

Oil and Water

Materials

- Plastic bottle with lid, approximately 600ml size
- Food colouring
- Water
- Vegetable oil



Instructions

1. Half-fill the plastic bottle with water and add a few drops of food colouring.
2. Fill the bottle to the top with vegetable oil.
3. Screw the lid tightly onto the bottle and wrap the lid firmly with duct tape or electrical tape to prevent children from removing the lid.

What happens?

The oil floats on top of the water because oil has a lower density than water. Density is a measure of the amount of mass in a given volume. If the bottle is shaken, the oil and water will swirl and mix together, forming droplet of oil suspended in the water. If the bottle is allowed to sit still, the oil will float to the top again as the liquids separate. Oil and water do not mix well as oil will not dissolve in water.

Related activity

Add a small amount of oil and water to a bottle and shake. Observe that the two liquids separate after some time. Add a few drops of dishwashing liquid to the bottle and shake again. This time, the liquids mix with the help of the dishwashing liquid. The detergent in dishwashing liquid can mix with both oil and water, allowing the two liquids to form an 'emulsion'. This helps get dirty dishes clean as the dishwashing liquid can mix with oily foods and carry the oil away into the dishwasher.

Health and safety considerations

Take care to securely close the bottle with tape to ensure children cannot remove the lid and drink the liquid.