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4-H Handicraft project for South Dakota Boys & Girls

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4-H Handicraft Project for South Dakota Boys & Girls

Agricultural Extension Service
South Dakota State College—Brookings
U. S. Dept. of Agriculture Cooperating
Goals for South Dakota
Handicraft Project

1. Learn to handle common handicraft tools correctly.
*2. Make three useful farm or home articles for first year projects.
3. Demonstrate some phase of craft at a meeting.
4. Develop the ability to judge quality and workmanship of articles made.
5. Exhibit your project.
6. Develop an appreciation for good tools and correctly identify them.

*Two of these articles should be in the same phase of handicraft; for example, two articles in woodcraft and one article in leathercraft would complete a project. However, one article in leather, one article in wood, and one article in metal would not be a completed project.

Another important thing to remember is that two articles that are identical are considered as one article, for example, two trays (aluminum) engraved is considered one article. Another example, two book cases, just alike are considered one article. The reason for this is the club member does not learn any new processes or skills in making the second article.

For the second year of the handicraft project, the club member should increase the size of his project. It is possible that he will not make more articles, but in that case, he should make articles that are more complicated, or are larger. For example, if a club member made a bird house, a work bench, and a key-case in the first year of the project, the second year such articles as the ones listed might be included in his project—end table, tool box, and a billfold. In each of the articles in the second year of the project, there are skills that are not learned in the articles listed in the first year project.

Club projects are set up for the development of the individual club member so that he will be able to learn skills, appreciate good workmanship, and to know what good projects are. Such is true of the handicraft project, too. With that in mind, the goals for the handicraft project were set up.
Leathercraft

Leathercraft is both fascinating and functional. There is hardly any limit to the number of useful articles that can be fashioned from leather, and the elaborateness of the surface tooling or carving is limited only by the willingness of the craftsman to take time to finish out his pattern in all its detail. The beginner can start with only a few tools and a piece of leather and actually make a success of his first project. The pleasure and satisfaction of creating something useful, beautiful and long lasting, with his own hands, will carry him through the various stages to a point where he will develop a technique of his own.

Good leather is important. Some leather is more satisfactory for certain projects. When starting the club member often depends upon the stores that sell leather to supply them with the kind they should have for their particular project. They will learn a lot with experience.

Here are some facts that will help the 4-H'er when he is buying leather:

- Pelts of animals may be classified as:
  - (1) Hides—comes from large animals, such as cows.
  - (2) Kips—comes from undersized animals of the same group.
  - (3) Skins—comes from small animals, as calves, goats, sheep, etc.

- Leather is classified two ways, namely:
  - (1) By the name of the animal from which it is taken.
  - (2) The kind of tanning process used.

Always ask for tooling leather, which means it has been vegetable tanned. Chrome or chemically tanned goods will not tool. Unglazed leather responds to the tools a little better than glazed leathers.

Don't worry about a few imperfections on the leather. They may add interest.

- The smooth side of leather is called the "grain" side and the rough side is the "flesh" side.

- Alligator: Genuine alligator comes in several different shades of brown and mahogany. It may be used for billfolds and handbags, but cannot be tooled. Skins may range up to 14" wide and 60" long.

- Steer Hide and Cowhide: These are heavy coarse-grained skins used in making bags, belts, cases and luggage equipment. It cannot be tooled if embossed. This leather will withstand hard wear. It may be tooled, carved and stamped.

- Calfskin: This is an ideal tooling leather for billfolds, ladies' purses. It comes in all colors. The size of skins range from 10 to 14 square feet.

- These hides vary from 20—25 square feet and come in several thicknesses. 3-4 ounce weight for billfolds, etc., and 7-8 ounce for belts and purses.

- Tooling Sheepskins: Coarse and opened textured, but excellent for beginners in making change purses, card holders, key cases, etc. It may be obtained in all colors. The size ranges from 7 to 9 feet.

- Lambskin: This leather comes in the form of suede or many different embossed grains, such as alligator, ostrich, and fancy designs. It is used for linings, purses, and belts. Skin sizes vary from 7 to 9 feet.

- Elk Hide: This is a type of leather which is very tough and sturdy used for moccasins and other outdoor and indoor use. It generally comes in natural and brown. The hides vary from 18 to 22 square feet.

- Lizard: Genuine lizard may be had in all colors. It is not toolable and is used for billfolds and purses. The skins are small ranging from 9 inches wide to 17 inches long.

- Goatskins: It is the toughest and tightest grained skin known, the texture depending upon the part of the animal from which it was taken. It makes excellent linings for projects where the bulk of the object has to be reduced. Used for wallets and billfolds.

- Ostrich: Genuine ostrich is expensive, but it works up beautifully into billfolds, purses, and book covers. It comes in russet, brown and black. Skins range from 10 to 14 square feet.

- Suedes: They have many uses and come in all colors. Most sueds are made from sheepskin or calfskin. The skins are 7 to 9 square feet.

- Skiver: This is a thin split of leather which is generally used for linings. It is available in all colors and comes in sheepskin, calfskin, and cowhide. Skins vary from 6 to 12 square feet.

- Pigskin: Genuine pigskin may be tooled, but this is not advisable. It comes in either natural or black. It may be used for letter cases or purses. Skins range from 12 to 20 square feet.

How to Purchase Leather for Craft Work

Many times club members may wish to purchase a large piece of leather or perhaps only small pieces, depending upon the projects.

The pelts of animals such as calf, sheep, goat, and pig are...
usually designated as SKINS. A whole skin always comes in the natural or irregular shape. A half skin is a whole skin cut in half down the backbone from the neck to the tail.

Pelts of animals such as a cow, steer, or horse are called HIDES but the usual unit of sale is the SIDE which is the hide cut in half down the backbone from neck to tail. The HALF SIDE is the side cut in half from the backbone to the belly. Whole and half skins are sold per square foot and smaller amounts are sold per square inch.

