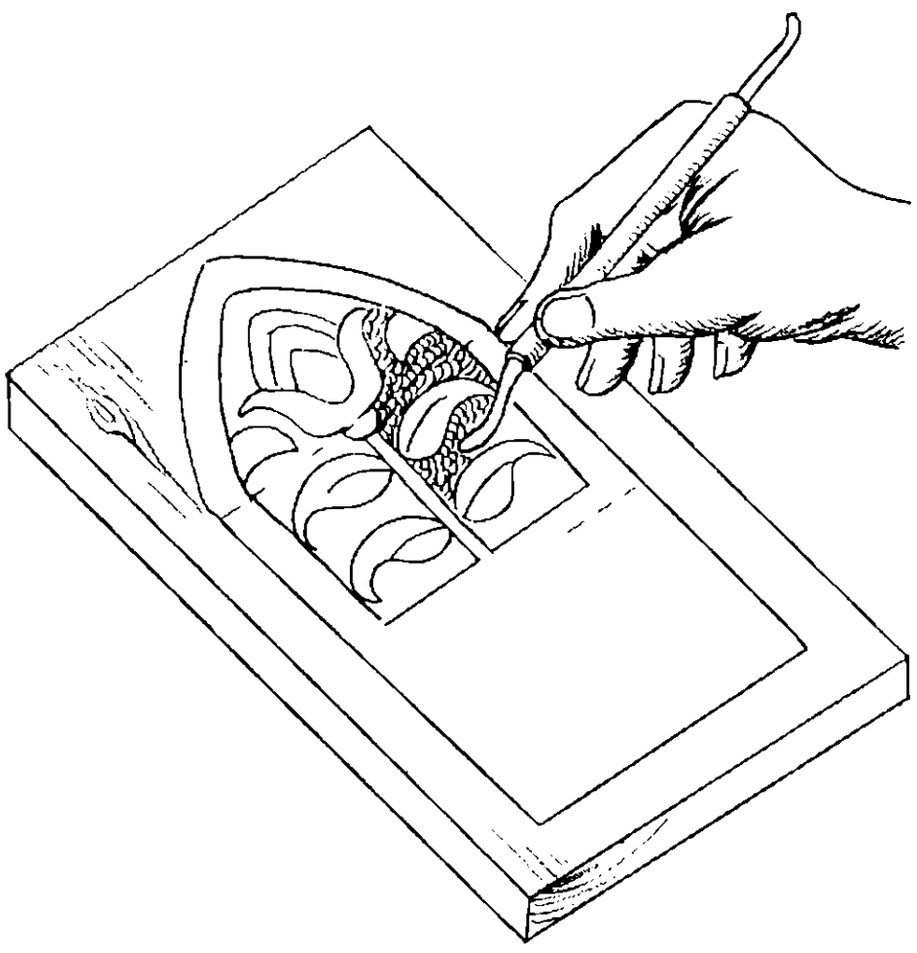
Outline design drawn in flap and center section of pattern

