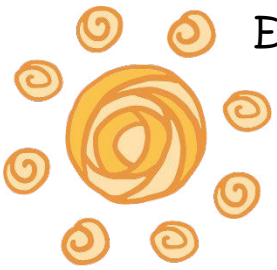
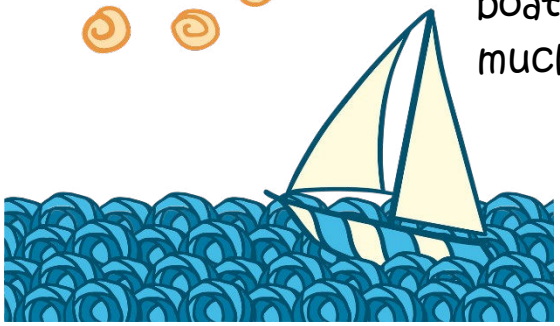
Sink the Boat Experiment



Ever wonder why some objects float while others sink?

In this experiment you will make a boat and investigate how much weight is required to sink it.



Set up time: 5 minutes Wait time: None

What do you need?

1. A bucket, wide vase or empty ice-cream tub
2. Access to a tap
3. Tin foil
4. Coins, beads, marbles or similar small "weights". We used 5 cent coins.

What do you do?

1. Get a sheet of tinfoil, fold it in half several times until you have a small sturdy square about the size of the palm of your hand.

2. Gently push in the centre of the tin-foil square and shape the edges up to create a small tin-foil "boat". Try to keep the base of the boat fairly wide so it can stay balanced, but make sure the edges are raised, so water can't get in.
3. Fill your bucket or vase three-quarters full with water.

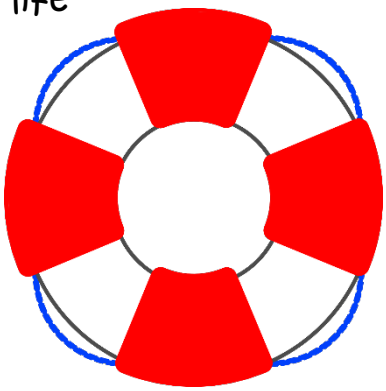
4. First you will drop one of your "weights" (a penny coin, or a marble) into the bucket/vase. Do you think it will sink or float? Retrieve the coin.
5. Now, try your tin-foil boat. Do you think the boat will float or sink on the water? Why? Place it on the surface and see what happens…

6. Next, carefully place one coin, marble or similar small 'weight' into the boat. Does it still float? How many coins do you think it will take to sink the boat? Make a guess.
7. Repeat Step 5 adding one coin at a time until the boat sinks – how many coins did it take to sink the boat? Were you close? Why do you think the boat sank?

Find out how many coins it took to sink our boat here: https://youtu.be/IpECvJAQXRU

Explanation (Sciencey bit!):

Whether an object floats or sinks has to do with its **density** – that means how tightly packed the tiny molecules that make up the object are! A rock has very densely packed molecules, so it will sink; but air has very loose molecules, and that's why life-rings filled with air, float on the surface.



The object's shape is important too; objects that have a lot of surface touching the water float better than objects with very little surface area. An object's ability to float is called its **"buoyancy"**.

Can you name three things that sink and three things that float?

Follow-Up Ideas:

- Get creative with your boat-building! Try building a boat that's low and wide, and a boat that's tall and narrow. Which is more stable? Which holds more weight?
- Why not use different materials to build your boat, for example try using modelling clay, or using an empty butter tub as a boat.
- Does the boat react the same way in saltwater as in freshwater? Use warm water and dissolve a few teaspoons of table salt in it – does it affect the amount of weight your boat can carry?

See a demonstration of a similar experiment here:

Primary School link: https://www.youtube.com/watch?v=jj-vKtmtljw

Secondary School link: https://www.youtube.com/watch?v=rpH6oVtLjT8