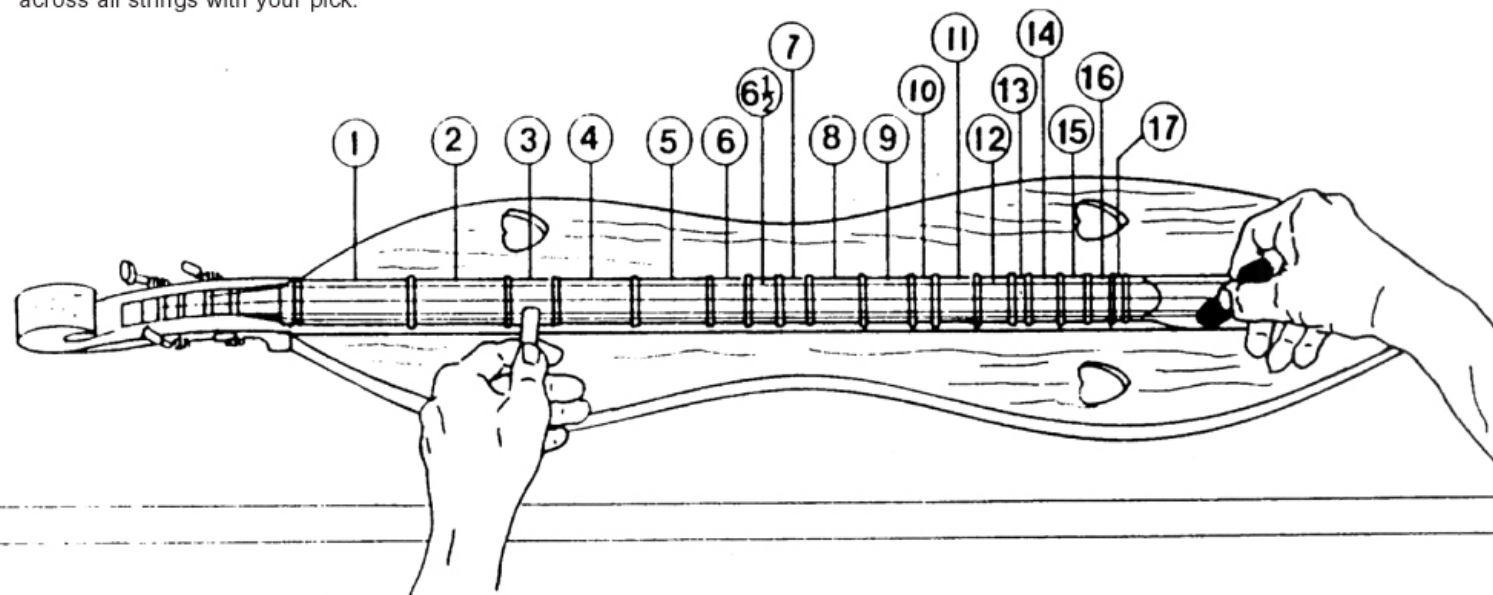


HOW TO PLAY THE DULCIMER

The number above each note shows the fret to be "noted."

Place your index finger over the melody strings and press down (the first 2 strings when the peg head is to your left). Do this in such a manner that your finger does not touch the adjacent strings, which will be strummed for the "drone" sound.

The first note in "Aunt Rhody" starts with the 5th fret, the "mi" in do re mi." Hold down with your finger on the 5th fret and strum across all strings with your pick.



AUNT RHODY

Traditional

C 5 5 4 3 3 G7 4 4 6 C 5 4 3

Go tell Aunt Rho - dy, Go tell Aunt Rho - dy,

G7 7 8 7 5 4 3 3 G7 4 6 5 4 C 3

Go tell Aunt Rho - dy her old gray goose is dead.

BROTHER JOHN

(Frere Jacques)
French Song

C Chord throughout

3 4 5 3 3 4 5 3 5 6 7 5 6 7

Are you sleep-ing? Are you sleep-ing? Broth-er John, Broth-er John,

7 8 7 6 5 3 7 8 7 6 5 3 4 0 3 4 0 3

Morn-ing bells are ring-ing, Morn-ing bells are ring-ing, Ding ding dong! Ding ding dong!

* 0 is a tone picked or included in a strum, but not pressed by noter. It is known as an "open string".

MOUNTAIN DULCIMER KIT

Teardrop Model. Solid Walnut.

