Styrofoam Harps

by **Thinkenstein** on October 16, 2010

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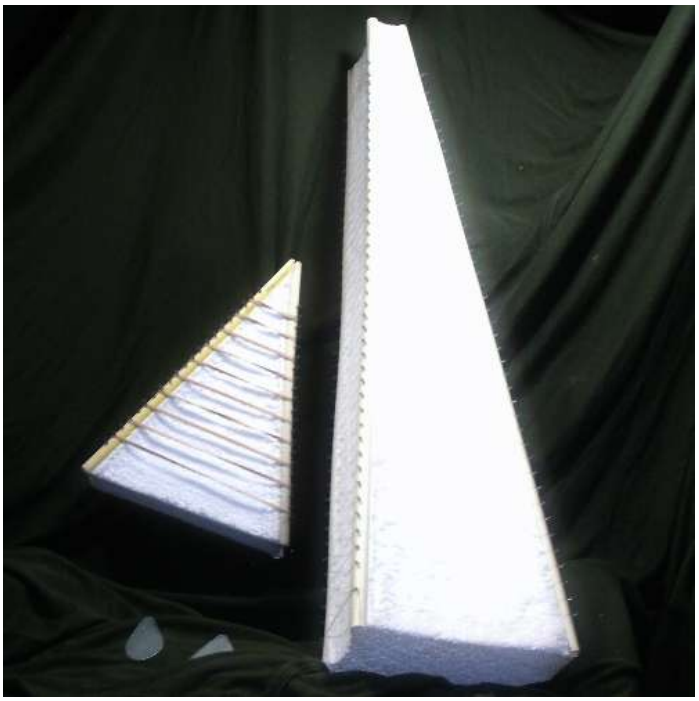
Intro: Styrofoam Harps

Professional harps are cool instruments, but expensive and difficult to play. These may be toy instruments, but they still sound nice and have possible uses in the creation of music. With maracas and drums I could imagine some fun jamming with these.

The instruments are feather weight. I don't know how child-proof they might be, but I am tempted to find out. I think these would be great learning tools for introducing children to string instruments.

All four sides of the harps can be played. Each side has a slightly varied selection of notes. The strings are not tunable, but there is a general progression from low to high notes.

Be sure to listen to the .mp3 audio file in the last step to hear how they sound.



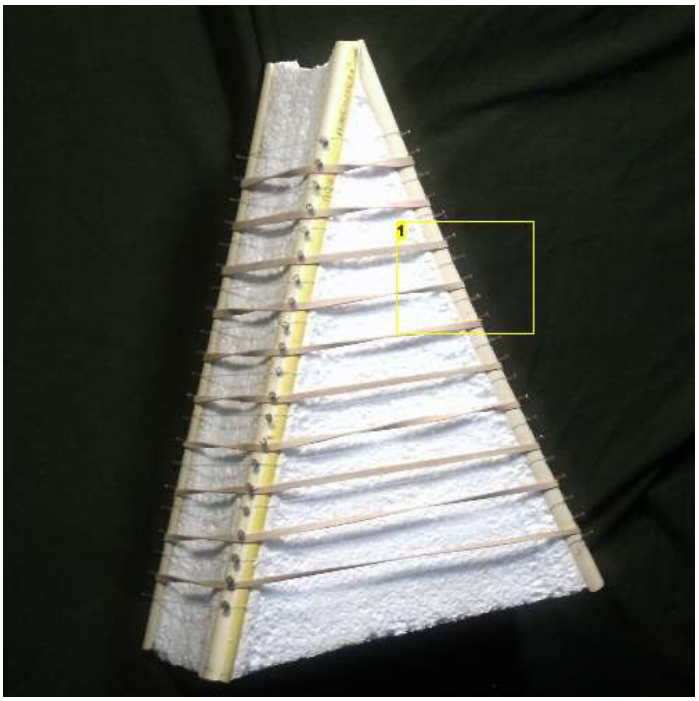


Image Notes
1. Alternate rows of fish line and rubber bands.

step 1: Shaping the Foam

I made two harps with differences in length. The long one uses only mono-filament nylon fish line, which is next to invisible in the photos. The short one alternates fish line with rubber bands. The rubber bands give the notes interesting overtones.

