



HANDS-ON EXPERIMENTS

AIR PRESSURE

Whether or not an object will float is all a question of **density**. If an object is very dense, it means that there is a lot of mass in a small amount of space (or volume).

Objects with low density will float on objects with a higher density - this is a very important principle when designing a kayak or a paddleboard, otherwise they would sink!

Inflatable paddleboards are filled with air but this air is at a high **pressure** - that means it's more dense than the air around you. In this experiment we'll see how increasing the pressure on an air bubble can make it dense enough to sink!



The Experiment

What you'll need: A bottle with a screw cap, water, a drinking straw, some blue-tack.
Optional: ketchup sachet

1

Cut a 10cm piece of straw and fold it in half - this will hold your air bubble.

2

Cover one end of the straw with blue-tack or plasticine, Make sure it's water-proof! Use some of the blue-tack to keep the straw folded in half.

3

Test your air bubble by dropping it into a glass of water, it should just about float at the top.

4

Fill a bottle to the brim with water and drop the folded straw in, fill the bottle back to the top if you need to and then screw on the lid.

5

Squeeze the bottle and the straw should sink to the bottom! This is because you've increased the density of the air bubble.

Further Investigation

- Does changing the size of the bottle affect how much force you have to use to make the straw sink?
- Does the water temperature affect this? Use warm or ice water and see what happens.

VIDEOS FOR THIS RESOURCE AT:

INTRODUCTION:



Clickable Link:

<https://youtu.be/12gXo8SugV4>

CONCLUSION:



Clickable Link:

<https://youtu.be/langP21vDFc>

