



STEM Activity Idea:

BERNOULLI'S PRINCIPLE

Suggested Program Level: Juniors

Use Bernoulli's principle to lift a ping pong ball out of a glass – it's easy once you get the trick!

Supplies:

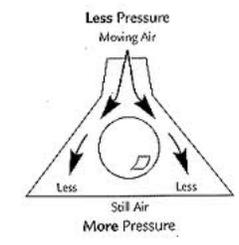
- variety of cups and glasses
- straws
- ping pong balls

Instructions:

1. Girls can do this individually or in small groups depending on the number of glasses and ping pong balls available. Each girl will need her own straw (and there should be extras on hand in case one gets dropped, or a few get mixed up).
2. Let the girls pick the glasses they want to try and then ask them to spread out around the space. They can work on a table or on the floor depending on your space.
3. Ask the girls to use their straw to lift the ping pong ball out of the glass while keeping the glass upright on the table or floor.
4. The girls should have time to try several things, if they are given some time to experiment, a group may figure out the trick through trial and error.
5. Once the girls reach a level of frustration, show them the video (linked below) or a diagram (shown below) of how Bernoulli's principle of lift works.
6. Once the girls are getting the hang of it, let them trade glasses to see which ones they think are the easiest and hardest to use with this experiment.

Why?

Bernoulli's Principle explains why airplane wings produce lift. Bernoulli's principle works on the idea that as a wing passes through the air the shape will make the air travel more over the top of the wing than beneath it. This creates a higher pressure beneath the wing than above it. The pressure difference cause the wing to push upwards and lift is created. Putting more air pressure on one side of the ping pong ball will cause the ping pong ball to lift just like an airplane wing lifts an entire airplane.



<http://www.youtube.com/watch?v=VksMZqXiT14>