Science

Try this experiment – I would love to hear all about your results on the facebook page – what did you find out NOT what a mess you made!!!!!!!!!

SINK THE FOIL BOAT!

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<td>You will need:

Aluminium foil

A tub of water or a sink or the bath!

Marbles, metal nuts or anything else you want to use as weights

Optional: A scale to measure the weight

A mess bucket and cleaning materials</td>
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Tear off a square of foil roughly 30cm by 30cm.</td>
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Fold the edges of the foil to form a neat square. This also allows the side of the foil boat to be stronger.</td>
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3. Make the boat shape. Try cube-shaped barges vs. speedboat shapes!

Add marbles or similar weights one by one into the boat until it sinks! You could also measure the weight of each object you add to the boat for additional rigour (it is a competition after all!).

Completely sunk! Try again, can you do better with a different boat design?

Other ideas to try:-

- Can you reduce the amount of foil and still hold the same number of marbles?
- What happens if you use a liquid other than water?
- Does it matter where you place the weights within the boat?

The Science Bit!!!!

What is happening?

Things float in water due to displacement and the resultant forces that act back on the object. Displacement is simply an object pushing a liquid or gas out of the way. When you place an object into water, it displaces the water out of the way. That same water pushes back at the object.

- If the weight of the water that was displaced is more than the weight of the object, the object will float. This floating is due to the force of that water pushing upwards being **greater** than the force of the object pushing downwards.
- If the weight of the water displaced is less than the object's weight, the object will sink. This floating is due to the force of that water pushing upwards being **lesser** than the force of the object pushing downwards.

This is about Archimedes principle which states:

"Any object, wholly or partially immersed in a fluid, is buoyed up by a force equal to the weight of the fluid displaced by the object."