The harps are basically Styrofoam triangles cut out of a thick sheet of the material. That gives a variety of string lengths, and a variety of notes. The longer strings make lower notes.

The strings make contact with the body only on the edges, which are protected by half-pipes of 1/2 " CPVC pipe (smallest size for hot water use). On the face of each side, between the pipes, I hollowed out the foam some, to give the strings more clearance for movement. If the strings touch anything while they vibrate, it results in a buzzing sound.

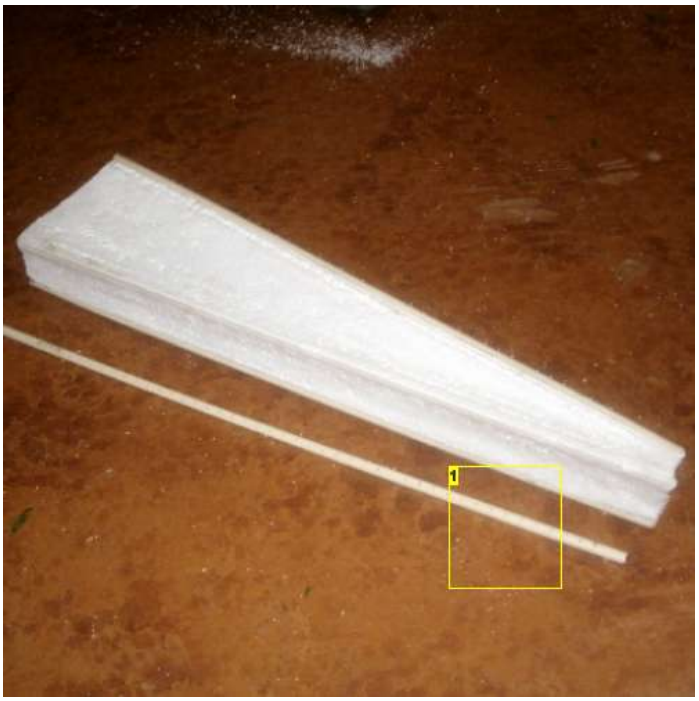


Image Notes
1. The pipe is split in half, length-wise. The half pipe covers the corner of the foam, preventing the strings from digging into the foam.

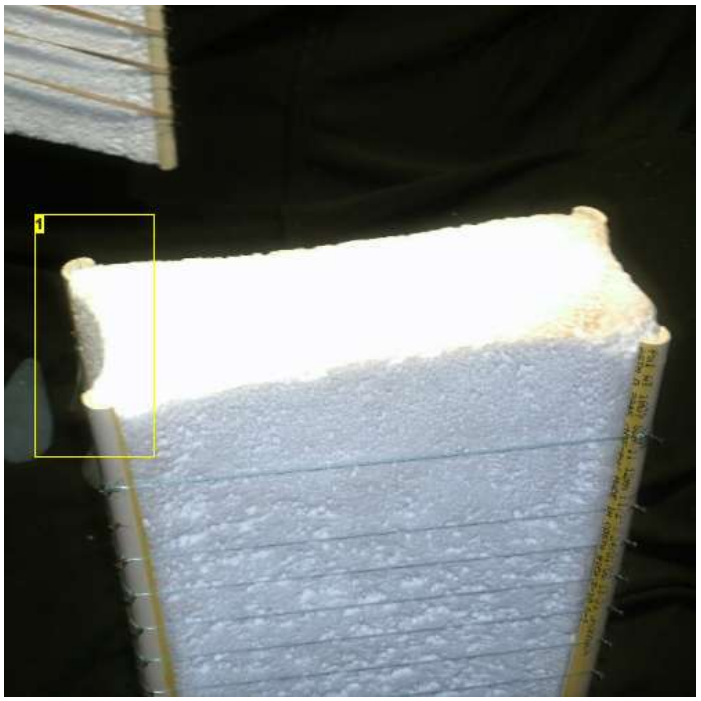
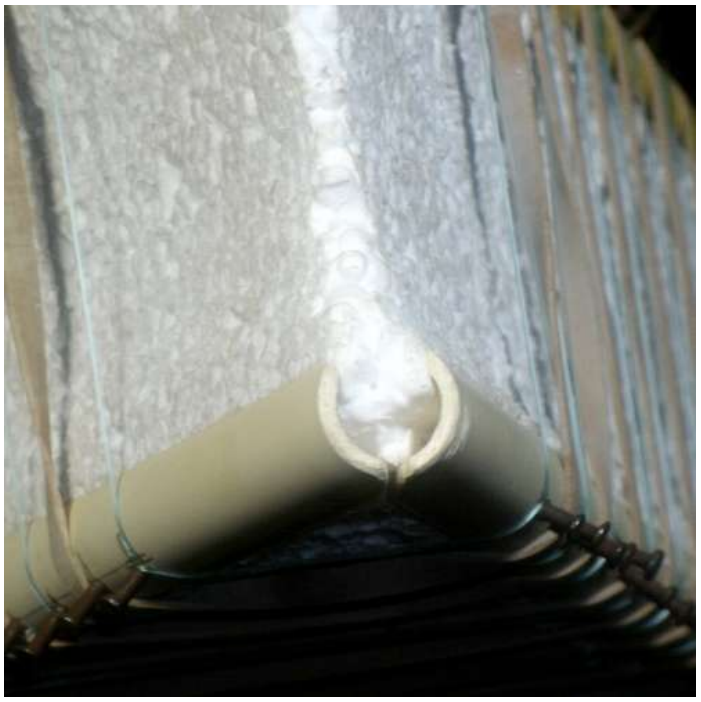