4. Moisten the leather.
5. Use paper clips to fasten the paper pattern to the leather. Place on a hard,

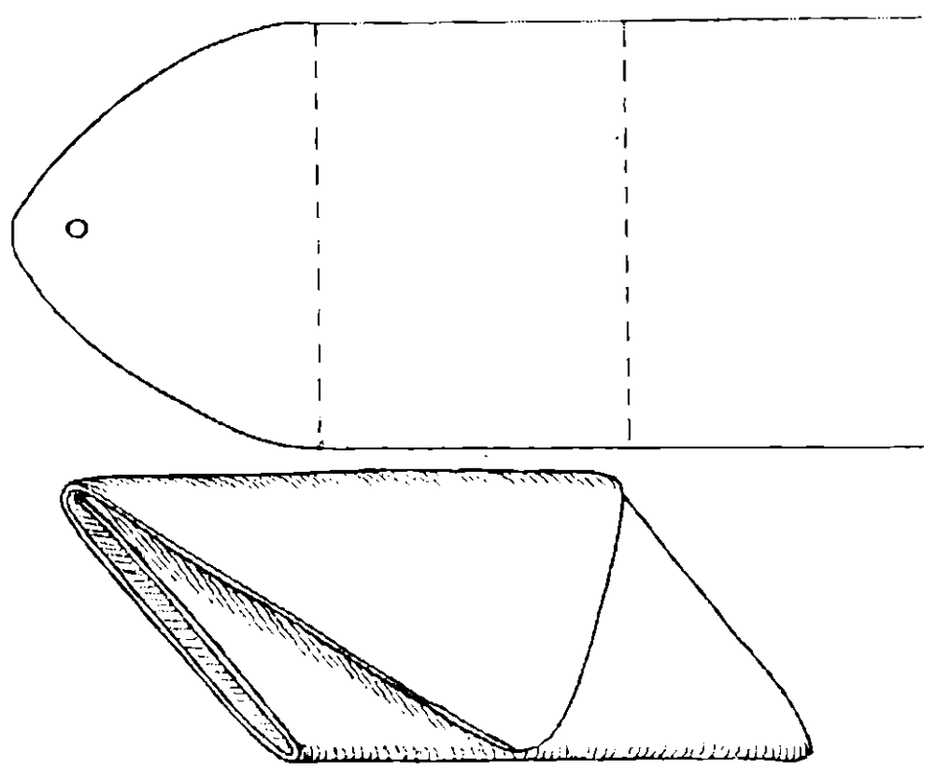


smooth surface and trace. Use a tracer or the small end of a modeler to trace. Press hard on the lines of the design.

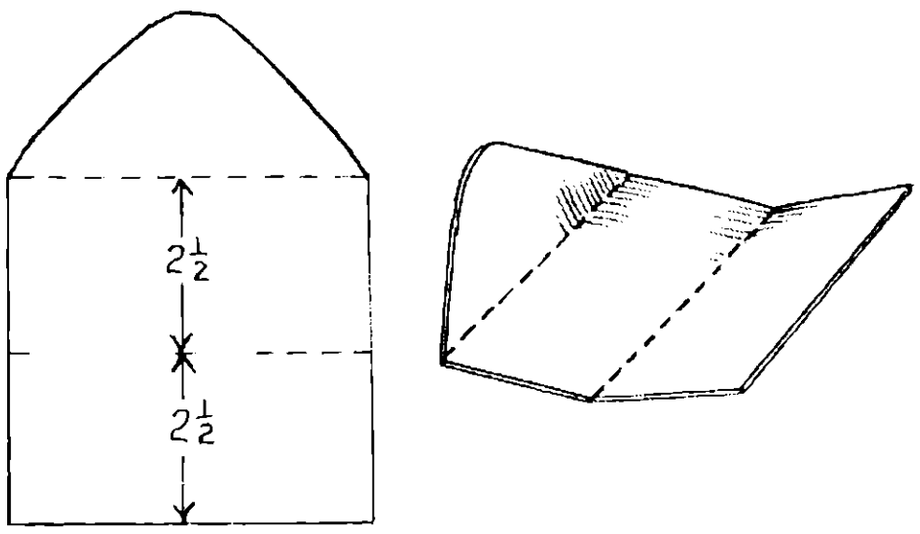
6. Remove the paper pattern. Retrace the lines, pressing harder. It may be necessary to go over the lines three or four times to get a definite outline.
7. Using the broad end of the modeler or the deerfoot, press down the background of the design.
8. This step may be omitted by younger children. Moisten the leather slightly. Turn over, and, working from the back, use the deerfoot to push out the design or some parts of it.



