

CONSTRUCT A THERMOMETER

Your Scouts can measure temperature shifts with this simple science project

SUITABLE FOR **BEAVERS**, **CUBS** AND **SCOUTS**

1 First, ask your young people to take the empty water bottle, add a few drops of food colouring to it (1) and then fill it to the top with lukewarm water. The food colouring will make the results of the experiment more visible.

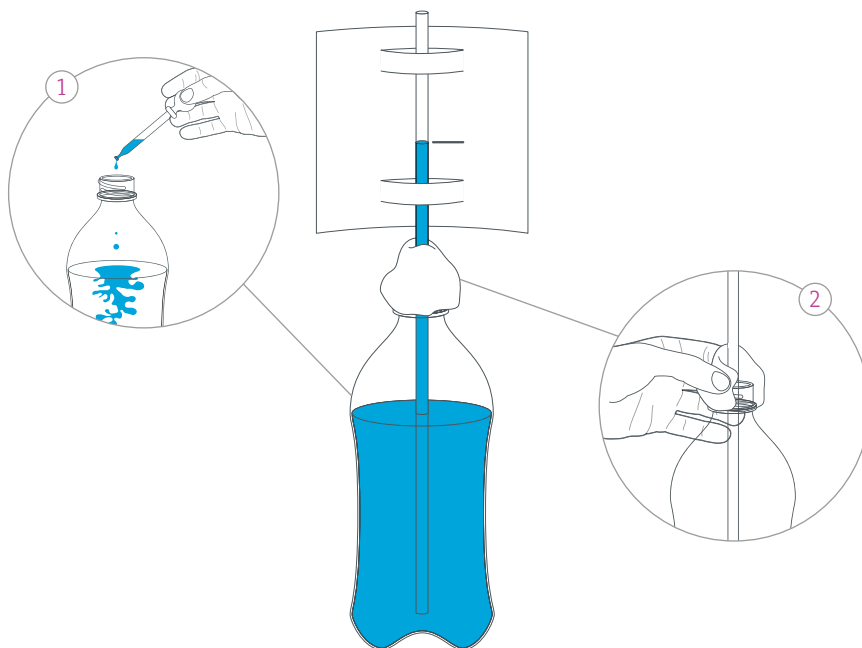
2 Next, put the straw into the bottle, holding it in place with modelling clay (2). Leave at least 10cm of straw sticking out of the top and make sure it does not touch the bottom of the bottle. Ensure the clay seal is tight. Water should travel up the straw.

3 To test the thermometers, ask the Group to place them in a bowl of iced water. Watch the level of the

coloured liquid inside the straw – as the cold penetrates, the liquid in the straw will drop downwards. To prevent the liquid in the straw from evaporating, add a drop of oil to the top. Mark the level on the straw.

4 Next place the thermometers in a bowl of hot water. As the solution warms up, the liquid will rise. Mark the level again.

5 Encourage the Scouts to test the thermometer in other parts of the room, eg a sunny window ledge or an outdoor porch. They won't actually be measuring the temperature but rather temperature changes.



TIME NEEDED

60 minutes

EQUIPMENT NEEDED

- Plastic water bottle
- Food colouring
- Clear plastic straw
- Modelling clay
- Ice
- Oil
- Hot water
- Marker pen

THIS ACTIVITY LINKS WITH THE FOLLOWING BADGES



Beaver
Experiment
Activity Badge



Scout
Meteorologist
Activity Badge

OUTCOMES

Your Scouts will see temperature changes in their environment and can use this exercise to learn about the recording of temperatures. They will also witness the cycle of convection, which is when water heats up, becomes less dense and rises; when it cools, it contracts, becoming more dense so that it sinks down.

TAKE IT FURTHER

The next step for this activity would be to make a template on which the measurements from a real thermometer are marked. Add the index card to the straw with clear tape and Scouts can use it to make a note of the temperature as it changes.

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