Leather cut to measure may be ordered from companies but the charge is made per square inch and proves to be quite expensive.

Leathercraft Project Kits can be purchased from leather companies. This is a kit which contains all the parts to make one complete article, such as a billfold or key case. The parts are accurately cut and punched, ready to assemble. A very wide range of leather projects in a choice of leathers and colors can be purchased when using kits. Properly designed leathercraft kits usually cost no more than the finished cost of projects cut from whole leather and no waste is involved. Club members will also find leathercraft kits an advantage from the cost basis as each unit price is definitely known.

Tools

Members interested in leathercraft are fortunate because very few basic tools are required to do leather work. There are many more tools that can be purchased for those desiring to do more difficult work. Here are the most important:

A revolving punch: The six tube punch is preferred. Used for punching holes for lacing and setting snaps.

A sharp knife: Cutting leather to pattern, skiving, trimming edges, cementing and lacing. A single edge razor blade is always useful.

Modeler or Tracer: The small end of this tool is used for tracing designs on leather. The broad or spade or spoon end is used for outlining or putting down backgrounds. The durfoot which may be on the opposite end of a modeler is also used the same as the spade or spoon end.

Edge Creaser: Creasing edge of leather as a finish or a guide for punching holes.

Additional tools for more advanced work:

Snap Attaching Set: Used for setting all snap buttons.

Eyelet Punch: Used for setting eyelets. This sometimes comes as an extra attachment on a special leather punch.

Steel Square: For measuring and cutting accurately.

Swivel Cutter or Knife: A necessary tool for carving leather. It may be either adjustable or non-adjustable. It may be fitted with a ¼", ½" or ½" blade. The angle of the cutting edge may vary from 50 to 90 degrees. The large angle is used for light weight leather and narrow one is used on the heavy leathers.

Thonging Chisel or Slitter: This may be used in place of punch for making holes for lacing. The four prong chisel is generally used.

Mallet: May be made of hardwood or rawhide. You will use it to strike thonging chisel, snap setters, stamps and many other uses.

Stamping Tools: Used to background designs on leather. These may vary in number. Common ones are: background, camouflage, shader, beveler, veiner and seeder.

Skiver: Used for skiving down the edges before lacing or putting on buckles.

Marble or plate glass for a tooling or carving surface.

Pine or linoleum squares for cutting.

Now, when the club member is ready to start his leather article here is what he does:

Make a pattern. It can be made of firm paper, cardboard, or tin. A pattern for each piece of your article.

A word of caution is necessary in making a pattern that you allow for extra length or width if the article is one to be folded or bent as a leather purse for example. Twice the thickness of the leather must be added to the length of the paper pattern if a fold is desired. In a book cover or portfolio, if an inner lining is to be made provision should be made for the extra length or width on the original pattern.

If an edge is to be joined by stitching or lacing, allow 3/16" for light leathers and ½" for heavier leathers. Most beginners in leathercraft have difficulty in making patterns for billfolds. The usual tendency is to make the outside and inside pieces for billfold of the same length on the longest dimensions. The inside piece should always be ½" shorter than the outside piece. The location of holes through which snap buttons are to be set should be included in the pattern. Always fit the parts of the paper pattern together to make sure that they match accurately before cutting into the leather.
Place leather right side up on a smooth piece of board to cut. Place the pattern on the leather. Cut with sharp knife, single edge razor blade or trace around pattern and cut with scissors.

Designs for leather may be original, or copied from pattern books, magazines, etc. Whatever method is used, cut a piece of transparent tracing paper large enough to allow a margin at least 1" on all sides of the piece of leather to be decorated. Place in the center of the leather piece and carefully outline the edge, then place exactly in the position in which it is to appear on the leather. All designs should be traced or drawn on transparent tracing paper before attempting to transfer any designs to leather.

Leather must be damp to hold an impression. Dampen the leather with a sponge or by emerging in water and removing immediately. Allow the leather to stand until all moisture is absorbed. Even if only a small portion is to be tooled the entire piece should be moistened.

A little practice will be your best teacher.

Always place prepared dampened leather on a flat surface such as marble or plate glass.

Care must be taken after the leather is dampened since it will now take any impression imposed upon it. Finger nails, rings or bracelets may leave marks.

Lay the pattern with the design face side up on the finished side of the leather. The design may be fastened to the leather with paper clips but make certain they are not tightly clamped to cause a marking on the leather to be traced. Masking tape may be used or just fold edge of paper pattern under leather.

Place on a piece of hardwood or marble and trace the design with a sharp wooden skewer or modeler, holding it as you would a pencil. Use firm pressure throughout. Raise a corner occasionally to determine what kind of an impression you are making.

Use a straight edge to aid in tracing all straight lines. It may be a good idea after removing the paper pattern to go over the design with the modeler to deepen any lines that did not trace clearly.

There are three ways to decorate leather—tooling, carving, and stamping. These may be used alone or a combination of all three. Each process will be discussed separately.

A few little suggestions which will help you determine the dampness are:

If the beveled line seems dirty looking, or black, or wrinkled when you are using the tool, in all probability your leather is too wet.

If the club member has difficulty in getting an impression at all, his leather is probably too dry.

Leather at its proper dampness will respond nicely to the tool, leaving a clear and shiny or burnished impression. Work for this.

Tooling:

Tooling: The beginner will have little difficulty with outline tooling since this is the simplest way to decorate leather.

After the design has been transferred to the leather, use the modeling tool to go over all the lines of the design as they appear on the damp leather. This is a complete form of decoration in itself.

Hold the modeler as you would a pencil. Go over the design several times, increasing the pressure each time, until the outline of the design is very clear and the lines are depressed uniformly.

Remember to use a straight edge to tool all straight lines. Work lines from outer edge to center piece as this will tend to eliminate stretching the leather.

