



Let's do it!

A Mighty Gust

AIR IS all around you, but how do you know it's there? Think of what happens when you stick your hand out the car window or how refreshing a cool breeze feels on a summer day or the way the trees bend in a storm. You can see how air affects things and how it feels on your body.

Air is made up of molecules that alone are too tiny to detect. But when billions of air molecules work together, they create a mighty force that we can feel—wind.

Wind maintains temperatures, clears pollutants from the air, carries pollen to new places, and determines the amount of rain in certain areas.

The wind blows at different speeds and in different ways. Sometimes the wind tumbles

and flows in a high-speed swirling tube of air called a vortex. For example, whirlwinds and tornadoes are both vortices.

Want to see how billions of molecules create an invisible vortex that pushes things around? Let's build a mini air cannon!



I'm **Mr P.**, the host of *Unlocking Science* on Answers TV. Let's have some fun as we investigate God's amazing creation.

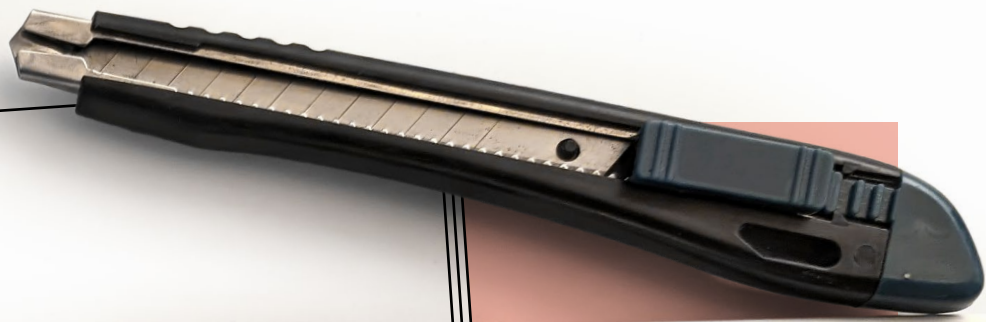
What You'll Need

- Marker
- 8 oz plastic cups
- 12-inch balloons
- Electrical tape
- Scissors
- Utility knife
- Paper streamers

Vortex Video

Scan the QR code to watch Mr. P.'s giant vortex cannon in action on the *Kids Answers* blog!





Get a Grip

1. On the bottom of the cup, use the pen to mark a circle that is about 60% the diameter of the bottom of the cup.
2. Ask an adult to use the utility knife to cut out the circle.
3. Tie off the open end of the balloon and then cut off the top of the balloon about $\frac{1}{3}$ the way from the top.
4. Stretch the balloon over the mouth of the cup so that the tied-off end of the balloon is in the center.
5. Use the electrical tape to secure the cut edge of the balloon to the cup.
6. Now you are ready to fire your cannon. Tape the paper streamers to the edge of the table or anywhere they can move freely. Hold the cup in one hand with the hole pointed at the streamers as a target. Stand about one foot away from the target.
7. Pull back the tied end of the balloon and let it go. Watch as the invisible vortex of air travels to the target and makes it move.

Ask yourself...

- » How far back can you stand and still see the effects of the vortex?
- » What do you notice as you move farther away from the target?

