# AQA Chemistry GCSE

## Required Practical 4

### Temperature Changes

Methods taken from the AQA Required Practical Handbook

# Temperature Changes

## Aim

Investigate the variables that affect temperature change in chemical reactions.

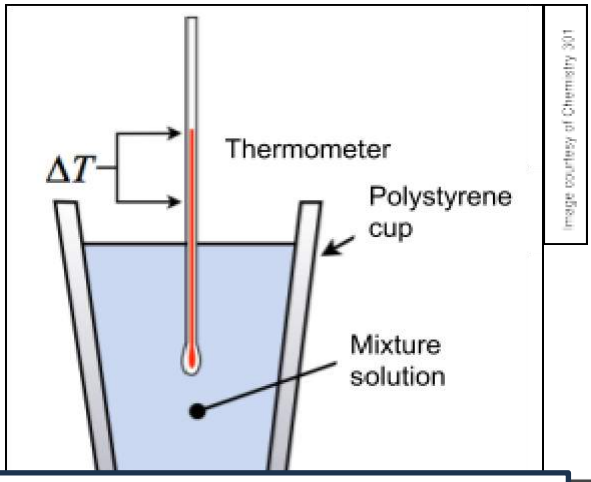
## Equipment list

- 2 M hydrochloric acid
- 2 M sodium hydroxide solution
- Expanded polystyrene cups and lids with thermometer holes
- Thermometers

## Method

1. Measure 25cm$^3$ of hydrochloric acid into a polystyrene cup.
2. Place the cup inside the beaker to make it more stable.
3. Measure and record the temperature of the hydrochloric acid.
4. Measure 5cm$^3$ of sodium hydroxide and add it to the polystyrene cup.
5. Quickly put a lid on the cup and gently stir the solution with the thermometer through the hole of lid.
6. When the reading on the thermometer stops changing and becomes fairly constant, record the temperature.
7. Repeat steps 4 and 5 to add further 5 cm$^3$ amounts of sodium hydroxide to the cup. A minimum total of 40 cm$^3$ needs to be added.
8. Repeat steps 1–7 to ensure reliability of results.
9. Calculate the mean maximum temperature reached for each of the sodium hydroxide volumes

## Diagram



## Safety Precautions

- Wear safety goggles.