

The effect of temperature on solubility – teacher notes

Introduction

Students heat water with a solute until it dissolves. The solution is then cooled until crystallisation occurs. More water is added. The solution is again heated until the crystals dissolve. The new temperature when crystals appear is recorded.

Equipment

Apparatus

- Eye protection
- Boiling tubes
- Beaker to act as ice bath, 250 cm³
- Beaker to act as a hot water bath, 250 cm³
- Stirring thermometer (-10 –110 °C)
- Measuring cylinder or graduated pipette, 250 cm³
- Wooden tongs to hold hot boiling tube

Chemicals

- Ammonium chloride
- Ice

Health, safety and technical notes

- Read our standard health and safety guidance here <https://rsc.li/3iFPxjf>
- Always wear eye protection.
- Ammonium chloride is harmful if swallowed and an eye irritant, see CLEAPSS Hazcard [HC009a](#).

Notes

This is a good opportunity to introduce the use of quantitative chemical apparatus to younger students.

Students should know that solids are generally more soluble in hot water than in cold water.