Image Notes
1. Notice the curve. The faces on each side are hollowed out some to give the strings more clearance from the body.

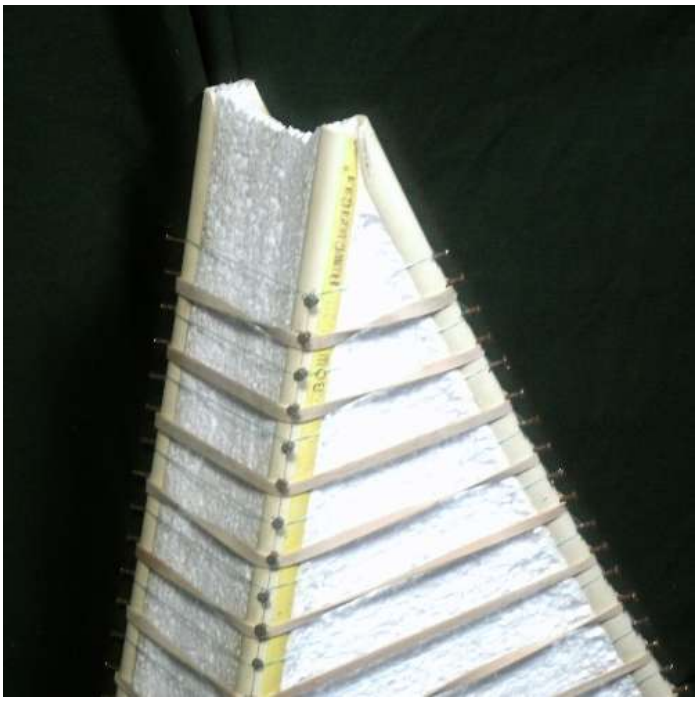


step 2: The Nail String Guides

1 1/2" nails are driven through slightly tight holes in the pipe edge protectors into the Styrofoam block. Leave the heads sticking up some, as they are used to anchor the fish line that spirals around the instrument.

If you plan to alternate rows of fish line and rubber bands, make sure you don't get carried away and wrap fish line where the rubber bands go, too. If strings touch while vibrating, the resulting sound is not as clean.

I wrapped the fish line by hand, stretching it as tight as I could. It may stretch and get lower in tone over time, eventually needing re-stringing. Fish line is cheap.



