

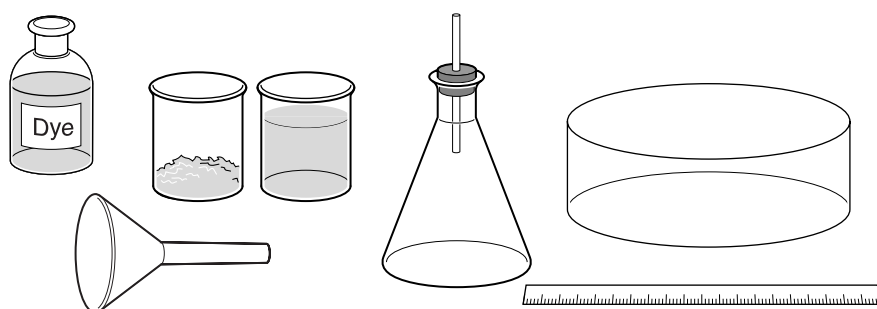
Making a thermometer

How can you make your own thermometer?

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Apparatus

- Conical flask
- Beaker
- Water
- Thin bore glass tubing fitted in a bung
- Ruler
- Large bowl
- Crushed ice
- Water bath set to 50°C
- Coloured dye
- Marker pens
- Eye protection



Be very careful with the glass tubing. It can break easily. Wear eye protection.

Method

- 1 Fill a bowl with crushed ice.
- 2 Put a little coloured dye in the flask, then fill it to the top with cold water. Stand it in the bowl of crushed ice and leave it for 15 minutes.
- 3 Carefully push the rubber bung into the top of the flask. You should see the coloured water in the glass tube. Mark the level of the water in the tube.
- 4 Put the flask into a water bath, and leave it for 15 minutes.
- 5 Mark the new level of the water in the glass tube.
- 6 Divide the distance between your two marks into 5 equal divisions.
- 7 Leave your flask on the bench for 15 minutes (or until the next lesson). Mark the new level of the water.

Considering your results/conclusions

- 1 a What temperature does the bottom mark on your tube represent?
b What temperature does the top mark represent?
c How many degrees does each division represent?
- 2 What was the room temperature you measured using your thermometer?
- 3 Why did you only mark ten-degree divisions?
- 4 How could you work out how much the water rises for each degree?
- 5 Why is this not a very accurate thermometer?
- 6 How could you change the thermometer to make it faster to use?



observing, considering