Flat modeling may be done by just doing the opposite of outline tooling. The background is depressed with a broad modeler leaving the design to stand out in bold relief. Be careful not to mar or scratch the softened leather while working on the design. Use considerable pressure and smooth out the background.

By stippling the backgrounds of designs, the designs are accentuated and at the same time they are made to appear more beautiful.

Stippling means working the background by designing it with various tools. The leather must be moistened as in any other form of tooling and placed, finished side up, on a piece of marble or hardwood. Care must be taken not to break through the outer surface of the leather.

Better results are sometimes obtained on some types of leather by applying pressure to the tool and turning it at the same time. The small end of the modeler or the ball point modeler may be used for stippling.

Another method of bringing out the design is by beveling.

After a design has been creased into leather, use a spoon shaped modeling tool and place the tip on the background of the leather so that the tip of the tool rests against the edge of the design and the curved back of the spoon end rests on the background. The handle of the tool should be held at an angle of about 45 degrees to the leather and should be at right angles to the edge of the design. Move the tool sidewise so that the back of the tool presses down the leather of the background where it immediately touches on the design so that the edge of the design stands up.

Carving

Incising is the process of cutting in or into the leather. No leather is cut away or removed. Leather for carving must be vegetable tanned and unglazed. Beginners should start on 6 oz.—8 oz. weight leather.

This is the procedure:

Prepare the leather as for other decorating and place on a hard surface.

The swivel knife is the first tool used after design is traced. Hold it as shown in the illustration on page 6. Pull it toward you.
along the outline, cutting to a depth of one-half the thickness of the leather. As the knife is pulled along the direction of the blade may be changed by rotating the barrel between the thumb and second finger.

Finish each cut by lifting the knife from the leather, producing a shallow cut at the end. Make all cuts at right angles to the surface of the leather. The cuts should never cross another cut.

The design itself will determine which lines to cut first. The border lines are cut first. The parts of the design which are to be beveled are cut next. This will be flowers or figures. The leaves and stems are cut next.

It is always a good idea to practice on scrap leather first, so as to gain confidence and the knowledge of just how damp the leather should be for cutting. Also to get the feel of the swivel cutter in making a free swinging stroke.

After the design is carved it is completed with the use of saddle stamps or modelers.

**Stamping**

A few suggestions on using saddle stamps.

The surface of the leather must have returned to its natural color before these tools are used. Wet leather will not hold the impression while dry leather will not even take the impression. The leather for stamping can be drier than for other processes.

Hold the tool with the thumb and first and second fingers. The little finger rests on the leather. This tends to steady the hand. Hold the tool at a right angle to the leather and strike it sharply with a mallet.

The basic tools are: **Tap beveler.** This tool comes in several sizes and may be smooth, checked or lined. All swivel cuts are beveled on one side only. The beveled side of the design appears to drop behind and add third dimensional relief to the surface of the leather.

The longer part of the tool is placed in the knife cut. Strike and move tool about 1/16” toward you. Practice until you can literally walk the tool along the cut and make a smooth edge. A modeler can be used for beveling if you prefer.

**Camouflage:** This tool is used to decorate stems and petals and to fill in blank spaces of the design. Begin at the base of leaves and flower petals. Work toward tips. Space the impressions uniformly. Use less striking force as you progress toward tips.

**Shader:** The pear shader is used to add contour shading to the design. This tool may be smooth, ribbed or checked. This tool may be tilted in order to produce a tapering depression.

**Veiner:** This tool like the camouflage is used to decorate plain surfaces on leaves, stems and flower petals. This tool may also be tilted to make a deeper impression next to the cut side and fade out toward center.

**Background:** The bar and cluster are the most commonly used background tools. Either tool should be held straight up and down, joining the indentations but not overlapping. The background area should be smooth and of a uniform depth.

**Seeder:** This tool is used to make the center of flowers. These impressions should touch but not overlap.

There are many other stamps that can be used. As you work with leather stamping you may want to add others to your list.

When your design is stamped you may want to add a few dress cuts with the swivel knife. They should follow the curvature of the design and start deep and taper or fade out. Be careful not to overdo this part. Finishing the project is the next thing to do. Here are some suggestions:

If the project appears soiled by smudges or finger marks these may be removed by an oxalic acid solution (one teaspoon to one pint of water). Rinse.

**Edging**

Line the edge of the project with the edge creaser.

Edges of rather thick leather used for belts, etc. that are not to be laced can be made more attractive looking with a decorative design by using the “Edge Creaser.”

Projects that are laced can be lined and this used as a guide for punching holes.

Place the dampened piece of leather on a hardwood or marble slab and perch the tool along the edge of the leather.

The best type of edge creaser is a metal one, either single or double.

**Edging a belt**

Edging a belt—note position of tool.

Thinning the ends of a piece of leather to be used for lacing or otherwise is called skiving.

If a good job is to be done a good sharp knife or skiver is very essential in order not to have ragged edges. Dampered leather may skive.
It is advisable to practice on scrap leather before attempting to
skive the good piece. Place the edge of the grain side of the leather
on the edge of marble or a bench and take a slice two inches long
three-fourths inch in from the edge and one-fourth the thickness
of the leather. The amount of leather to be skived off depends
upon the number of pieces to be fastened together. The assembled
skived edges should equal the original thickness of the leather.

Be careful not to cut through the leather when skiving. Edges
can be carefully moistened and turned under and cemented if
desired.

Dyeing Leather

Many times a member may wish to add a touch of color to a
leather article by dyeing it. This adds greatly to the interest of
leather work and may be done in one of three ways.
1. Dye the entire piece of leather one color.
2. Dye the tooled design only.
3. Dye the tooled design one color and the rest another color.

If a project is to be dyed make certain to select a natural un-
glazed leather, such as tooling calf, steer hide or sheepskin. There
are several types of coloring material which may be used to dye
natural leather. These may be Analine dyes, Waterproof Inks,
Transparent Photographic Colors, or indelible colored pencils.
Remember to always practice with a scrap piece of leather before
actually applying the dye to the good project.

