



Create Your Own Vortex Cannon

In this experiment you can build a vortex device (vortex cannon) to create a pressure wave that transmits a lot of energy! You too can set up our own real-life Angry Birds game.

Materials

- Cardboard Box (*preferably medium size*)
- Duct or Cloth Tape
- Craft Knife

Procedure

The first thing you need to do is get a big cardboard box (bigger the better)...e.g., 12x12x12 in.

Close the box and seal all of the seams with tape, making sure that the box is as air tight as you can make it.

Then, cut a hole on one side (Aperture in "*Science Lingo*")...about 5 to 6 inches in diameter.

Next you want to fill the box with smoke. The easiest thing is to get some incense and have it fill the box with some fragrant smoke. Or, if you are more daring you can use smoke bombs, but they don't have that wonderful fragrant smoke.

Then, place the box opening directly over the incense *

***Adult supervision is required for construction and use of this activity!**

To shoot the pressure wave, aim the box with the hole facing the target, and quickly hit the sides the box. Try to come up with some crazy setups and see if you can knock them over with your vortex gun!

What's going on here?

When you hit the sides of the box, you are transferring energy from your hands into a wave. You might be wondering what exactly a wave is... A wave is simply something a disturbance that moves through space and transfers some amount of energy. At the beach, you probably notice waves crashing on the shore. Those waves travel through the ocean and often come from far away (sometimes thousands of miles). If you are in the middle of the ocean, you can feel them passing by when they lift your boat up and then back down.

Waves can also travel through air. With the vortex cannon, you can see this when the energy travels from the box to the cups. With the smoke, you can even watch the pressure wave move, by hitting the sides of the box to compress the air inside, sending the air out with some force; an instant vortex ring!

