

HOW TO:

Air Cannon Vortex

Items Needed:

50 gal. plastic garbage can
Electric drill
Jigsaw or keyhole saw
Shower Curtain
Bungee cord with hooked ends
(long enough to go around the can)

Approximate time to complete: 20 min

Skill Level: Intermediate - advanced

Budget for materials: \$40.00

Project Instructions:

Mark a 6 inch circle on the bottom of a large garbage can. This can also be made with a smaller 5 gallon bucket or other apparatus (even a cardboard box will work.) Using a drill, create a hole large enough that you can start cutting with a jigsaw or keyhole saw. Use the saw to follow your circle that you marked and cut this area out. Place a large piece of shower curtain over the top opening of the garbage can, leaving a few inches to overlap over the sides of the can. Wrap the bungee cord over the shower curtain covering and over the edge or lip of the garbage can to hold it down. Hold the garbage can sideways and tap the shower curtain. A 'puff' of air will come out of the hole you cut in the bottom of the can. You can use paper cups as a target. Try to see how accurately you can point your 'air cannon.'

What's Happening:

When air moves quickly from one place to another, you get a current. Air moves very similarly to water, so it tends to follow patterns that are observed in fluid dynamics, or in other words, it moves a lot like water. When you move air quickly through a hole such as the one that is in this air cannon, it is usually donut shaped. It will rotate the center of the 'donut' in a pattern we call a "vortex". If we have many of these we call them "vortices."

If you have a fog machine, you can fill your air cannon with a bit of fog and create fog rings. These can be visibly observed, and you can begin to observe how far they travel, what shape they hold, how wide is the diameter, and the direction of rotation these vortices.



Steve Spangler shows Ellen DeGeneres on the "Ellen" show how to use an air cannon to create a 'vortex.'