Snaps

If your project requires a snap they can be put in before you
assemble the project.

The tools for applying snap buttons come in standard sets.

There are two sections to the bottom and two sections to the
part top of each fastener. The two sections of the bottom are the
spring and post. To fix these two sections, punch a small hole in
the leather with a nut pick, awl or punch. Push the narrow neck
of the lower section up from the wrong side of the leather through
the little hole. Then put the top section on the neck as it sticks up
through the leather. Place the work on the anvil with the little
pointed pivot. Lay it on the hammer with the small opening,
which just fits over the top section. Hold it in position and strike
the top of the hammer, giving it a quick strong blow.

The two sections of the top part of the fastener are the cap
and eyelet. Punch a hole in the layer of leather, using a larger punch
hole. Insert the eyelet through the hole. Place the work on the
anvil with the small cylindrical top. Put on the top cap, and lay
the larger hammer with the smooth concave bottom over the cap.
Hit it firmly.

Apply snaps to belt. Note the four parts of a snap shown in the inset.

The eyelet setter is used to set eyelets in order to fasten metal
plates such as key frames to leather. Punch proper size hole, insert
eyelet and place on hard surface. Place setter over eyelet and strike
with mallet. Some leather punches have an eyelet setter attachment
that may be used.

Lacing

Marking and Punching Holes for Leather Lacing: When the
project is ready to be assembled and laced it is necessary to line all
cut parts accurately and cement the edges to prevent slipping. Use
rubber cement for this purpose.

The line made by the edge creaser may serve as a guide line for
punching. Follow along this line with a small punch making the
holes about 3/16 inches apart. If a spacing wheel is available it
can be easily run along the marked line for guide marks for
punching.

If a slitter or thonging tool is used just follow the line made by
dge creaser. Hold the tool in a vertical position and tap with
wooden mallet. Be sure the leather project is placed on a soft board
for this operation. Now you are ready to lace, so here is what you
do.

Lacing a leather project not only is necessary for the proper
construction, but if done correctly adds to the beauty of the arti-
cle. It is generally recommended that a leather craft project should
be laced with the same color or same shade. However, very pleas-
ing contrasts in color can be accomplished.

The most widely used type of lacing is thirty-three seconds of
an inch wide made of goatskin. It comes properly beveled at the
dges and gives a neat appearance.

The following chart will help determine the amount of lacing
needed. This is the approximate amount times the distance to be
laced. For an example: a billfold 9" x 3 ½"—total length to be
laced 25". The double overlap takes 7 times the total of 25" times
7 or 175" which is about 5 yards of lace.

Before learning how to lace learn how to splice lacing. It is not
advisable to use too long a lace for it will stretch out and it is hard-
er to handle. The two ends to be joined must be skived back about
¾ inch from the ends before they are cemented together. One on
the flesh side and the other on the grain side. Enough leather
must be skived away so the splice will be no thicker than the
original thickness of the lace. Apply a thin coat of leather cement
and press ends firmly together.

Next you'll learn to make a needle to lace with. Cut a piece of
pliable tin from 1" to 1½" long and about 3/16" wide. Cut this
with tin snips. Fold this piece of tin in the middle and at the same
time fold the end of the lacing in it. Use a pair of pliers for folding
the tin. After the tin is folded, cut it at an angle to make a point.

You can buy lacing needles at a craft store if you prefer.

Now for lacing—There are over fifteen styles of lacing. We
will discuss the three most generally used:

Whip Stitch: Cement one end of the lace between the lining
and the cover. If only one thickness of leather is to be laced, omit,
and the end may be cemented to the back or threaded several
stitches back at the end of the lacing.

To start, bring the lace over and insert it in the first slit. Hold
the finished side of the leather away from you and work from left
to right. Be sure the grain side of the lacing is the outside on top
of finished lacing. Pull the lace back over the edge and continue
the over and over stitch. If the lacing runs short before completed,
it will be necessary to splice. In rounding corners it will be neces-
sary to go through one or more of the holes keeping the same slant and tension to the lacing.

In order to keep the lacing from twisting when pulling it through, let it slide between the two first fingers on the left hand.

Cross Stitch: This is a type of double whip stitch. Twice the length of lacing is required and both ends are used in working. For each stitch one end is inserted into a hole down from the top and then the other end is inserted in the same hole up from the bottom.

If the lacing is continuous around the articles, pass the lacing only once through the first hole and draw the lacing through until the ends are of about even length. Bring the lower end over the edge and put it down from the top through the second hole. Take the other end, bring it over the edge and put it up from the bottom through the second hole. Then pull both lacings at the same time to make the stitches firm. Continue until both lacings have been passed through the last hole. Then bring the lower lacing over the edge and down through the first hole in the upper layer only and out between the layers of leather. Bring the upper lacing over the edge and up through the first hole in the lower layer only and out between the layers of leather.

Running Stitch: This perhaps is the simplest method of lacing yet is very effective for various projects.

Cement one end between the two layers of leather and begin from left to right passing the lacing in and out and around the article until the job is completed. Cut off all but a short end, tuck in and cement between the layers.

You may sew back the same method filling in the alternate stitches.

Single Overlay: 1. Take a yard of lacing and start in the middle of one end if you are doing a billfold. Work from left to right.

2. Hold the project in the left hand with the finished or decorated side away from you. Insert the needle and lace and pull through. Be sure the grain side of lacing is toward you. Hold the lacing end with first finger and insert needle in next hole and tighten. Now insert needle under one strand of lacing on edge of project and tighten. Proceed in next hole over and then under the lacing until you have finished your project.

An alternate method is shown in the illustration of looping the lace around the lacing end and continuing to next hole.

