

How To Make A "Cymatics Sounder" In 3 Easy Steps

by Jodina Meehan

You can make your own cymatics device in 3 simple steps, using materials that shouldn't cost more than \$20. I call this version of a cymatics device a "Cymatics Sounder."

1. Download the step-by-step video here: <http://www.youtube.com/watch?v=Jr6Xsatup4Y>
2. Read and follow the instructions below

What is a Cymatics Sounder?

If you are not familiar with what a cymatics device is, it is a device for making sound waves visible. This particular cymatics device is generally called a "tonascope" and has been used to help deaf people learn how to speak. I call mine a "Cymatics Sounder" because it's easier to say. There are many ways to make one, after several experiments, this is by far the fastest and simplest way to make a cymatics device of any kind that I have come up with.

Why would you want to make one?

A Cymatics Sounder can be used to make visible patterns using only your voice. It will actually show you what the sound of your voice looks like. When you sing into a cymatics device you can alter both the amplitude and tone of your voice and see different patterns of varying complexity arise in front of your eyes. It's a lot of fun, and really amazing to experience. Both adults and children love to experiment with this device. So, you can make one on your own, or if you have a kid handy, let them help you make it. It's a great rainy day project.

What you will need for your Cymatics Sounder:

1. A PVC pipe "elbow," with a 45 degree angle (looks like a check-mark).
2. A length of PVC pipe, preferably about 2" in diameter, cut to the right length for you (see below).
3. 3-4 black (or other dark colored) balloons
4. Some rubber bands
5. Table salt (that means plain old salt) or white sand

Where and how to get your supplies:

1. PVC elbow:

The hardware or lumber store or any home-supply store is a good place to get your PVC. First you want to find a PVC elbow shaped like a "v" (or a checkmark) that has one part going straight up and down, and another part going out at a 45 degree angle. The up and down part should be about 6 inches across and the angled part ideally should be about 2" in diameter. *NOTE: If you can only find an elbow with both parts the same size of 6 inches wide, that is ok, see note at bottom of the next step).

2. PVC Pipe: Now you want to look for some pipe about 2" in diameter (wide) and ask someone there to cut it for you (or you can take it home and cut it yourself if you have a hacksaw). The length you cut it to depends on how tall you are. Here's how to see how long you want it cut to: Set the PVC elbow you found on the floor, with the straight, 6 inch part as the 'base' and the smaller angled part facing upward, like a checkmark. Then put the pipe you found into the part that is facing upward, so it makes

a big checkmark shape. *NOTE: If you could only find an elbow piece with a larger (or other size) angled opening, just get the pipe that will fit right into it. 2 inch is best but you don't need it to make it work.

Stand next to the pipe and see where it naturally meets your mouth (since you will be blowing into it like a saxophone). Wherever it meets your mouth is where you want to have the length cut to. (For an adult probably at about 6 feet, for a ten year old, about 4 feet and so on).

3. Black balloons:

You can find these at craft stores, florists, and in any party section of a store, but I have found that florists have the biggest and nicest ones, which work best for a cymatics device. If you can't find any black balloons, any dark color like purple or blue will work too. Try to get the largest, best quality they have, but almost anything will work.

4. Rubber bands:

Hobby stores, grocery stores, hardware stores, craft stores, department stores. About 3-5 inch size is best and get the thickest ones you can find. But again, almost anything will work.

How to build your Cymatics Sounder:

1. Set your PVC elbow piece on the floor, with the bigger end as a base and the angled part angled up. Now place the end of the PVC pipe firmly down into the angled part of the elbow (think of it as building a saxophone). The length of pipe should be going up an angle now and the other open end of the elbow should be facing straight up.
2. Cut the "neck" off a balloon at about 1 inch from the blowing end. (You have several balloons in case you need them, but you will only use one at a time). Now stretch the balloon tightly over the neck of the PVC elbow that is facing up (the 6 inch end without the pipe in it). You may need to do this a couple times to get it flat with no dimples or loose parts in the balloon surface. The balloon should be flat and facing upwards like a drumhead. The vibration of something on a membrane like this is how all tonascopes work.
3. Holding the balloon down over the PVC with one hand, get a rubber band and put it down over the balloon so it holds it on the PVC elbow. You should put about 5 or 6 rubber bands on it to make sure it doesn't pop off.

Now you are ready to 'play' your cymatics device and make sound visible!

How to play your Cymatics Sounder:

1. Hold it upright on the ground so the balloon covered end is facing up and level like a drum.
2. Sprinkle some salt on the surface of the balloon, just enough to lightly cover it over.
3. Now put your mouth up to the other end of the PVC pipe (as if it's a saxophone) and sing and hum! You will see the salt respond to your voice and start to make cymatics patterns like circles, ovals, and snake-like figures.

Hint: Making nice, loud "aaaaa" or "oooooo" or "eeeeee" vowel sounds into the pipe will get the best

cymatics designs to start with. You will get simple patterns and effects (like the salt just jumping off the surface) to start with. Then you will learn how to get more detailed and "clear" designs as you learn to play your Cymatics Sounder just by watching it.

Enjoy!

-- Jodina Meehan