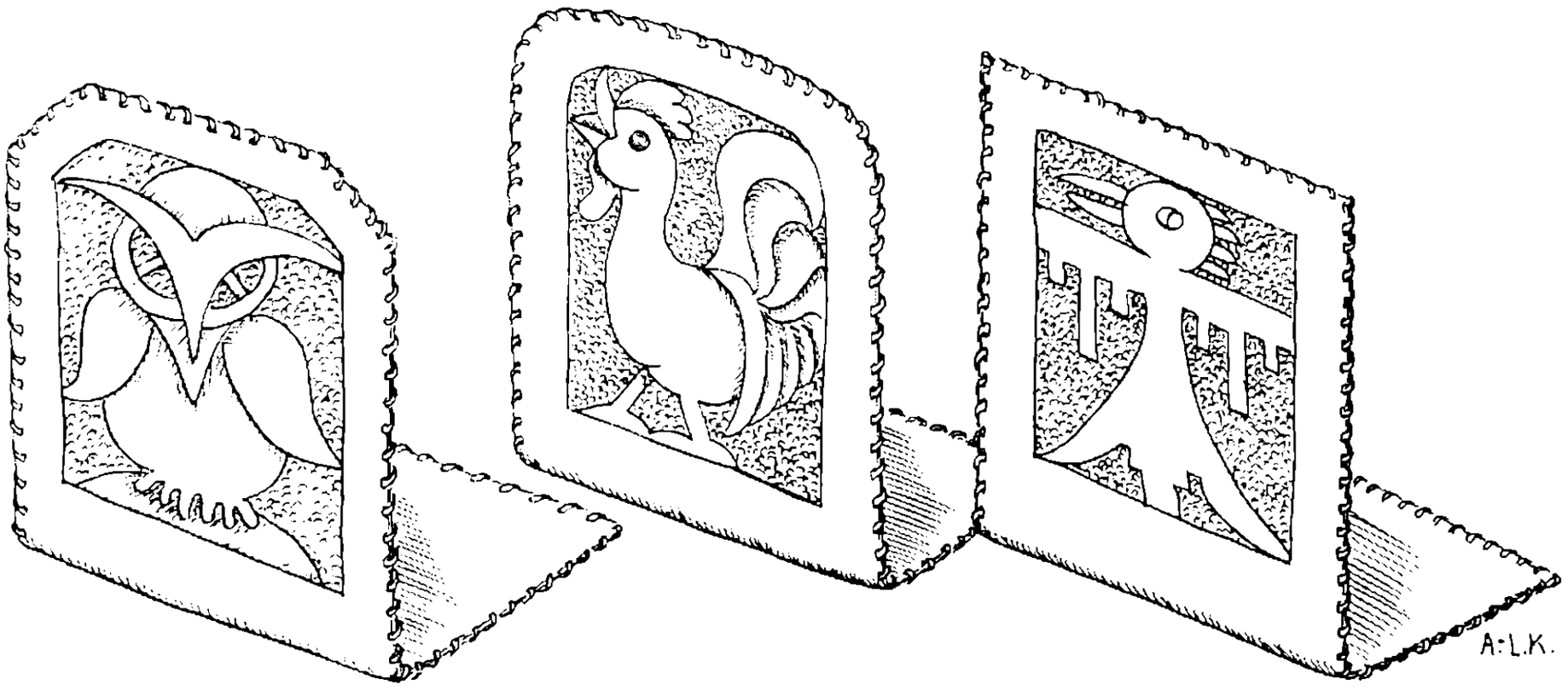
9. Working on the right side of the leather, use the small end of the modeler to retrace the outline.
10. Crease the leather for the folds. On the inside of the leather rule a line 2½″ from the uncut end, and another 5″ from the uncut end. Use the modeler to make a crease along these lines.
11. Permit the leather to dry.
12. Clean the leather with liquid leather cleaner, following the instructions on the bottle.
13. If the leather is light in color or of natural finish, dye it to make it more practical and to bring out the tooled design.
14. Set the snap. Punch one hole ½″ from the shaped end. Hole should be the same size as the eyelet. Fold the purse and make a mark through the hole to locate the second one. Punch the second hole. Make it just large enough for the post. Set the snap according to the directions on page 303.



15. Use rubber cement to fasten the two sides together. Put cement along each piece covering 3/16″ along the edge. Bring the two pieces together and hold them in position until cement sticks.
16. Use the thonging chisel and mallet to make slits around the flap and along the two cemented edges.
17. Lace the edges, using the plain whipstitch shown in the drawing on page 302. Tie a knot at the end of the lace to keep it from slipping through the slit. Finish with a knot at the other end. Place the finished lacing on a hard, smooth surface and pound it lightly with a smooth-faced hammer.
18. Clean the leather with saddle soap and polish.



LEATHER-COVERED BOOK ENDS



THIS IS A project in which the sixth grader will take great pride. The leather-covered book ends are attractive and useful. Considerable work is involved in making the jackets and putting them over the metal forms. The results are worth the effort.

