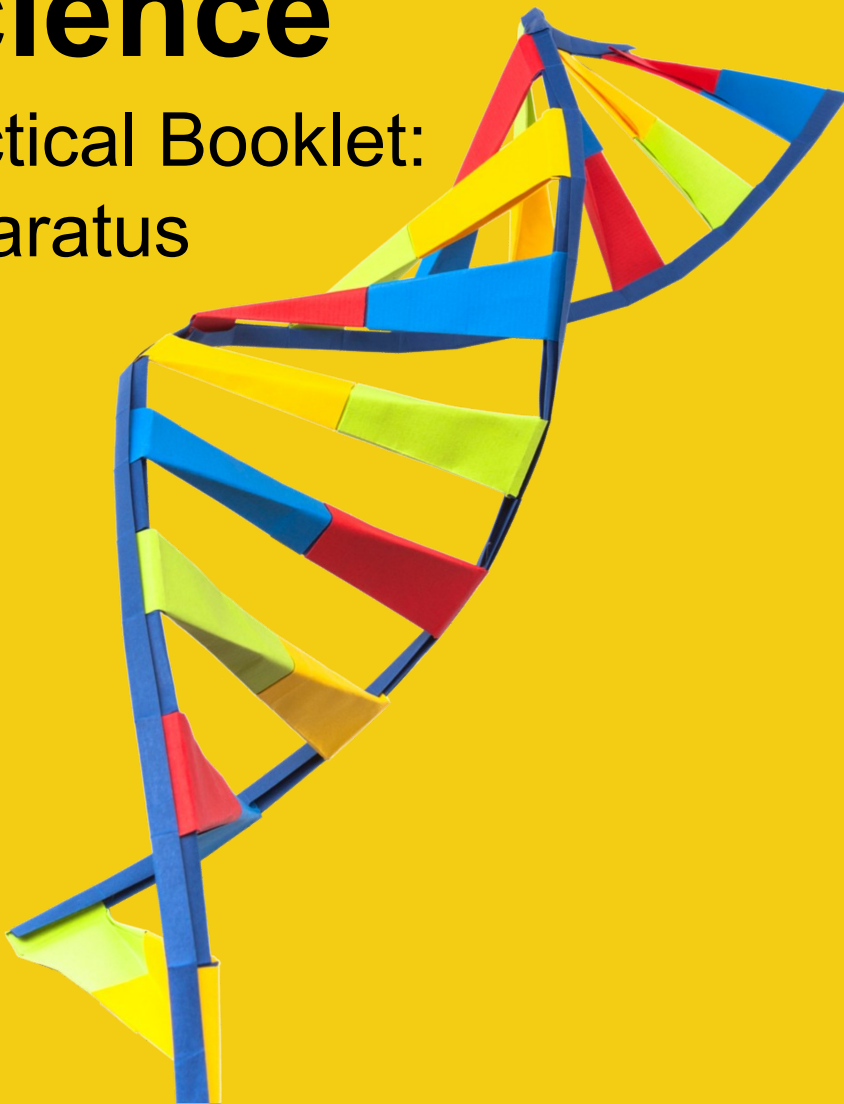
Pearson Edexcel

GCSE Science

Practical Booklet: Apparatus



Practical Terminology Guide:

Introduction

Scientific apparatus are equipment used in science experiments and for taking measurements. These apparatuses help scientists collect data, make observations, and do experiments carefully and accurately. They can be simple apparatus like thermometers and boiling tubes or more complex ones like microscopes and burettes. The type of apparatus used depends on the kind of science and the experiment being done.

Below, you will find a variety of apparatus that is used in the science lab. For each apparatus, there is a short description, an image, and sometimes, a scientific diagram to show how this apparatus may be presented in an exam question diagram or drawing.

Laboratory Equipment

Test Tube

What it looks like in the lab

How it is represented in a diagram

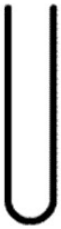
Uses

- Holds small volumes of liquid or solid substances
- Cannot be strongly heated as it melts/shatters.

