

Densities - Coke vs Diet Coke

To demonstrate: that things that look the same can have different densities.

Equipment: Can of Coke, Can of Diet Coke, tall glass/plastic container, water

Procedure

- Show a can of Coke to the students
- Ask the students: **Will it sink or will it float?**, get them to put up their hands.
- Put the can of coke into the container (upside down and at an angle) - **it will sink.**
- Repeat the above procedure with a can of Diet Coke - **it will float.**
- Ask the students: **What is in Coke that is not in Diet Coke?** After some time they will say **sugar.**



What happened?

The volumes of the cans are the same but their weights are different because there is sugar in Coke and a sweetener in Diet Coke. The sweetener is less dense than sugar. The difference in weights of the cans are very small but this is enough to make the Coke can more dense than water and the Diet Coke less dense.

Precautions

1. When you are putting in the can of Coke, make sure that you put it in upside down and at an angle, this is to prevent air from being trapped in the top of the can which will keep the can of Coke from sinking.
2. Try this demonstration before hand because some Coke cans don't sink. We are not clear why this happens but it happened during a show!