Materials Needed

2 pcs. Heavy galvanized iron, 4½″ x 9″ (local tinsmith or furnace man often has scraps this size)
2 pcs. Tooling leather, 5″ x 9½″
2 pcs. Lining leather, 5″ x 9½″
6 yds. Plastic or leather lacing, 3/32″ wide
Cement (rubber cement recommended)

Tools Needed

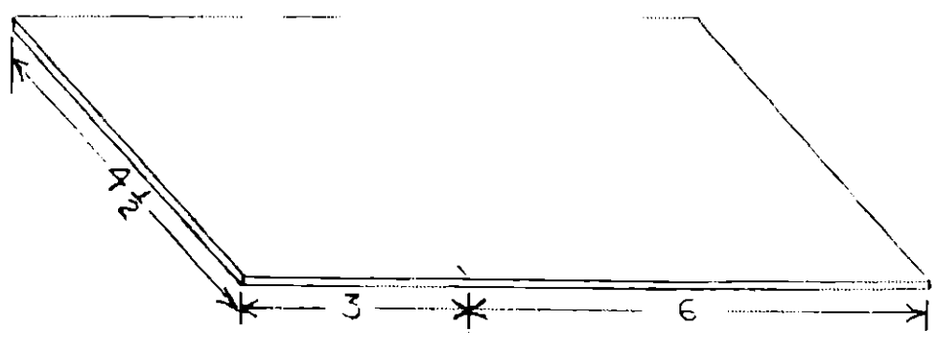
Tin snips
Square
Ruler
Vise
Angle irons
Hammer
Metal file
Knife
Tracer
Modeler
Thonging chisel
Mallet

Skills Used

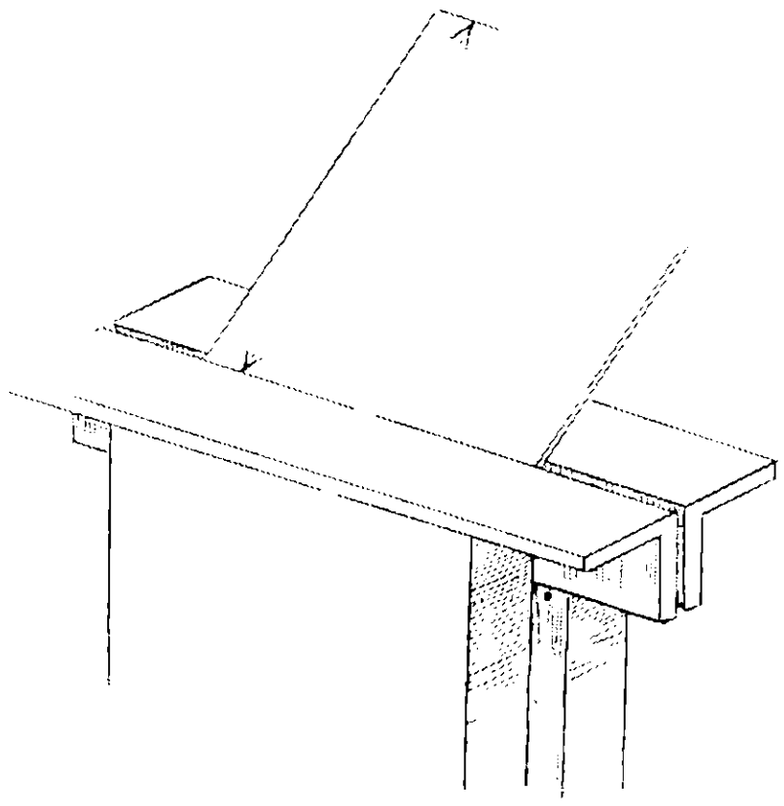
Measuring
Cutting metal
Filing metal
Bending metal
Cutting leather
Moistening leather
Tracing on leather
Tooling leather
Cleaning leather
Dyeing leather
Cementing leather
Cutting slits for lacing
Splicing lacing
Lacing
Polishing