3. In turning corners two stitches may be taken in one or more holes.

4. When you arrive at the starting point, open the second loop of the first stitch and draw the lace through. Pull the lace tight. Then insert lace through hole and take to inside of the project. Leave one inch end and cement down.

Double Overlay: This stitch is started the same as the single overlay and the difference comes in step 2. Instead of going under the one strand of lacing, pick up or go under two strands each time.

The ending is different when you complete the lacing. When one hole remains unlaced you pull out or remove the starting stitch or stitches so that you have a free loop as shown in figure 9, page 9. Before you pick up the two strands (with only one unlaced stitch) insert lacing up through the (starting) loop and tighten. Next go down through the same loop and into the remaining hole in project. Tighten lacing. Cut ends and cement down.

You are ready now, to finish the leather project.

1. The laced edge is placed on a hard smooth surface and tapped very lightly with a mallet or hammer. This tapping will smooth out the lacing and make it uniform.

2. Take a damp cloth and fold it, then making a small pad. Use it to apply a small amount of saddle soap to the leather. Let it dry a few minutes and polish with a soft cloth or the palm of your hand.

3. Liquid wax or a leather dressing may also be applied to the finished project. There are many practical projects a club member can make. Start with a simple one and learn a new technique with each project.

You may be interested in the making of a Guatemalan belt that follows.

Guatemalan Belt

This attractive laced-down-the-middle belt is easily made by these instructions:

1. Bevel the edges of the belt and attach a buckle.

2. Mark lines down the length of belt—from ⅜" to ⅝" apart, according to personal choice.

3. Bevel inside these lines to form channel for lacing.

4. Punch holes along inside of channel lines. The turning portion of the belt, and as much of the tip as draws through the buckle should not be punched or laced.

5. Lace as follows:

Draw lacing from back to front side of belt through Hole No. 1.

Pass lacing across right side of belt and down through Hole No. 7 then up through No. 6 and down through No. 3, up through No. 2 and down through No. 8.

The back of the belt when lacing is correctly done should look like Diagram No. 2.

Note: Lacing does not pass through No. 1. This is to throw the first stitch at an angle to form a more interesting lacing pattern.

[Diagram No. 1]

[Diagram No. 2]
How To Lace (Double Overlay)

No. 1. Start on top side.
No. 2. Loop lace over.
No. 3. Enter lace from top side of leather in every operation.
No. 4. Note you pick up or go under two strands entering from top side. This is where you really start the double lace.
No. 5. Same operation as No. 4 which you continue until you have finished.
No. 6. Continuous of No. 4 and No. 5.
No. 7. Cut your corners round using the end slit or hole twice. If you prefer you can use the corner slit three times.
No. 8. You are back to where you started. Notice dotted line lacing this is removed so your starting will appear as in No. 9.
No. 9. Note only one hole remains unlaced.
No. 10. Completion of the tie in.
No. 11. Cut off each lace close against the project.
Handicraft members always enjoy working with metal. It is an art that dates back many centuries, yet always proves to be very fascinating and practical. Metals most commonly used are: aluminum, copper and brass. It may be modeled, engraved, etched or hammered.

Aluminum is made with bright, silver-like finish so that it does not need to be polished after tooling, and the finish stays bright. It may be etched with acid or Safety-Etch or it can be engraved.

Brass and copper have their own well-known colors and have been standard materials for handicraft from the earliest times. They can be etched with acids, oxidized and colored with chemicals, and are easy to solder. The lighter weight copper and brass may be tooled or modeled. Brass and copper become harder as they are worked.

The metals are obtainable in different weights, depending upon how they are to be worked.

**Metal Modeling Tools**

- **Scissors** will cut these thin soft metals easily using several thicknesses at a time, if necessary.
- **Hardwood Sticks** or dowels may be sharpened into many different styles or points. These sticks may be purchased, also meat skewers will substitute.
- **Other Tools** such as nutpicks, orange-wood sticks, leather tools, X-Acto Tools, table forks, or old toothbrush handles for ruling lines, may be substituted for commercial tools.

**Methods of Designing or Raising Metal**

Lettering, or designs may be drawn directly on the metal, but it is recommended to follow these steps.

**Making a Name Plate** (Please follow steps and illustrations carefully)

1. Draw the design or name on paper, full size.
2. Reverse the design by placing original on a carbon or sheet of blackened leaded paper with carbon side up and retrace lines to obtain reverse pattern on the back side of the paper.
3. Lay a piece of metal on a soft surface with reversed pattern on top of it and trace all lines of the design with a pointed wooden tool, bearing down only hard enough to make a slight impression on the metal.
4. Remove paper pattern and while the metal is on the soft surface, retrace the lines indented, pressing firmly.
5. Lay the metal on a hard surface face up, and using the wooden tool, press down the background on one or both sides of the raised lines.
6. Put a piece of felt, cork, or stiff paper over the back of the mount to add to the appearance of the project.

**Helpful Suggestions**

a. Scotch tape or a bit of paste added to the corner of the pattern helps to hold it to the metal.

b. Indentation may be accomplished by going over the outline after the pattern has been removed by pressing rather firmly on the pre-drawn design.

c. Raising may be done by laying the metal face up on the hard surface, and use the flat end of the wood tool pressing down the background on one or both sides. Avoid scratching the metal in the process.

**Raising**

Large raised areas may be crushed or dented by careless handling. It is recommended that these areas be backed. Pottery wax obtained at a garage is economical and efficient. Paraffin and plastic wood alternated with cardboard may be used. In addition modeling clay or absorbent cotton may be used.

**Background Methods in Metalcraft**

- **Ironing**: Flat backgrounds are "ironed" out with the flat beveled end of a wood modeling tool. Model into shape with firm light strokes.
- **Rubbing**: Lay the metal on a piece of coarse material, like a
window screen or sandpaper and rub with a blunt tool. Be careful for slippage. Hardware cloth would give one type of desired design.