Boiling Tube

What it looks like in the lab

How it is represented in a diagram

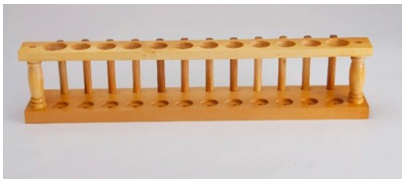


Uses

- Holds small volumes of liquid or solid substances
- Used when heating solids or liquids over a Bunsen

Laboratory Equipment

Test Tube Rack



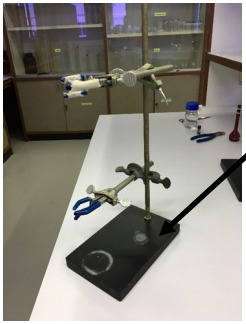
What it looks like in the lab

How it is represented in a diagram

Uses

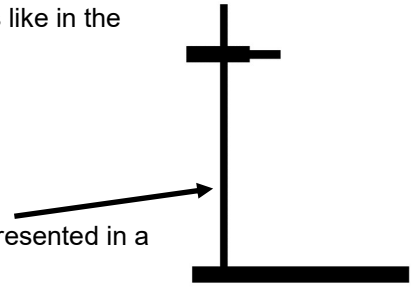
- Holds many test tubes upright. This keeps them stable and stops them tipping over, helping to avoid spills or accidents in the lab.

Retort Stand



What it looks like in the lab

How it is represented in a diagram

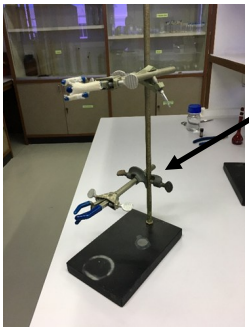


Uses

- Holds different pieces of apparatus in place, such as boiling tubes or springs.
- Often used with a boss and clamp.

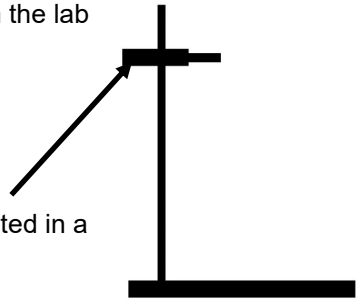
Laboratory Equipment

Boss



What it looks like in the lab

How it is represented in a diagram



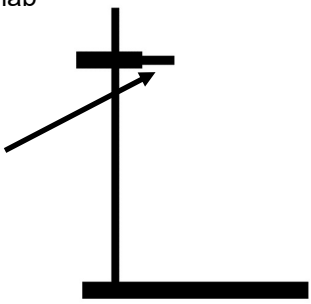
Uses

- Holds different pieces of apparatus in place, such as boiling tubes or springs.
- Often used with a retort stand and clamp.

Clamp

What it looks like in the lab

How it is represented in a diagram



Uses

- Holds different pieces of apparatus in place, such as boiling tubes or springs.
- Often used with a retort stand and boss.

Laboratory Equipment

Bunsen Burner

What it looks like in the lab

How it is represented in a diagram

Uses

- Used for heating, sterilising or burning things.

Tripod

What it looks like in the lab

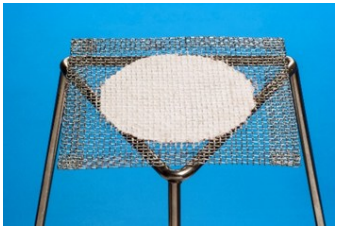
How it is represented in a diagram

Uses

- Holds items above the Bunsen burner.
- Can get very hot during heating.

Laboratory Equipment

Gauze



What it looks like in the lab

How it is represented in a diagram

Uses

- Used with a Bunsen burner and tripod. Used to hold items above the Bunsen burner that are too small for the tripod.
- Distributes heat evenly across the surface of the white patch/circle in the middle.

Spirit Burner/Alcohol Burner

What it looks like in the lab

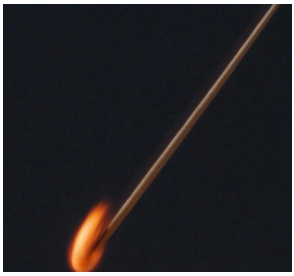
How it is represented in a diagram

Uses

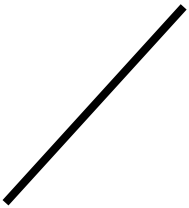
- Contains a liquid fuel (often an alcohol). Used for heating.