PROCEDURE

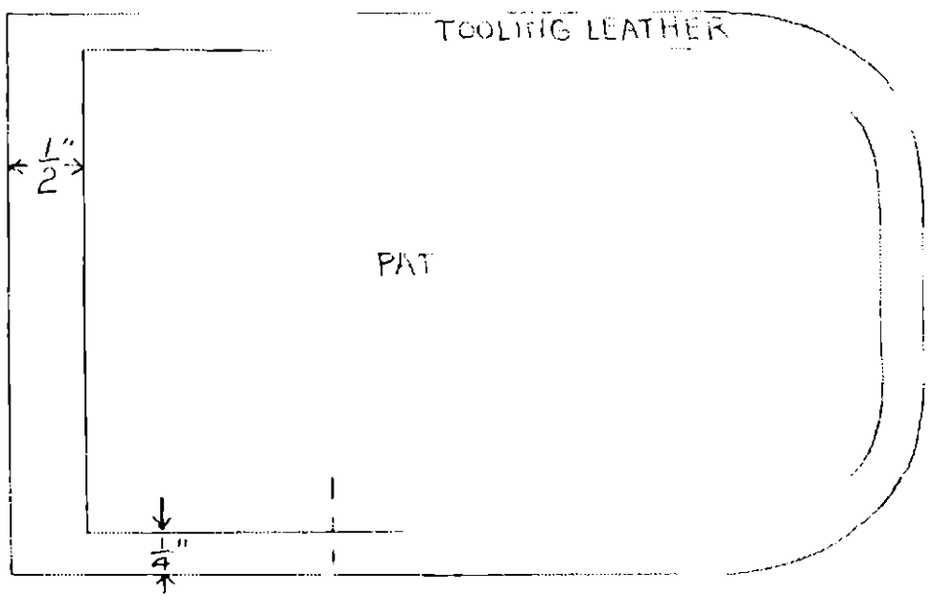
1. Use the ruler, square, and pencil to mark off two pieces of metal 4½″ x 9″. Cut to size with tin snips. Design the shape of the upright piece. Round off corners or cut off at an angle. Use the tin snips.
2. Place the metal in the vise and file all edges until smooth, rounding them slightly.
3. Mark off 6″ for the upright section of the metal and draw a line.



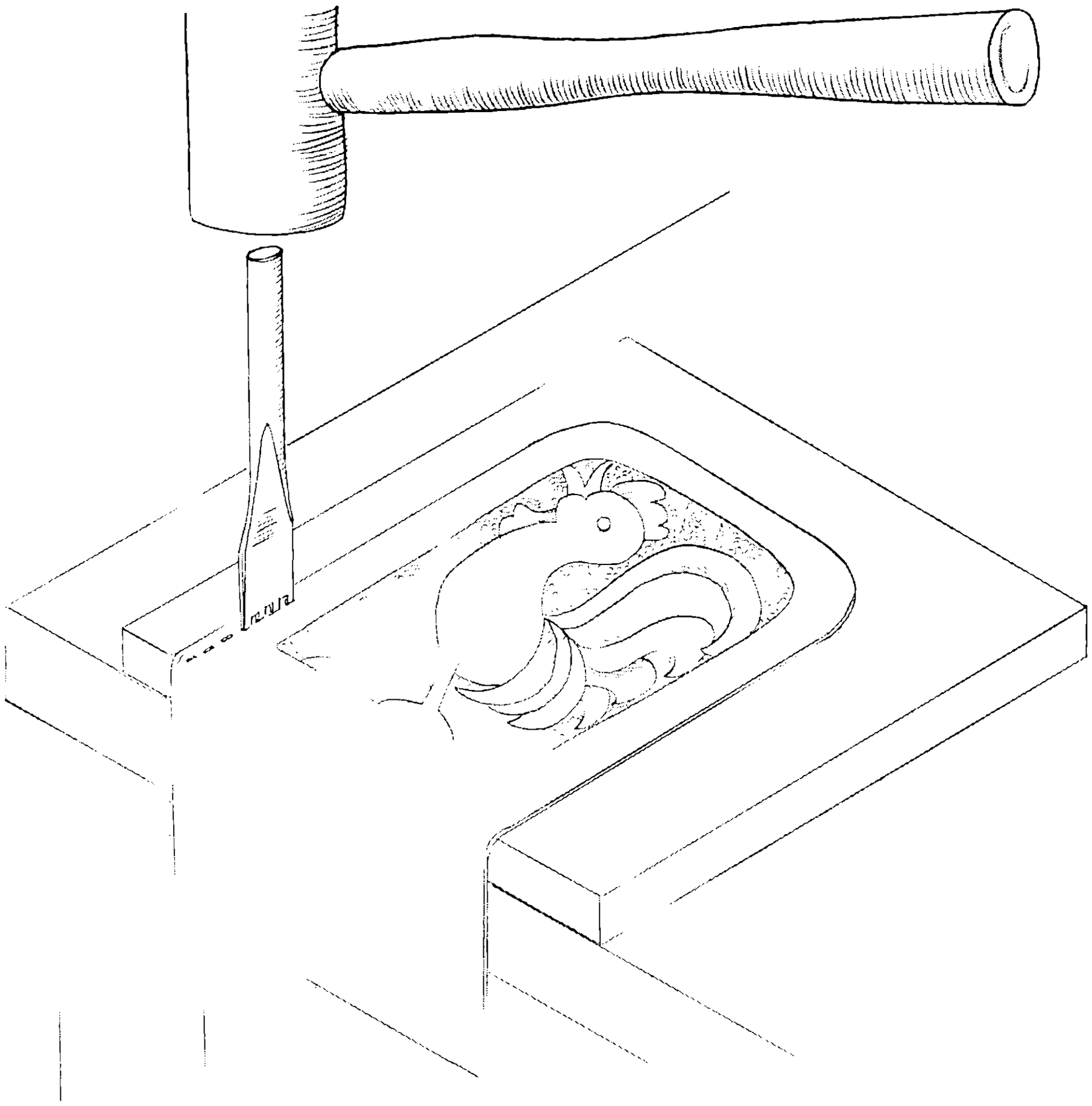
4. Place two pieces of angle iron in the vise. With the 6″ part up, put the metal between the pieces of angle iron. Fasten the vise securely, making sure that the folding line on the metal lines up with the edge of the angle iron. Using both hands, force the metal back. Use a hammer to pound the metal into a sharp bend.



