



Air Cannon

You will need:

Mini Vortex Cannon: Strong plastic cup or Pringles tin, scissors or Stanley knife, balloon, duct tape or rubber band, foam beads

What to do:

1. Cut a hole in the bottom of the plastic cup that is smaller than the bottom of the cup.
2. Cut the top off a balloon
3. Stretch this larger portion of the balloon tightly over the open end of the cup
4. Secure with a rubber band or by taping around the rim of the cup so no air will escape
5. Set up a target of foam beads on a flat surface
6. Point the cup so that the hole is facing the beads. Tap the balloon covered end to try and move the beads.

Take it further:

Try designing a better version of the cannon eg. making a maxi sized vortex cannon using a large plastic rubbish bin, thick plastic material (eg. thick shower curtain), and duct tape. Make a circular hole in the base of the bin (smaller than the base) and tightly secure the heavy plastic material over the open end. Try firing this at a pyramid of plastic cups.

The Science:

The air vortex cannon works by applying force quickly to air molecules contained in a semi-enclosed space. When the balloon surface at the back of the cannon snaps forward, it collides directly with air molecules, accelerating them towards the opening of the cannon and setting off a chain reaction of high-speed collisions with other air molecules and the sides of the cannon's barrel. The only way for all of these colliding high-speed air molecules to escape is out through the opening at the end of the barrel. The rapid escape of the air molecules forms a stream, or jet, of air that flows straight out of the cannon.

