The LEARNING CIRCLE
by Loren Woerpel

CEDAR FLUTE KIT

These instructions are for finishing a flute where the materials provided have been rough cut or routed and holes drilled. The **barrel** of the flute comes in two halves routed out inside **(Photo A)** forming a short **front chamber** and a long **back chamber** extending to the rear of the flute. The top half has two **air holes** drilled to connect the chambers, and six **sound holes**. A front **mouth hole** is routed in the two halves to make a 1/16 inch air passage. Also provided is a small **top piece** that has a square **chimney slot** that will cover the front air hole and face the rear air hole. A thin piece of wood is provided to make the **gasket** that, with the top piece mounted, directs the air into the **sound lip** at the far end of the second air hole. Now you are ready to start.

Using an x-acto type razor blade knife, carefully clean the burrs from both sides of the drilled holes. **(Photo B)** Also clean any inside rough edges and burrs from the beveled trough to the rear edge of the second air hole. **(Photo C)** In the sanding step noted next, you will be sharpening the sound lip into a smooth "knife" edge.

Flatten the area over the two air holes so that the gasket and top piece will sit exactly flat on this section of the barrel. Start by using a 4-way rasp or coarse file, **(Photo D)** then finish it with sandpaper wrapped around a small square wood block. **(Photo E)** This area is about 3/4 inch wide by 2 inches long.

Using wood or tacky glue, draw a bead of glue on the flat contact edge of the drilled half of the barrel. **(Photo F)** Be sure to put glue across the bridge that separates the front from the back chamber as shown in **(Photo F).**

Press the two barrel halves together in a tight fit and wrap with electrical tape tightly. **(Photo G)** Let this dry. Remove the tape and then finish shaping and sanding the flute barrel. Start with the wood rasp smoothing out the mouth piece area and shaping any other flaws on the barrel. Finish by sanding with 100 grade sandpaper first and then finally with 220 grade paper. **(Photo H)** Do not change the flattened air hole area but hand sand the six sound holes so they are very smooth around the hole edges. Using a 1/8 inch drill bit, clean any dried glue out of the mouth hole.

The top piece provided is cut in a basic animal shape. You can use your x-acto knife, wood rasp, and sandpaper to carve into a design. **(Photo I)** Do not change the square chimney slot except to smooth the outer edges. Carefully flat-sand the bottom of the top piece by placing a piece of sandpaper on a flat surface and rub the bottom of the top piece until flat and smooth.

Make the gasket from the thin piece of flat wood provided. **(Photo J)** The outside length should be about 1 3/4 inch long and the outside width is about 5/16 inch. A rectangle hole is cut in the gasket as shown with your x-acto knife. This hole's length is about 1 1/4 inch long and slightly wider than 1/4 inch so it does not cover any part of the air holes. Clean off any burrs from the cut edges.

To assemble the flute, place the gasket over the two air holes as shown in **(Photo K)** adjusting it so that the gasket slot starts at the front edge of the first air hole but goes beyond the sound lip of the back edge of the second hole. Place the top piece over the two air holes with the edge of the chimney slot on the front side of the second hole so you can see the whole hole and the sound lip is well clear of the gasket edge. Wrap with leather thong and tightly tie a knot. **(Photo L)** Carefully adjust this until you get the desired sound.

Cedar is a "crisp" wood so will splinter easily. It also commonly comes with knot "defects" that are really just natural. Shaping, sanding, and filling may be necessary. Handling these become the unique artist side of the project.

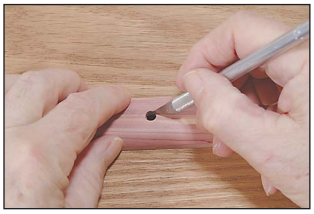
Photo B

Photo D

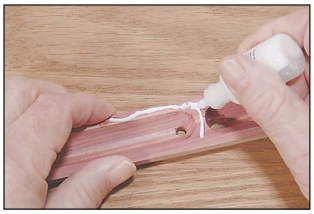
Photo F

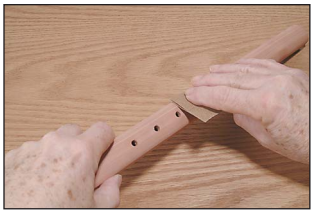
Photo H

Photo J

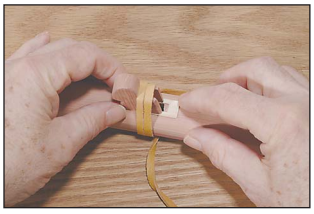
Photo L

Photo A

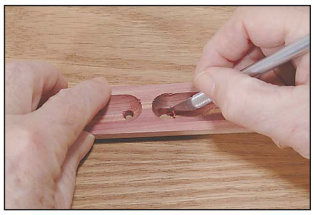
Photo C

Photo E

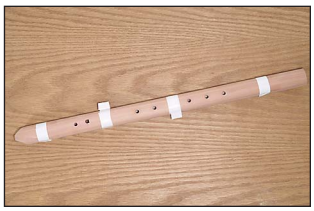
Photo G

Photo I

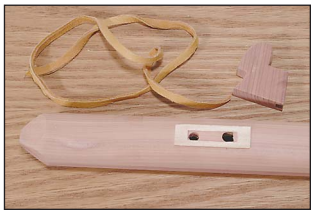
Photo K

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