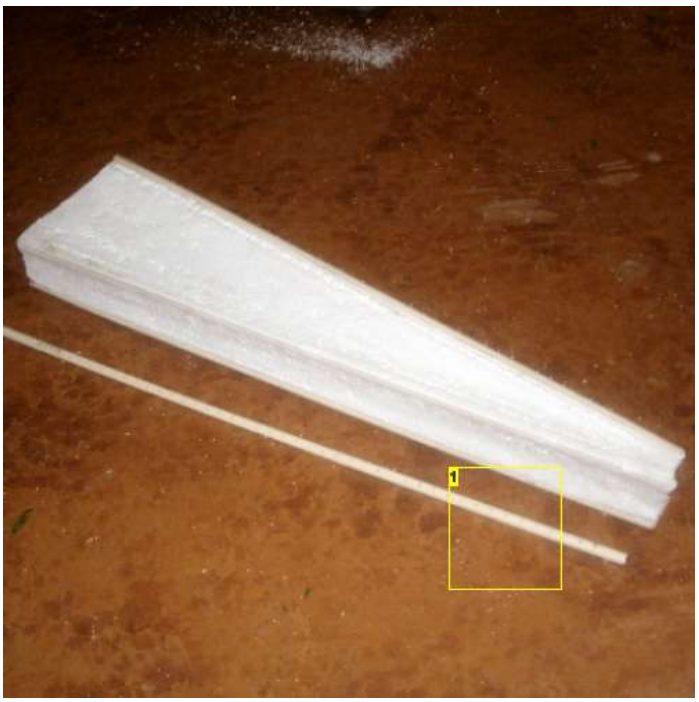


Image Notes
1. The pipe is split in half, length-wise. The half pipe covers the corner of the foam, preventing the strings from digging into the foam.

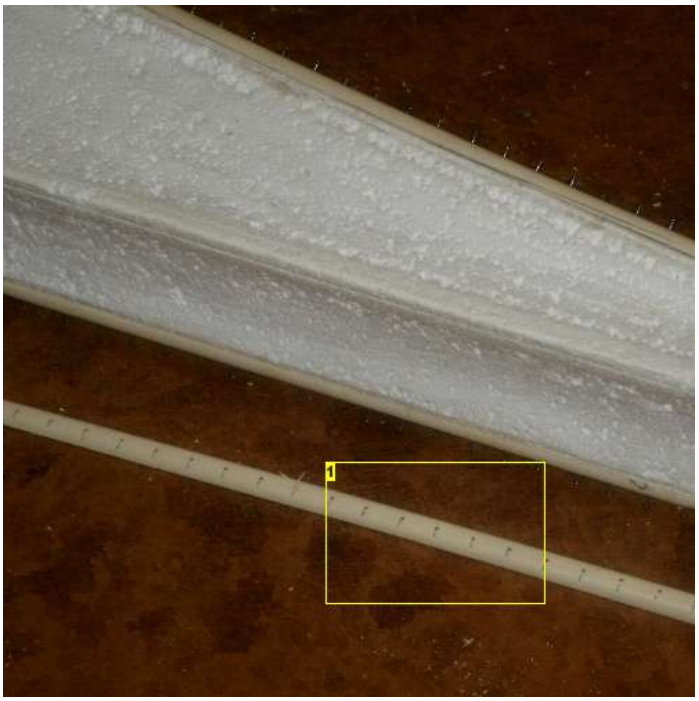


Image Notes
1. Holes, a little on the tight side are drilled for 1 1/2" nails.

