

Bubbling Bottle

Action

Changes in the temperature of the water surrounding a bottle will change the behavior of the water inside the bottle.

Grade Level

Grade 3 - Heating and Cooling

Materials

- Drinking straws
- A glass of water
- Cold water
- Hot water
- A large dish
- Tape
- Plastercine
- Food colouring
- A small plastic bottle

Instructions

- Place a straw in the bottle so that one end is in the bottle and the other end is sticking out. Use the plastercine to hold the straw in place and seal the mouth of the bottle.
- Using the tape, attach enough straws together so that the free end of the straws can be put in the glass of water.
- Add some food colouring to the glass of water.
- Place the bottle in the dish and place the free end of the straw in the glass of water.
- Pour hot water over the bottle - students will be able to see bubbles of air in the water.
- Pour cold water over the bottle - students will be able to see water being taken up into the straw.

Safety

No safety concerns.

Hints

Ensure that there are no leaks at the connections between the straws and that the plastercine properly seals the bottle.

Science Principle

Plastic is a poor conductor of heat. The heat from the hot water passes to the air inside the bottle. The warm air in the bottle expands, pushing some of the air out through the straw and creating bubbles in the glass of water. When the cold water is poured over the bottle, the air inside the bottle contracts. Since the air takes up less space, water is drawn into the straw.