Laboratory Equipment

Splint



What it looks like in the lab



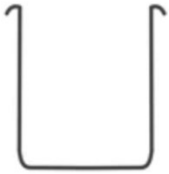
How it is represented in a diagram

Uses

- Use to light Bunsen burners or substances such as gases when performing gas tests.

Beaker

What it looks like in the lab



How it is represented in a diagram

Uses

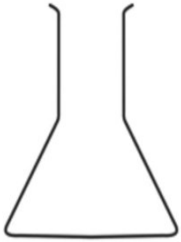
- Used for holding different volumes of liquids, more than a test tube. Available in various volumes.
- Can be made from glass or plastic.

Laboratory Equipment

Conical Flask

What it looks like in the lab

How it is represented in a diagram



Uses

- Used for holding liquids, mixing solutions or completing chemical reactions.
- Designed to make it easy to swirl or mix liquids

Measuring Cylinder

What it looks like in the lab

How it is represented in a diagram

Uses

- Used to measure volumes of liquids. Come in a variety of sizes/volumes.

Laboratory Equipment

Funnel

What it looks like in the lab

How it is represented in a diagram

Uses

- Cone shaped to assist with transferring liquids from one container to another or to containers with narrow openings e.g. conical flask.
- Also used with filter paper when filtering liquids.

Dropping Pipette (Pipette)

What it looks like in the lab

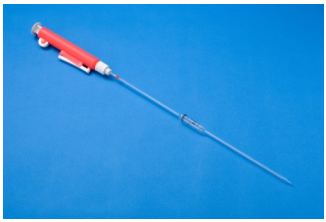
How it is represented in a diagram

Uses

- Used to transfer and dispense small volumes of liquid.

Laboratory Equipment

Volumetric Pipette



What it looks like in the lab

How it is represented in a diagram

Uses

- Used to accurately transfer a measured volume of liquid from one container to another.

Burette

What it looks like in the lab

How it is represented in a diagram

Uses

- Used to accurately dispense precise volumes of liquid.
- Often used as part of a titration set up.

Laboratory Equipment

Syringe

What it looks like in the lab

How it is represented in a diagram

Uses

- Used for measuring and transferring precise volumes of liquid.

Gas Syringe

What it looks like in the lab

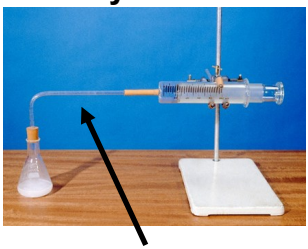
How it is represented in a diagram

Uses

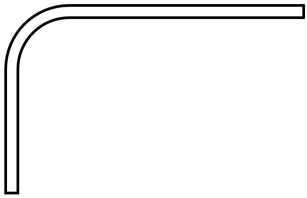
- A special type of syringe, often larger and made of glass which is used to measure the volume of gases produced during chemical reactions.

Laboratory Equipment

Delivery Tube



What it looks like in the lab



How it is represented in a diagram

Uses

- A thin glass or plastic tube, used to transfer liquids or gases from one container to another.
- Often seen as part of the set up for gas collection

Thermometer

What it looks like in the lab

How it is represented in a diagram

Uses

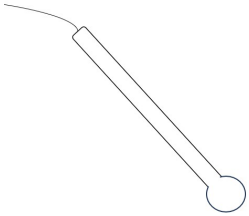
- Used to measure temperature.

Laboratory Equipment

pH Probe

What it looks like in the lab

How it is represented in a diagram

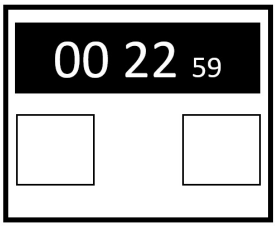


Uses

- Used to measure how acidic or alkaline a solution is, find the pH of the solution.
- The sensor is often the only part shown in any equipment diagram.

Stopwatch/Stop clock

What it looks like in the lab



How it is represented in a diagram

Uses

- Used to measure the time between the start and end points.
- Not usually shown in diagrams.

Laboratory Equipment

Electronic Balance

What it looks like in the lab

How it is represented in a diagram

Uses

- Used to measure the mass of an object or substance.
- More sensitive balances have a greater number of numbers after the decimal place.
- Not often shown in diagrams.

Evaporating Dish

What it looks like in the lab

How it is represented in a diagram

Uses

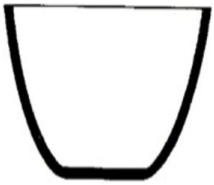
- Used to evaporate solutions. Often made from a ceramic material.