**Tapping:** Using a very sharp pointed pick or piece of metal, such as a nail, tap lightly on your metal background to obtain the desired design. Too sharp an instrument may pierce the metal and ruin the project.

**Hammering:** With the metal laid on a hard surface, use a blunt tool and tap lightly all over as in tapping. Hammer very lightly with a ball peine or cross peine. Avoid scratching.

**Bold Effects:** The notched end of a modeling or nutpick will help to bring out bold effects on the metal. Holes may be punched through the metal with a sharp nail against a hard background.

**Stippling:** This is also known as metal tapping. Place the metal on a piece of corrugated cardboard. Apply light hammer blows to a tool with a slightly rounded point and dent, not pierce. Various shaped instruments may be used for the stippling effect.

### Polishing and Coloring

Brass and copper, not aluminum, can be colored by holding in the flame of an alcohol lamp or over a bunsen burner. Pass it slowly to and fro until the desired color is produced. The range of colors and tints resulting from heating copper will be orange, red, bluish purple, brassy, dark red, purple, and brown. Brass subjected to heat will have similar results.

A good black color can be had by dipping in a warm solution of vinegar, blue vitriol, and salt. Mix about a teaspoonful of each to a pint of water. A small amount of liver of sulphur in warm water is a good medium to use to darken articles. Be sure to have a clean surface, thoroughly polished with steel wool. In Chemical Coloring it is necessary to have the metals absolutely clean and free from finger marks, it is best to handle the metal with tweezers or wooden sticks.

Rub the tooled surface with fine steel wool—triple 0. After polishing, apply clear shellac, clear plastic, paste wax, etc., to keep surface from oxidizing (turning black).

**Caution—Always Pour The Acids Into Water**

### Mounting Metalcraft Projects

**Wood**

Metal is easily mounted on various types of hard and soft woods, stained or lacquered, according to the type of article made. Cut the metal carefully to fit the shape of the wood, leaving a slight border of wood showing.

Another simple method of mounting is over a thin, flat piece of wood about ½” to ¾” smaller than the metal. Heavy cardboard or wallboard may also be used. Center the wood on the back of the designed metal and draw around it with a pencil. Mark the corners for cutting by carrying out the pencil lines to the edge.

In bending metal to fit, lay a ruler up against the line and bend against a hard surface. Bend all four sides before inserting wood mount.

To cover a disc with metal, mark around the shape, cut the margin or edge to ⅛” to ⅜” intervals, bend and fasten.

**Metal Engraving**

Metals to engrave include copper, brass and aluminum. These should be approximately 16 gauge. The lighter weight pieces (20 gauge and up) are too light and when the edges are fluted the tray does not sit flat.

### Tools

**Engraving Knives:** Gravers, as they are commonly called, are made in a variety of sizes, shapes. The most common shapes are flat, round point, point or onglette, and diamond-shaped. The flat and round point gravers are used to remove stock in considerable amounts, while the pointed and diamond shape are for making fine lines.

**Pliers:** Household pliers covered with tape to flute the edges.

### Steps

1. Trace pattern on tracing paper or onion skin.
2. Secure paper pattern to the flat metal—centered correctly—with masking or scotch tape.
3. Trace pattern using a ball point pen. (Carbon paper can also be used.)
4. Select engraving knife to use. If there is small, detail work a fine knife should be used.
5. The tool is “walked” along following the lines. Movement should come from the wrist. The index finger should be placed just above the point and is used to guide the engraving knife.
6. After engraving is completed cut a piece of paper the size of the metal-fold. Keep folding in two until it is folded to approximately ⅛”. Open it and tape down to metal. (The fold lines are guides for bending or fluting.)
7. Set pliers in to the depth desired to turn up.
8. Have tray on table—with left hand holding metal flat, lift up with the right hand.
9. Turn tray around and do the same on the opposite side. Continue this working from one side to the other.

### Metal Etching

Etching is another method of applying design to aluminum trays. It can be done with a mixture of muriatic acid or non-acidic products on the market. The latter is usually safer, faster and easier.
Engraving tools—the most common shapes are flat, round point, point and diamond shaped, respectively A, B, C, and D.

Preparation: 1. Before proceeding with your product, wash the metal surface with soap and hot water. Rinse and dry carefully, avoid fingerprints on the metal.

2. Trace pattern on tracing paper or onion skin.

3. Place carbon paper on flat metal then secure paper pattern to the flat metal—centered correctly—with masking or scotch tape. Trace pattern.

4. Before proceeding any further decide which portions of the design are to retain the shiny surface and which is to be dull. Coat that portion to be left shiny with black asphaltum. This will protect it from the etching fluid. Be sure the coating is thick enough and, if necessary, apply a second coat. Consult the drying time for the asphaltum on the can.

5. The next step is to flute the edges. (Consult metal engraving section for this step.)

6. Place the aluminum tray or coaster on a thick cushion of newspaper on a level table or bench.

7. Mix etching solution, following directions given with the particular product you have.

8. Rinse off etching solution under cold running water until it is completely removed.

9. Remove asphaltum paint with clean turpentine, coal oil, benzene, gasoline, or similar solvent. Use a soft cloth to prevent scratching. When all the paint has been removed, go over the surface with a soft clean cloth saturated with additional clean solvent. Wash with hot, soapy water, rinse, and dry with a soft cloth.

You now have a finished product.

Suggestions for Projects
1. Coasters
2. Trays
3. Pictures
4. Planters
5. Decorators for boxes, lamps, waste baskets, etc.
6. Scrap book covers

Woodcraft

Wood is not only an interesting material with which to work, but it is fascinating as well. One can not only learn to construct articles out of wood, but can also learn how to finish them as well. The following pages will give 4-H club members suggestions on what to make for a handicraft project in wood, demonstration topics for the club meeting, and types of finish that can be used successfully on many types of wood.

