WJEC England Physics GCSE

Specified Practical

Volume and Temperature

SP2B Investigation of the variation of the volume of a gas with temperature

Equipment

- 20cm^3 syringe with a flexible pipe
- 25cm^3 measuring cylinder
- Thermometer
- Bowls
- Supply of hot and cold water

Diagram

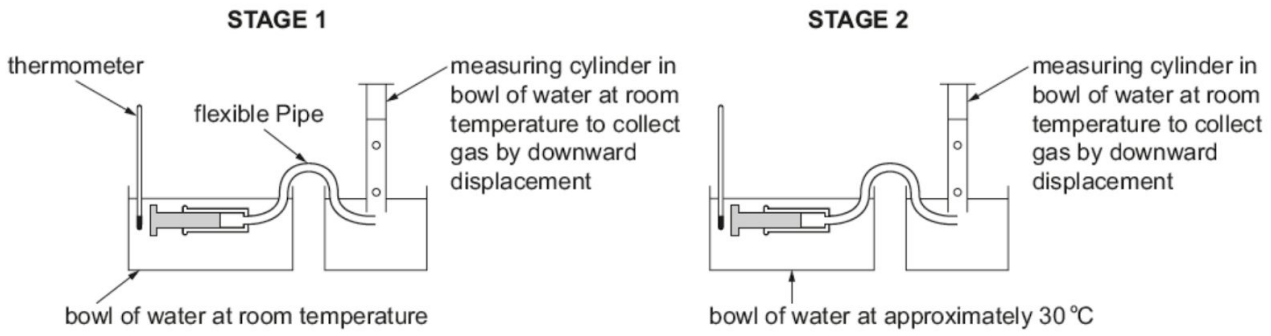

Image: Eduqas

Method

1. Fill the syringe with 20cm^3 of air.
    - Ensure there is nothing else in the syringe
2. Put the end of the flexible pipe into a submerged measuring cylinder to collect any gas released, as shown in the diagram.
3. Submerge the syringe in a bowl of room temperature water for two minutes.
4. Move the syringe to another bowl filled with water at 30ºC.
5. Record the initial volume of water in the measuring cylinder.
6. Wait until the bubbles of gas have stopped and record the final volume of water in the measuring cylinder.
7. The change in volume of the water is the volume of the gas released. Record this volume.
8. Repeat these steps until you have a total of three readings.
9. Repeat the experiment with a bowl of 50ºC water instead of 30ºC.
10. Compare the change in volume at each temperature.

Tips

- You may need to weigh the syringe down with additional masses. You can attach these with an elastic band.

Safety Precautions

- Take care when using hot water as it can cause a burn.