Folkcraft

INSTRUMENTS

PHOTO & DIAGRAM SHEET



DIAGRAM 1 Jig Piece



PHOTO 2

DIAGRAM 2



DIAGRAM 4

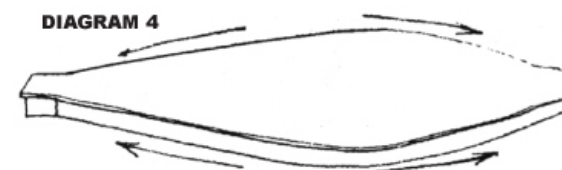
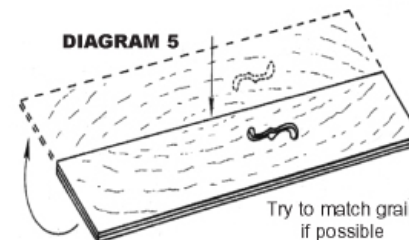


DIAGRAM 5



Nut Slot

DIAGRAM 7

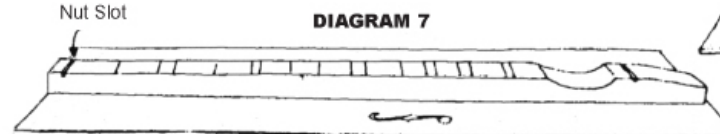
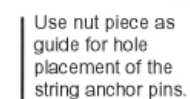


