

# Suzy's World

## Float - Why do some things float and some things sink?

### Fact

- When we see something balancing on top of the water we say it is floating – if it goes under the water even down to the bottom we say it has sunk.
- Water has a pressure called up thrust – that pushes up on things. If the water's push upwards is greater than an object's weight or mass, the object will float because the water pushes the object up.
- If an object is heavier than the water's up thrust the object will sink.
- The bigger the area of the object that's touching the surface of the water the more likely it is to float.
- Objects full of air are more likely to float too because air is lighter than water.

### Do you know

- The huge cruiser liner ships made of iron and steel float because the hull (the bottom of the boat which is underwater) is full of air. It's the air that enables the ship to float. If the hull were made of solid metal the ship would sink because it would be heavier than the water's up thrust.

### Experiments you can do

- Next time you go swimming see if it's easier to float stretching out flat on the surface of the water or scrunched up in a ball. Why would that be?  
When you're stretched out you have a bigger surface area – more of you is touching the water at one time – so the water has more to push against to hold you up in the water.
- Take some heavy objects to test what can you do to them to help them float better. Can you tie things on that will help them float?  
If you tie on enough things that float your heavy object will float too – because the combination of all the objects will end up being lighter than water.
- Try pushing things that float well under the water and watch what happens when the up thrust of the water pushes against them.  
If the things will float they've probably got a lot of air in them – air is lighter than water so the up thrust of the water pushes them back to the surface fast!

### Other Investigations

Next time you have a bath watch the level of the water as you hop into it. Does it change?

Use a piece of plasticine or a piece of tinfoil and see which shape will float the best – a round ball, flat raft shape, a deep boat shape, or maybe another shape.

### Jokes

Why do stones sink? Because they don't know how to swim.