Laboratory Equipment

Crucible

What it looks like in the lab

How it is represented in a diagram

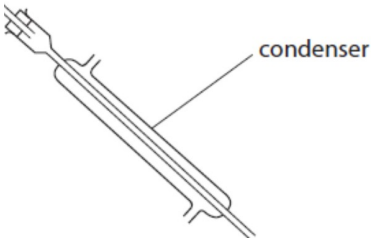


Uses

- Used for heating substances to high temperatures. Fragile as they are often made from porcelain or ceramic material.
- Sometimes has a lid.

Condenser

What it looks like in the lab



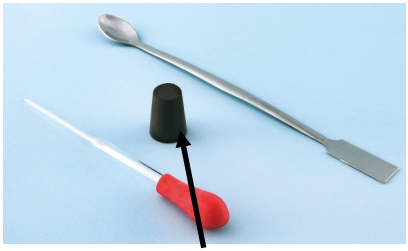
How it is represented in a diagram

Uses

- A piece of glass wear used to cool and condense gases back into liquids.
- Often seen as part of the distillation set up.

Laboratory Equipment

Bung



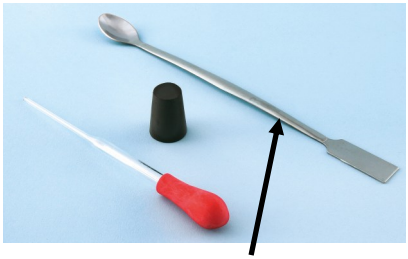
What it looks like in the lab

How it is represented in a diagram

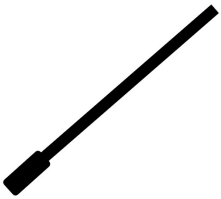
Uses

- A rubber stopper used to seal containers such as boiling tubes or conical flasks, preventing gases escaping.

Spatula



What it looks like in the lab



How it is represented in a diagram

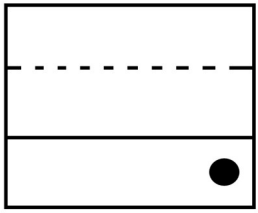
Uses

- Made from metal or plastic, used for transferring substances.

Laboratory Equipment

Water Bath

What it looks like in the lab



How it is represented in a diagram

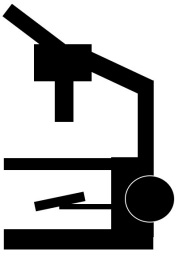
Uses

- A large container filled with water that is heated to a specific temperature. Used to keep substances at a set temperature or heat substances gradually.
- Not usually shown in diagrams.

Microscope

What it looks like in the lab

How it is represented in a diagram

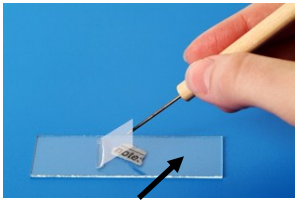


Uses

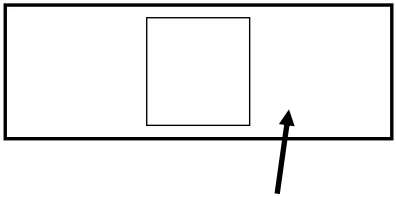
- Used to view small objects.
- Has several different lenses to increase magnification.

Laboratory Equipment

Slide



What it looks like in the lab

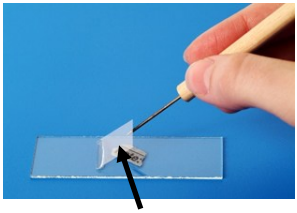


How it is represented in a diagram

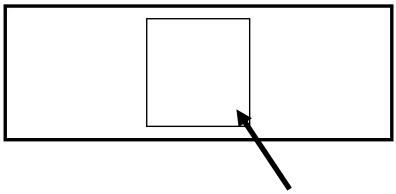
Uses

- A flat piece of glass, where a specimen is placed for viewing under a microscope.
- Not usually shown in diagrams.

Coverslip



What it looks like in the lab



How it is represented in a diagram

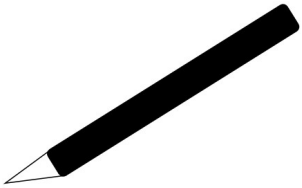
Uses

- A very thin, square piece of glass or plastic that is placed over a specimen when viewing under a microscope slide.
- Not usually shown in diagrams.

