

Floating Ping Pong Ball

On SCOPE's Pressure episode, Julia used science to float a ping pong ball in mid-air! Here's how you can try the activity at home:



What you need:

Hair dryer
Ping pong balls

What to do:

1. Turn on the hair dryer, making sure it is on the 'cool' setting.
2. Point the hair dryer straight up to the ceiling.
3. Carefully place the ping pong ball in the stream of air. You should find the ping pong ball floats in the air!
4. Once you have perfected that, you can try it with two ping pong balls.

You can also float a cheese ball in the air using a bendy straw!

5. Bend the straw so it is an L shape.
6. Hold the long part of the straw and the point the short part of the straw straight up to the ceiling.
7. Hold the cheese ball above the straw.
8. As you blow through the straw, let go of the cheese ball so it drops directly onto the opening of the straw. The cheese ball should float in the air for the length of your breath.

This one might take a bit more practice!

What's happening?

The stream of air from the hair dryer is pushing the ball upwards until that force is equal to the force of gravity pulling the ball down. The opposing forces cancel out, so the ball stays in the air!

This is an example of Bernoulli's principle, which involves a decrease in pressure as the movement of a fluid increases. The fast flowing air from the hair dryer creates a column of low pressure air, and the surrounding area of higher pressure keeps the ball inside the column.

It might sound a bit weird that fast moving air has a low pressure, but that is why the ball stays in place. This force is so strong that if you move the hair dryer from side to side, the ping pong ball won't go anywhere! Unless, of course, you turn the hair dryer off!

The same principle applies to the straw and cheese ball trick!

You use pressure in many other ways, every day, and you might not even know it: like drinking out of a straw. As you suck on a straw, the pressure in your mouth decreases. The now greater air pressure in the cup pushes down on the water, which causes it to climb up the straw and into your mouth!

