| Student experiment (1st - 4th grade) | **The monster in the salt lake** | **Time:** max. 15 min. |
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**Safety:**

**Instruments:**

- plastic shopping cart chip (other plastic chips roughly 2-3 cm in diameter and a few millimeters thick can also be substituted)
- a tall glass (roughly 1 liter)
- a table spoon

**Chemicals:**

- table salt
- tap water
- a grape

**Experiment:**

- If your plastic chip is unmarked, use a waterproof marker to draw a face on one side. Select a large grape.
- Fill the glass just over half full with water. Place the chip and grape into the glass so that they sink to the bottom.
- Put three tablespoons of salt into the water and stir carefully until the salt dissolves. Add another tablespoon of salt stir and repeat several times.

**Advice for the teacher:**

Salt sinks to the bottom just like the other objects. It slowly dissolves when stirred. Once a certain amount dissolves, the chip floats upwards. It is the lightest object. Additional salt eventually causes the grape to rise, too. Lighter objects float first, heavier objects follow.

This explanation is OK for younger pupils, but is only half of the truth. Floating or sinking actually depends on an object's density. The denser an object, the more mass per a selected unit of volume (scientists have chosen the standard unit grams/$cm^3$ for ease of comparison). A plastic cube one centimeter on each side is denser than a similar cube of water and therefore sinks in a water bath. A styrofoam cube exactly the same size floats, however, because it is far less dense than the surrounding water. Adding salt to the water makes it denser (the salt fits in between the water molecules and adds it's mass to the whole mix). We finally reach the point where saltwater becomes denser than plastic: the less dense chip floats!

The pupils should learn that objects denser than water sink and vice versa.

Tip:
It's a good idea to add lots of salt initially! Otherwise the experiment takes too long. A grape is approximately as dense as the human body.