Articles that could be made for a handicraft project in wood include:

- Book Shelves
- Tool Box
- Book Ends
- Sewing Box
- Bread Board
- Wash Bench
- Hog Hurdle
- Towel Holder
- Salt Box
- Saw Horse
- Towel Rack
- Magazine Rack
- Hall Tree
- Waste Paper Basket
- Bird House
- Work Bench

Parts of a lamp to be finished and assembled for a reading lamp.

Many other articles could be made for a handicraft project. The main thing to remember is that any articles that could be used in the home or on the farm could be made in a handicraft project.

In addition, sometimes a piece of furniture in the home needs refinishing. That, too, could be an article in the handicraft project.

You will not find plans in this project guide for the various articles listed in the above list. Plans may be developed by the club member and his parents, or they may be secured from various sources. Such sources include: Government Printing Office at Washington, D. C., farm magazines and papers, and perhaps the most important one is the working out of plans from a similar article that has been seen, or perhaps is in the home and needs replacing.

Tools: Most of the tools needed for handicraft projects in wood are available in farm homes. Some of the essential tools are: square, compass, level, hammer, screwdriver, wood file, brace and bit, plane, screw clamp, coping saw, keyhole saw, and hand saw.

Steps in Finishing and Refinishing Wood: If the piece of wood you are finishing has been finished before, it will be necessary to remove all the old finish before trying to refinish it. Discolored and worn paint or varnish should be removed. Use a good quality commercial paint and varnish remover. The best removers are those which have an acetic acid base. Avoid those containing a strong alkali as they sometimes darken wood.
Follow the directions on the can of paint and varnish remover. Apply as suggested. Allow to stand as suggested. Small blisters will form, remove them with a putty knife being careful not to scratch the wood. Always scrape with the grain of the wood. If all finish is not removed on first application, put on a second coat and remove in the same way. It is better to put on the paint and varnish remover, allow to stand for a short time, and wipe or scrape off, repeating the process several times. A thick coat of remover allowed to stand on the piece of wood for a long period can be harmful, especially to veneer surfaces.

Scrape with broken glass or sand until all of the old finish is removed. All of the old finish must be removed in order to have a good foundation for the new finish.

Sanding: Sanding is one of the most important parts of finishing wood. Always sand with the grain of the wood. If at any time you sand across the grain of the wood, small scratches will appear and they will be very difficult to remove. Sand evenly. It is at this stage that the real finishing begins. Test for smoothness often. Put an old nylon stocking on your hand and rub on the piece being sanded; if it snags, the piece needs further sanding. The finish you use will not cover up scratches or blemishes, or dents. Sanding may be done by hand, or by electric sanders. If electric sanders are used the one that has a back and forth motion are the only ones to use. Sanders with a rotary motion will leave circular scratches in the wood.

When sanding wood, start with a 0-2 sandpaper, progress with a 0-4, and finish with a 0-6 or 0-7. A fine steel wool may be used following the finest sandpaper. If steel wool is used gloves should be worn.

After sanding, dampen a sponge and squeeze as dry as possible. Wipe the article with this sponge. It will raise the grain of the wood and help remove dust. This may be done also with a cloth dampened with turpentine. Then use 0-6 sandpaper and then steel wool. When finished with the steel wool, wipe the piece of wood with a soft damp cloth to remove particles of steel wool or sandpaper which might cling to the pores of the wood. This will be especially true of porous woods such as oak and hickory.

When you are sanding on veneers, be careful not to create too much heat by sanding too hard or long. The heat may cause a loosening of the glue which holds the woods together and it would be impossible to repair. Do not sand the edges, it cuts the veneer too fast.

All sharp edges of furniture are rounded slightly. Round them by buffing with a piece of hardwood. You would not do this on a piece of refinished furniture, since the corners would already be rounded; however, this would need to be done, if the piece of furniture was one that was just made.

Filling: Generally the wood of old furniture does not need filling. New woods such as birch, maple, or bass do not need to be filled. Cherry should have a light coat of filler. Open grained wood such as oak, walnut, mahogany or chestnut should be filled.

For a new wood that needs filling, a good quality of commercial paste filler will do the job. Rub the filler into the wood with a coarse cloth such as burlap. Work across the grain. Rub in good as the filler should be in the pores of the wood but not on the surface. Clean off the excess filler with a damp sponge. Be sure to get excess filler out of all crevices. Allow to dry at least 24 hours.

Stain: There are two types of stain, an oil stain and a water stain. The oil stain is best to use as it is easier to apply, does not penetrate deeply into the wood, and the color can be controlled more easily.

If you wish to stain your piece of woodcraft, add pigment of the color desired to oil of stain and apply to an inconspicuous place. It is better to mix a small amount and try it out until you get the color desired. Keep in mind that the stain will appear to be darker when it is wet than it is dry. It is better not to stain soft woods, such as pine. However, pine will take maple stain quite well. The application of a certain color stain will not make one wood look like another. Mahogany finish does mean mahogany wood. Maple and birch are two woods which will accept mahogany stain quite well. Walnut will accept mahogany and walnut stain quite well.

Apply stain evenly with a cloth or wool carpeting, overlap strokes slightly. Do the sides and legs first, then the top. Allow to stand for a short time. If a light color is desired, wipe off immediately; however if a darker color is desired, allow the stain to stand several minutes before wiping off the excess. Use a soft cloth and rub with the grain of the wood. Allow to dry at least 12 hours; sand very lightly with fine paper.

Most "stain varnish" is to be avoided.

Seal Coat: For some finishes, a seal coat is needed, if a filler has not been used. This is true of all finishes, except when using floor seal as the finish.

First, be sure that all blemishes have been removed. After the first seal coat is put on, they show quite plainly and are very difficult to remove.
Use white shellac. Cut four pounds commercial shellac 25 percent with denatured alcohol. (Example, one tablespoon four pounds commercial shellac plus four tablespoons alcohol). Mix thoroughly and let stand at least 30 minutes. Dip brush about one-half of its length into shellac, gently press excess from brush being careful not to get air into brush. Flow shellac on to furniture and do not brush over the place again. Dry 12 hours then steel wool most of the shellac being careful not to cut through to the wood. Dust with cloth or sponge.

