

Density Experiments

It is useful to know about the different characteristics — or properties — of objects. One important property of matter is density. Density describes how tightly packed matter is and helps explain the difference between solids, liquids and gases.

Objective

Investigate density by observing that liquids with different densities separate into layers, and discover how to change the density of a liquid to determine whether or not a hard-boiled egg will float in water.

Materials

- a spoon
- cooking oil
- ice cubes
- water
- salt
- three large beakers
- a hardboiled egg

Safety Notice: All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

Procedure #1

1. Fill one beaker halfway with cooking oil
2. Gently place an ice cube into the oil. Do you think it will sink or float?

3. Watch the ice cube for about 15 minutes, and note your observations.

- What happened to the ice as it melted and turned into water? Do you know why?

- Which liquid is more dense, the water or the oil?

Procedure #2

1. Fill two beakers half-full with plain water.
2. Add salt to the water in one beaker and stir well. Add enough salt so the water gets cloudy.
3. Pour the plain water slowly over a spoon into the beaker of salt water. (If you've done it right, you should be able to see a clear difference between the two kinds of water.)
4. Now lower the hard-boiled egg very gently into the beaker. What happens to the egg? Note your observations, and draw what you see.

Conclusions

- Which liquid is more dense: fresh water or saltwater?

- What do your observations tell you about the density of the egg?
