

# CAIE Chemistry IGCSE

## 12.1 Experimental design

### Flashcards

This work by [PMT Education](https://www.pmt.education) is licensed under [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/)



Suggest an apparatus that is suitable for measuring time



# Suggest an apparatus that is suitable for measuring time

Stopwatch



Suggest an apparatus that is suitable for measuring temperature



Suggest an apparatus that is suitable for measuring temperature

Thermometer / temperature probe



Suggest an apparatus that is suitable for measuring mass



Suggest an apparatus that is suitable for measuring mass

Digital mass balance



Suggest suitable apparatus for  
measuring volume





# Suggest suitable apparatus for measuring volume

Measuring cylinder

Burette

Volumetric Pipette with pipette filler



What are the advantages and disadvantages of using a stopwatch?



# What are the advantages and disadvantages of using a stopwatch?

Advantages: High level of precision, e.g. to the nearest millisecond

Disadvantages: Dependent on the reaction time of the user, so human error



# What are the advantages and disadvantages of using a thermometer?



# What are the advantages and disadvantages of using a thermometer?

Advantages: Easy to use and cheap

Disadvantages: Limited temperature ranges and less precise than a digital temperature probe



What are the advantages and disadvantages of using a measuring balance?



# What are the advantages and disadvantages of using a measuring balance?

Advantages: Speed of readings to a high level of accuracy, e.g. to micrograms

Disadvantages: Can be affected by air currents and other environmental factors



What are the advantages and disadvantages of using a burette?





# What are the advantages and disadvantages of using a burette?

Advantages: Wide range of burettes so can measure accurate volumes

Disadvantages: Parallax error can occur if reading of the meniscus is taken incorrectly



What are the advantages and disadvantages of using a volumetric pipettes?



# What are the advantages and disadvantages of using a volumetric pipette?

Advantages: Can accurately measure a fixed volume consistently

Disadvantages: Limited to measuring only one fixed volume



What are the advantages and disadvantages of using a gas syringe?



# What are the advantages and disadvantages of using a gas syringe?

Advantages: Measures volumes of gas to a high level of accuracy

Disadvantages: Sensitive to environmental factors such as temperature or pressure changes



# Define solvent



# Define solvent

a substance that dissolves a solute



# Define solute





# Define solute

a substance that is dissolved in a solvent



# Define solution



# Define solution

a mixture of one or more solutes dissolved in a solvent



# Define saturated solution



# Define saturated solution

a solution containing the maximum concentration of a solute dissolved in the solvent at a specified temperature



# Define residue



# Define residue

a substance that remains after evaporation, distillation, filtration or any similar process



# Define filtrate





# Define filtrate

a liquid or solution that has passed through a filter

