

## Activity: Float or Sink

On SCOPE's Ocean Exploration episode, you saw Julia test out the 'sink-ability' of some objects! Here's how she did it.



### What you need:

Lots of small objects from around your house e.g. pen cap, coins, plastic toys, rubber band etc.  
(make sure you don't get anything that will be damaged by water!)

2 large clean containers filled with water

Unopened regular soft drink can

Unopened diet soft drink can

Large glass of water

Egg

Salt

Tablespoon

### What to do:

1. Start by placing your objects into two piles; one pile for the objects you think will float and another pile for the objects you think will sink.
2. Drop the objects into a container to test out your theories. Were you correct?
3. Next, place the two soft drink cans into the other large clear container. What happens?
4. For the final activity, place the egg in the glass of water. The egg should sink to the bottom.
5. Add to the water one tablespoon of salt and stir until it has dissolved. Be careful not to break the egg!
6. Continue adding one tablespoon of salt at a time, until the egg floats to the top of the water!

### What's happening?

Whether or not an object floats or sinks depends on its buoyancy, which is the upward force that keeps things afloat.

One thing that affects buoyancy is density, which is the mass in a certain volume. If an object is *more* dense than a liquid, it will sink in that liquid; if it is *less* dense than the liquid, it will float.

Density is the reason that the regular soft drink can sinks to the bottom of the clear container, while the diet soft drink can floats to the top. Even though they are the same size and shape, the regular soft drink can is full of sugar and it actually weighs more, therefore it's more dense than water and sinks. On the other hand, the diet soft drink can has no sugar, so it is less dense than water and floats.

Whether something floats or sinks doesn't just depend on the object but also the water it is immersed in. When you drop the egg into the water, it sinks to the bottom because it is more dense than water. But by dissolving the salt, you are adding more particles to the water without changing the volume, which makes it more dense. The more salt you add the more dense it becomes until the water is more dense than the egg, and the egg floats up to the top of the container!