DIAGRAM 10
Holes for anchor pins



Top View

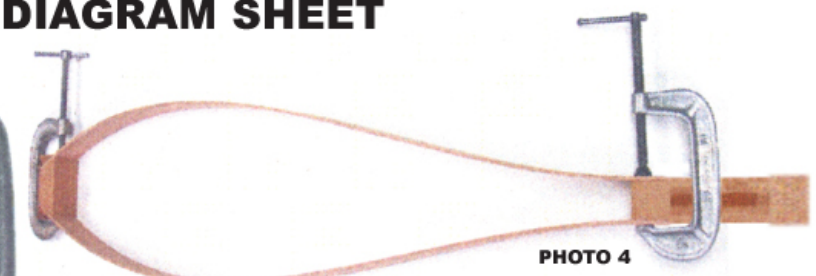


DIAGRAM 3

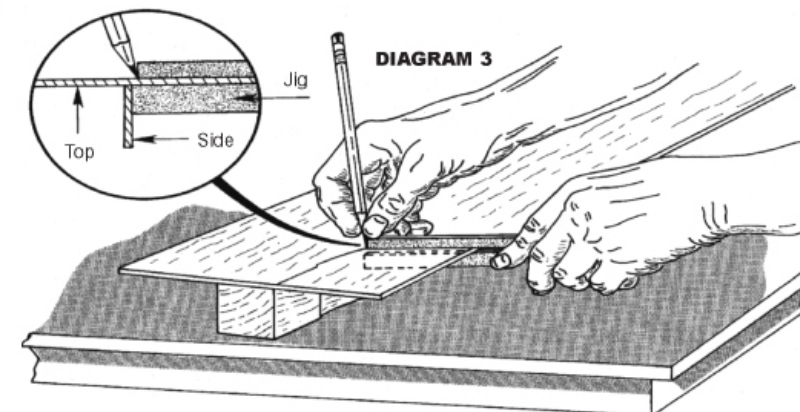


DIAGRAM 6
Template for
Tone Holes

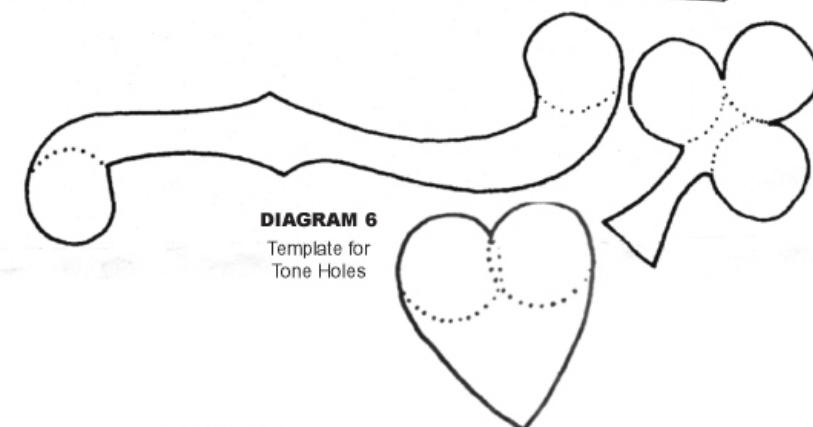


DIAGRAM 8

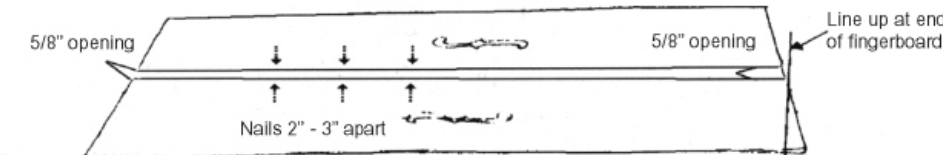


DIAGRAM 9

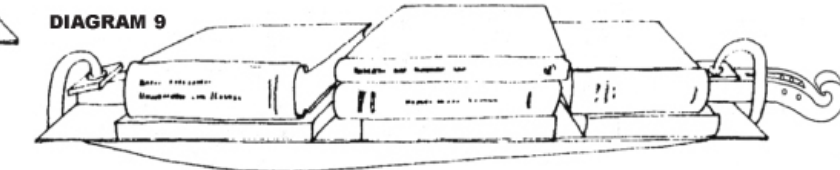
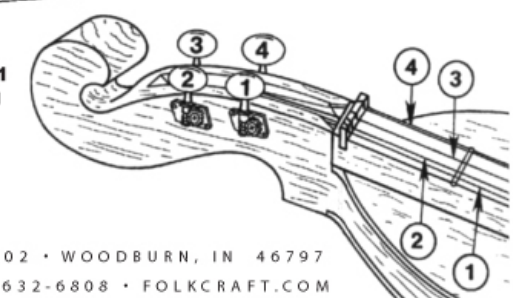


DIAGRAM 11
Wound String



MOUNTAIN DULCIMER KIT

Directions for Teardrop Model

This handcrafted kit has been carefully designed to produce a high quality traditional teardrop shaped dulcimer. We have made every effort to keep the tools required and the time spent for construction to a minimum.

The Parts List:

1 Scroll Head	1 Heel Cap	1 Fingerboard
2 Top Boards / 1 Bottom	1 Jig Piece	1 Tail Block
2 Gluing Wedges	1 Bridge / 1 Nut	2 Side Pieces
1 String Set	4 Anchor Pins	1 Pick
4 Tuning Gears with Screws	1 Fret Wire	Multiple Nails

Required Tools: Sharp utility knife, coping saw, hand or electric drill with a 1/16” bit, small hammer, small Phillips screwdriver, small diagonal wire cutter, 2 C-clamps with at least a three inch opening.

Optional Tools that would save time: Assorted wood files, assorted drill bits (for cutting tone holes), Stanley Sur-Form shaver (reduces sanding time).

Necessary Supplies: Glue (Elmer's Carpenter Glue or Franklin Tite-Bond), two (2) sheets each of 80-grit and 120-grit sandpaper, one (1) sheet of 50-grit sand paper, one (1) pad triple zero (000) steel wool, Formby's Tung Oil Finish (or similar brand), wood scraps and heavy books for weights.

Please read directions carefully. Be sure you understand all of the procedures and have identified all parts before beginning construction.

Step 1 - Glue Heel Cap to Angled Tail Block

Find the 1/8” x 1 3/4” x 2” heel cap. Using a C-clamp, glue it to the smaller end of the angled tail block as shown in **Photo 1**. Allow glue to dry for 2 hours before removing clamp.

Step 2 - Glue Sides

Glue the 1/10” x 1 3/4” x 31 1/4” sides to the tail block. You will need the two small triangle blocks from your parts bag, and a C-clamp. Refer to the “exploded view” in **Photo 2**. Apply glue to the angled sides of the tail block; press and slide the sides toward the narrow end of the block until they are stopped by the piece attached in Step 1. Make sure the sides are flush in height with the tail block. Position the small triangular blocks against the sides and attach the C-clamp as shown in **Photo 3**. DO NOT apply glue to the triangular blocks, they will be used at a later time. Find the scroll head block. Apply glue to the end grain or the 1 3/4” x 1 3/4” sides of the scroll head block. Free bend the sides to meet the scroll head back. Squeeze the sides against the glued portions of the scroll head block using one hand. With your other hand, position the block so it is flush with all surfaces of the sides. Fasten the other C-clamp to the sides as shown in **Photo 4**. Allow two hours for the glue to dry before removing C-clamp.