5. Cut two pieces of tooling leather. These should be ¼″ larger on all edges than the metal. Allow ½″ at the bottom.



6. Cut two pieces of lining leather the same size as the tooling leather.
7. Draw the design for tooling. Allow at least a ½″ margin on the design. Use thin, strong paper.
8. Moisten the tooling leather. Clip the pattern over the leather and trace the design with a tracer or with the small end of a modeler. Press hard. Work on a hard, smooth surface.
9. Remove the pattern. Retrace the lines on the leather, pressing harder on the tool. Retrace often enough to make the lines definite and clear.
10. Put down the background of the design. Use the deerfoot or the large end of the modeler to press down the leather all around the design. If leather becomes too dry moisten it.
11. Use the ball tool to stipple the background. Press the small end of the ball tool into the background making a surface pattern of small overlapping or touching circles.
12. Raise the design by turning the leather to the wrong side and pressing out the design with the deerfoot.
13. Working on the right side of the leather, retrace the design once more to make a definite outline.
14. Clean the leather, using a liquid leather cleaner.
15. Moisten the leather and dye it. Dye the lining to match the tooled piece.
16. When the leather is dry, cement the edges of the tooled leather to the edges of the lining with the metal in between. When doing this, put rubber cement all around the edge of each piece of leather. Then stick the two together. Press the leather firmly against the inside and outside of the bend in the metal. There will be excess lining at the back of the base. This should be trimmed off.
17. Use the thonging chisel and mallet to make slits for lacing. Draw a pencil line ⅛″ from the edge all the way around. Work on the tooled side of the leather.
18. Lace the edges with the plain whipstitch or with the double-back whipstitch. Start at a back corner. Use a razor blade to slice off the end of the lacing. Cement the end to the bottom of the book end.
19. Splice the lacing when necessary. Use a razor blade to shave off the top of one piece at an angle. Shave off the bottom of another piece at an angle. Cement the two slanted edges together. Hold until cement sticks. Allow time for drying before continuing with lacing.



Using the thonging chisel and mallet to cut slits for lacing

20. Polish the leather with saddle soap or wax to bring out the beauty of the material and to protect the surface of the leather.

SUGGESTIONS FOR FURTHER READING

Biggart, Helen, *Leathercraft and Beading.* New York: Camp Fire Outfitting Co., 1930.

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Smith, Frederick R., *Practical Leatherwork.* New York: Pitman Publishing Corporation, 1929.

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Thompson, Robert L., *Leathercraft.* New York: D. Van Nostrand Company, 1947.

ACKNOWLEDGMENTS

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HENRY DISSTON & SONS, INC., Philadelphia: Cleaning file, p. 165. Cabinet saw, p. 168.

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KENNELL-ELLIS STUDIOS: Making paper craft project, p. 63.

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