

Air & Aerodynamics – Blow Hard Challenge

Instead of an experiment let's do an activity challenge. Try to blow a small object into a bottle using a straw.

Materials:

- Paper
- 1 or 2 L bottle
- Straw
- Other small objects



Procedure: (Remember to have your parent's permission and have them watch and help you.)

- Bunch up some paper to create a small paper ball.
- The ball should fit loosely inside the mouth of the bottle.
- Put the bottle on its side and place the paper ball in the mouth of the bottle.
- Direct a straw towards the mouth of the bottle and attempt to blow the paper ball into the bottle.
- Observe what happens.
- If the paper ball falls out of the bottle and try it again.

What's Happening:

When you get a result that you don't expect it is called a discrepant event. The challenge then becomes how do you explain that the paper ball jumps out of the bottle instead of into the bottle? This challenge has a lot to do with air pressure and air movement.

The answer is "what's inside the bottle". Although the bottle looks "empty," it's actually full – full of air! Trying to blow more air into the bottle is impossible, just like if you put your lips directly on the mouth of the bottle and blew. Nothing would happen!

While you can't blow air into the bottle, you are moving quite a bit of air along the sides of the bottle. When the air blows past the mouth of the bottle, it creates an area of low pressure behind it. This area of low air pressure is what the paper ball needs to jump out of the bottle. This effect is another example of the Bernoulli's Principle, the same principle that allows planes to fly.

Extension:

Make sure that other small object will give the same results. Try doing the experiment with other objects (small marshmallow, miniature bow, craft puff ball, popcorn et cetera). Once you have proven to yourself that science doesn't lie you might use this challenge to win friendly bets with others.

This activity is based on our Air & Aerodynamics kits. The source for this lab was: <http://www.stevespanglerscience.com/>. Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom guest speaker or allow your business as a field trip location.

Lorne Cooper, Regional Executive Director

PRAXIS, "Making Science Fun". Contact Praxis at praxis@praxismh.ca, www.praxismh.ca, Tweet or follow us @PraxisMedHat, or friend us on Facebook. Address: c/o 200 7th Street S.W., Medicine Hat, AB, T1A 4K1 Phone: 403-527-5365, Fax: 403-527-6570.