Step 3 - Glue the Bottom

Temporarily position the “jig piece” (**Diagram 1**) inside the sides to expand it to the full 7” width of the bottom, or adjust any symmetry problems with the teardrop shape. DO NOT apply glue to the jig piece. Leave it between the sides while the bottom is being glued in place and remove once the glue has dried. The jig piece will be used in Step 4. Glue the bottom (1/8” x 7” x 32” sheet) to the sides and scroll head (**Diagram 2**). Use books for weights on top of the bottom and allow two hours for drying. Check to make sure that the bottom does not slide out of position by “floating” on the glue.

Step 4 - Using the Jig Piece

The jig piece can now be used to aid in tracing the shape of the body on the bottom and later on the top. Slip the bottom into the slot of the jig so that the longest leg of the jig is touching the side piece and the shorter leg is visible. Hold a pencil against the end of the shorter top leg and move the jig along the side of the dulcimer. The pencil mark produced will automatically follow the contour of the sides (**Diagram 3**). Using the utility knife, cut along the pencil line. It will take five to six passes before the knife will cut through the bottom. Now sand the cut edges carefully starting from the middle of the sides and working toward the ends, as indicated by the arrows (**Diagram 4**).

Step 5 - Fret Installation

The frets can now be installed in the fingerboard. First sand the fingerboard gear hollow and strumming hollow. Using pieces of scrap wood between the C-clamp and the fingerboard surface (to prevent marring), clamp the fingerboard to your work table. Start from the end where the frets are closest together. Holding the fret wire vertically, hammer in the frets, taking care that the mushroom top is not driven below the surface of the fingerboard.

Hammer in the fret wire from one edge of the fingerboard to the other. Cut off each fret as close as possible to the fingerboard. One way to do this is to notch the fret wire with an edge of the triangular file and bend the wire with a sideways motion, keeping pressure downward until it breaks. The ends can be filed smooth and given a slight bevel. Tack or tape a sheet of 80-grit sandpaper to your workbench. Place the fingerboard edge on the sandpaper and move it back-and-forth along the fretted length until the wire is sanded flush with the edge of the fingerboard. Fret wire is made of nickel-silver and is soft enough to be sanded.

Step 6 - Create Tone Holes

The tone holes can now be cut. Find the two 1/8” x 4” x 32” book-matched top pieces. These pieces were cut consecutively from the same larger board making their grain pattern identical. Examine the top pieces carefully and decide how you would like the wood grain to face before cutting the tone holes (**Diagram 5**). Place the pieces good-side up on a flat surface 5/8” apart. Position and center the fingerboard on top of these boards and draw lines along each side. Remove the fingerboard. Place the completed sound box on top of the boards and pencil around it on the two top pieces. The pencil marks you've drawn represent the top of the completed dulcimer. Stay about a half-inch away from any pencil mark and draw/trace your tone hole design on the top pieces. It makes no tonal difference where the holes go or how many you have; however, do not let the width of any hole exceed the diameter of a U.S. Quarter, as this may affect tonality. Suggested tone holes are shown in **Diagram 6**. A drill may be used to make the round parts of the sound holes with the rest being competed with the utility knife and/or files. Sand the edges.

Step 7 - Glue Fingerboard and Top Pieces

Return the fingerboard to the center of the two top pieces as described in Step 7. Line up the top pieces even with the nut slot (1/8” slot just after gear hollow) in the fingerboard (**Diagram 7**). Placing one hand on top of the fingerboard and the other hand on the underside of the top pieces, turn the three pieces over simultaneously without reversing the order. The top piece can now be glued and tacked to the fingerboard. Run a thin bead of glue on the ledge on one side of the hollow cut in the underside of the fingerboard. To insure a neat job, slide one top piece onto this ledge until it is even with the edge of the hollow and the front nut slot. When it is even, drive one small nail through the top piece into the ledge at the center of the fingerboard. Still making sure that the top piece is even with the hollow, space the nail three or four inches apart from the center point. Avoid nailing through the strumming hollow. Repeat this procedure with the other top pieces (**Diagram 8**).

NOTE: The slot that remains in between the top pieces when attached to the fingerboard is intentional and adds to the volume of the instrument.