There are several commercial products which are excellent. They are applied with a cloth, dry almost dust free and are heat, water and alcohol resistant.

**Finishes**

**Varnish:** Use a rubbing varnish as it will give a high polish without being shiny.

Apply varnish with a brush starting in the center and working toward the outer edges. Varnishing must be done in a room as dust free as possible and must remain so for the full drying period of 24 hours.

Using a fine sand paper, lightly sand the surface. Wipe with a "tack cloth." A "tack cloth" is a cloth dampened with a mixture of five parts turpentine and one part varnish.

Apply a second coat of varnish. After it is thoroughly dry (24 hours) rub down with a crocus cloth with light oil. As the final rubbing, use a fine rubbing car compound. Be careful as you can cut through the finish. This will give your furniture a lovely satin finish.

**Oil Finish:** Oil polishing gives a beautiful finish to hardwoods. Brush on a mixture of two parts boiled linseed oil and one part turpentine. Let it soak in for 10-20 minutes; then polish about 20 minutes with a soft, lintless cloth. Repeat at weekly intervals for at least 10 weeks. The oil is put on after the seal coat.

**Blonde Finish** (sometimes called "limed" or "pickled"). Apply a "blonde" stain of any light color you desire. This may be purchased or you can make your own. To make your own, dilute flat white paint with turpentine about five to one. If you want a color add a few drops of oil color to the solution. Brush on and wipe off surplus while still wet but just before it gets "tacky." Rub across grain at first and then rub with the grain. Allow to dry at least 12 hours. Sand lightly, then varnish as previously explained.

"Glaze" Finish: The "glaze" is usually applied after the seal coat. Make a "glaze" by taking one and one-half teaspoons of Burnt Umber (in oil) and diluting it in three tablespoons of turpentine, adding one teaspoon of clear varnish. Mix thoroughly. These amounts are only for proportions. You may have to mix more. Apply with a brush, let stand for a few minutes until tacky and wipe most of it off lightly with a coarse cloth (cheese cloth) always with the grain. Let stand several days until thoroughly dry.

**Enamel Finish:** Enamel finish may be any color desired. They aren't necessarily shiny. They come in semi-gloss or flat so you can get the effect you want.

Apply first coat of flat paint to under portions, then to legs and sides, then to top. When first coat is hard and dry (24 hours), sand lightly. Wipe off. Apply a second coat of one-half flat paint and one-half enamel of color desired. Dry 24 hours. Sand lightly and wipe off. Then apply a coat of enamel the desired color.

**Floor Seal:** Floor seal is one of the easiest finishes to apply and gives a very good finish. To apply, all precautions on a good sanding job should be observed. Use any good grade of floor seal. Apply with a soft lintless cloth, such as worn nylon hose. Rub into the grain of the wood well in all directions. Use a second dry cloth of same kind to wipe off excess seal. Let dry overnight. Sand lightly with 0-6 or 0-7 sandpaper. Apply a second coat just as the first coat was applied. Sand, and apply a third coat. After each coat of floor seal, the article should dry for 24 hours before the next coat is applied. Following the last coat, use a fine rubbing car compound. Be careful that you do not cut through the finish.

**Waxing**

Wax should be applied after the final rubbing of most finishes. Apply one coat of paste wax and polish with a clean soft cloth, preferably wool. Use a circular motion and work vigorously. Paste waxes may be used on all wood finishes, water emulsion waxes (liquid wax) may be used on all surfaces except those which have been shellacked. It may turn the shellacked surface white.

Wax may be used as a finish and can be applied after the seal coat. It gives a finish which is desirable, and easy to create and maintain. Spread evenly and polish when dry. Apply two coats. Rewax at least once a year. Remove old wax before re waxing with a small amount of turpentine on a cloth. Wipe over surface quickly, then wipe dry with another cloth.
SUGGESTED DEMONSTRATIONS FOR CLUB MEETINGS
1. Common wood craft tools and the proper way to use them.
2. How to make a simple leather project.
3. Making a rope halter.
4. The correct way to use sand paper.
5. How to splice electric wires.
6. Soldering the correct way.
7. How to repair sockets, plugs and electric cords.
8. Does your water faucet drip.
9. Can you sharpen your own tools.
10. Do you know the use and parts of a plane.
11. Glazing the simple way.
12. Paint, varnish or shellac the right way.
13. Tool handle replacement.
14. Good knots, splices and hitches work most efficiently.
15. Gluing and using wood clamps correctly.

SUGGESTED ROLL CALL TOPICS FOR HANDICRAFT
1. What I like about handicraft projects.
2. A tool used in handicraft.
3. A kind of hard or soft wood used in handicraft.
4. An interesting item regarding 4-H work.
5. Accomplishments in handicraft this year.
7. A by-product from trees used in handicraft and name of tree.
8. A health rule.
10. An accident caused by carelessness in using some tool.
11. A nationally advertised brand of paint or varnish.
13. One thing learned in club work this year.
15. A certain size and kind of nail or screw and its use.

SUGGESTED TOPICS FOR TALKS AT CLUB MEETINGS
1. Why belong to a 4-H Club.
2. Importance of good health.
3. Working with the hands helps business and professional people.
4. Why every one should have a hobby.
5. Kinds and uses of different woods.
6. How to raise money for our club.
7. Why our club should take part in community and county activities.
8. The value of a local leader.
9. Why should one keep records.
10. Is good workmanship necessary in handicraft.
11. How can 4-H members help prevent farm and home accidents.
12. The value of re-making and repairing old articles.
13. Why every farm and home should have electricity.
14. How judging and demonstrating makes a better club member.
15. Why have music at club meetings.