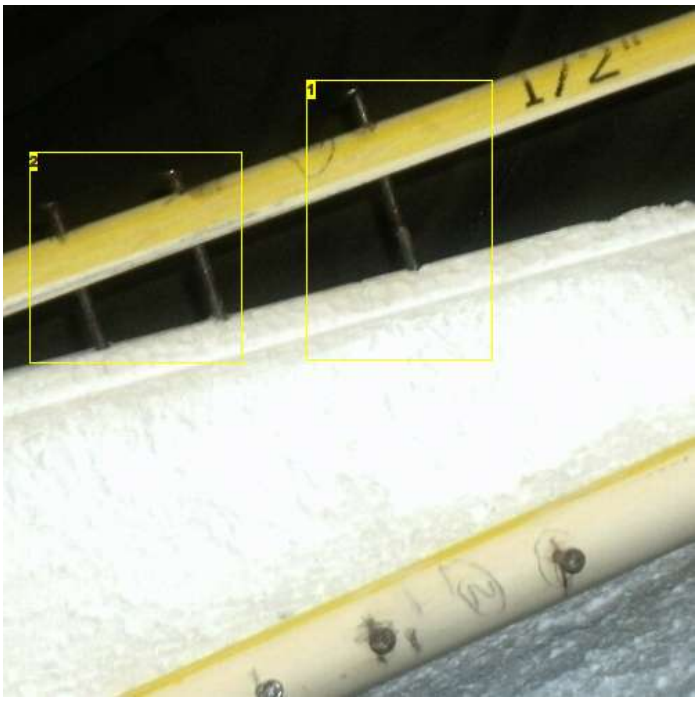


Image Notes
1. The nails stick out above the pipe corner protectors. One long piece of fish line spirals around the instrument, going from nail to nail. I wrapped it around each nail twice before going on to the next nail.
2. I pried this section of edge protecting pipe up for this photograph. The nails are driven through the edge protectors while they are in place, not before, as this photo might suggest.

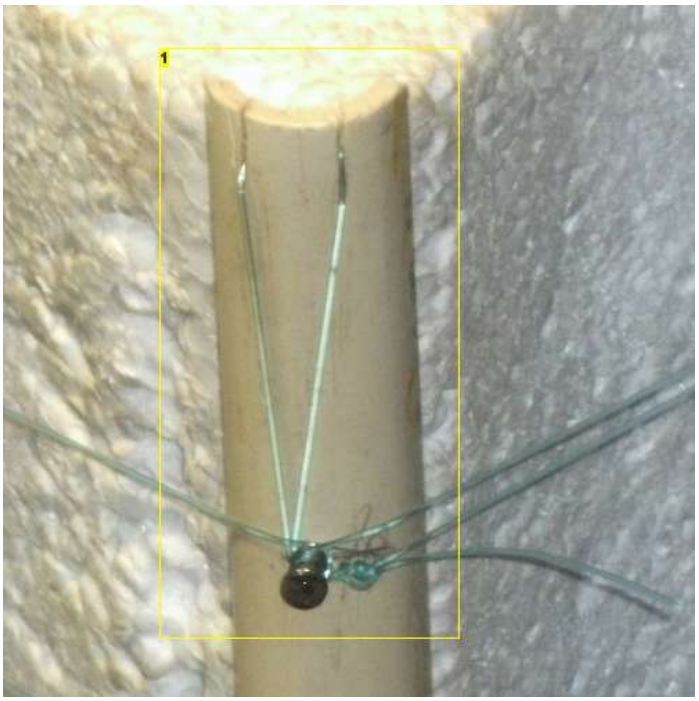


Image Notes
1. Two slits in the ends of the corner pipe help hold the line while you tie off the end with a knot.

step 3: Stretching the Fish Line

Start at one end and spiral wrap the instrument with a continuous length of fish line. Since the line only wraps twice around each nail, and is not tied firmly, I imagine that there will be some slippage of the line throughout its length as the instrument is played, resulting in approximately equal tension on each string. Then, the differences in length should provide the progression of notes.

When you wrap the fish line, wrap it as tightly as you can by hand. Do not release tension with your hands until you reach the end and have it tied off securely. If it slips before tie-off, you may have to go back and wind it all over again from the beginning to regain the tension.

I used two slits cut in the ends of the corner protectors to begin and end the line winding. The slits help hold the line tension while I tied the knots.

step 4: Hear the Harps

Click on the thumbnail icon below to open an .mp3 audio file and hear how the harps sound. The icon looks like a blank piece of paper with the corner folded over.

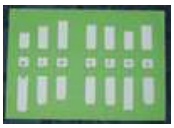
I hope you enjoy this cheap, but pleasant sounding instrument. It's fun to play.

File Downloads

STYROFOAM HARPS.mp3 (1 MB)
[NOTE: When saving, if you see .tmp as the file ext, rename it to 'STYROFOAM HARPS.mp3']

Related Instructables

Dollar Rewards Club Mini Harp by randofo



Virtual harp by LDW

Build a Wind Harp! by botronics

MAKE A MINI-HARP FROM A PLASTIC THROWING DISC by mistic

Knex bass guitar (Harp) by barrax

MUSICAL SCULPTURE -- "The Secretary's Nightmare" by Thinkenstein