Step 8 - Glue Sound Box

Glue the top piece to the sound box. First check your sound box. If any height discrepancy exists between your side pieces, end block and scroll head, wrap a piece of coarse sandpaper around a scrap board and draw this over both side pieces until they are even with the end block and scroll head. Don't favor one side over the other or you'll have unwanted dips. Now run a generous bead of glue along the side pieces and top of the end block and scroll head. Place the top pieces and fingerboard on top of the sound box, lining up the top pieces evenly with the scroll head and centering the fingerboard with the rear end block. Using the C-clamps, place one clamp on top of the fingerboard above the scroll head. Use scrap wood under the clamp to prevent marring. Use the same procedure at the rear. Weight the edges of the top pieces to insure good contact with the side pieces. To do this, place a couple of scrap wood pieces higher than the fingerboard itself along the sides of the fingerboard. Weight with books (**Diagram 9**). Allow two hours for drying. Trim the top, following the same procedures as outlined in Step 2. Any excess fingerboard and top remaining at the rear block may be cut off flush with the block.

Step 9 - Sanding Your Dulcimer

The 80-grit sandpaper can be used for rounding all edges and the 120-grit sandpaper for the final sanding of all surfaces. Check carefully for any excess glue - scrape it off with a knife or a piece of glass. The glue is stronger than the wood so scraping will work better than sanding. Thoroughly dust off the entire instrument and apply your chosen finish according to its manufacturer's directions. Rub steel wool over all finished surfaces to smooth raised grain. Dust off once more and apply succeeding finish coats.

Step 10 - Adding Strings

Hold the dulcimer in its playing position with the scroll head to your left and the strum hollow to your right. Take the two right hand tuning gears (identified by sprockets on right) and place them in the holes on the side closest to you. Now place the left hand gears in the holes on the opposite side. Install the gears by pre-drilling 1/16” pilot holes through the gear plate into the scroll head then use the small Phillips screws provided to attach. Find the two rectangular plastic nut and bridge pieces. These pieces will fit in to the 1/8” slots provided for them on the fingerboard. They are not glued in place. These pieces are equal in size so they can be placed in either slot. Notice there are six grooves in the top of each of these pieces. The grooves that are 1/8” apart should be the closest to you while the dulcimer is in its playing position. Strings 1 and 2 will go in the two close together grooves. String 3 will go in the groove approximately in the middle of the nut and bridge piece. String 4 will go in the groove furthest away (**Diagram 10**). The unused grooves are for a more advanced style of playing in which you would use equally spaced strings. To have the strings equally placed, string 3 would be moved over one groove toward string 4 and string 2 would be moved over one groove toward string 3.

Remove the bridge piece and place it flat on the sloping end of the fret board with its grooved top facing toward the tail end of the dulcimer. Once again, the two grooves close together for string 1 and 2 should be where the anchor pins will go on the sloping end of the fingerboard. Use the same string spacing as described above.

NOTE: The mark for the second anchor pin should be placed above or below the first so that “ball” ends of the two strings closest together don't interfere with each other.

The bridge may be put back in its slot. Use the 1/16” drill bit and drill the holes for the anchor pins, making them perpendicular to the sloped end of the fingerboard. Tap in the anchor pins leaving approximately 1/8” showing. Take the brass ball of your first string and place it over the first anchor pin. Thread this string through the hole in the shaft of the first gear closest to you. Pull through the hole enough excess string so you could get your hand on its edge in between the fret board and the string. Wind the string on the gear shaft by turning the gear head button clockwise. Attach string 4 in the same manner as string 1, then attach strings 2 and 3 (**Diagram 11**).

Tuning Your Dulcimer

There are a variety of possible tunings. The easiest tuning is called “Ionian,” which involves tightening the fourth string to reasonable tension (D below middle C on the piano). Press down this string at the fourth fret space going left to right (tuning gears on left). Strum it and tune the other three strings to match the resulting sound (should be the A below middle C on the piano). It's that simple!

We stock a wide variety of dulcimer instruction books, recordings, pitch pipes, electronic tuners, carrying cases and other accessories. Visit us online to order - www.folkcraft.com

Playing your Dulcimer

In the Ionian tuning, the two strings closest together are used for playing melodies. The third fret up from the nut is “DO.” Continuing on from DO (moving right) is RE, MI, FA, FA#, SO, LA, TI, DO, extending on for another full octave. Moving left from the original DO point would be TI, LA, and with nothing fretted, SO. Initially you can strum across all four stings leaving the two wider spaced strings unfretted. They provide a constant chord or drone background to accompany your melody strings. It is typical in written dulcimer music to number the fret spaces. This is called tablature, or tab for short. The numbers start at “0” for open strings (nothing fretted) then continue “1,” “2,” “3,” “4,” “5,” “6,” “6 1/2,” “7” etc.

Remember “3” is DO. See the back of the diagram sheet for a sample song.

We hope you enjoyed building your dulcimer and using our kit. Now the fun begins...Playing it!