Laboratory Equipment

Scalpel

What it looks like in the lab



How it is represented in a diagram

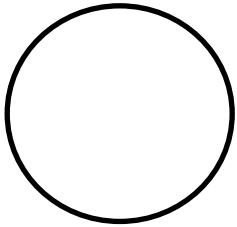
Uses

- A small, sharp knife used for precise cutting or dissection of tissue samples /biological materials.
- Not usually shown in diagrams.

Petri Dish

What it looks like in the lab

How it is represented in a diagram



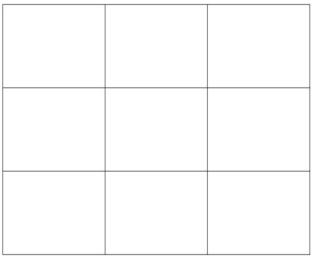
Uses

- A shallow, round dish, often with a lid; made of glass or plastic. Used for growing microorganisms in the lab.

Laboratory Equipment

Quadrat

What it looks like in the field



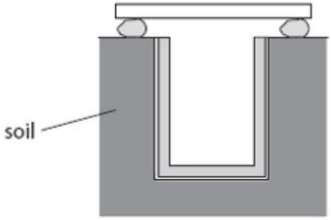
How it is represented in a diagram

Uses

- A square sampling tool. Used to study and count organisms in a particular area.
- Come in a variety of sizes.

Pitfall Trap

What it looks like in the field



How it is represented in a diagram

Uses

- A sampling device used to collect small invertebrates living on the ground.
- Can be used with or without bait..

Laboratory Equipment

Spring

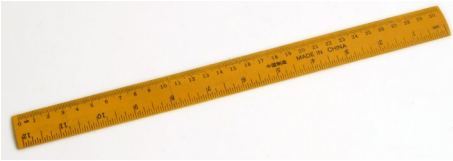
What it looks like in the lab

How it is represented in a diagram

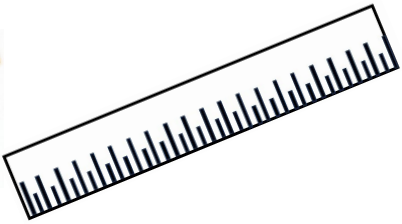
Uses

- A mechanical device that stores potential energy when bent or stretched. It releases this energy when returning to its original shape.

Ruler



What it looks like in the lab



How it is represented in a diagram

Uses

- Used to measure lengths.

Laboratory Equipment

Force Meter/Newton Meter

What it looks like in the lab

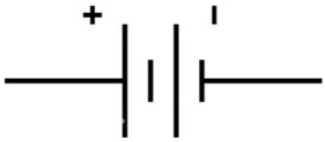
How it is represented in a diagram

Uses

- A device used to measure force or weight.
- Usually used in Hooke's Law experiments.

Battery

What it looks like in the lab



How it is represented in a diagram

Uses

- A device that stores chemical energy and converts it to electrical energy. Used to provide electrical energy to small devices.

Laboratory Equipment

Power Pack/Power Supply

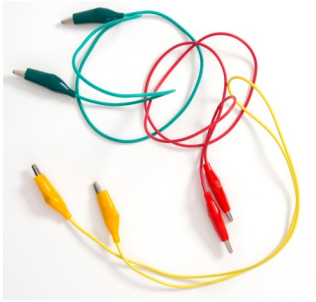
What it looks like in the lab

How it is represented in a diagram

Uses

- A device connected to the mains supply. Used to supply electrical energy to other devices.
- Can provide lower voltages than mains supply.

Wires



What it looks like in the lab

How it is represented in a diagram

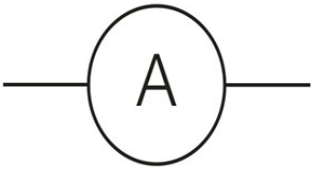
Uses

- A thin metal wire with an insulating layer around the outside. Used to conduct electricity between components in a circuit.

Laboratory Equipment

Ammeter

What it looks like in the lab



How it is represented in a diagram

Uses

- An electrical instrument used to measure the current flowing in a circuit.

Voltmeter

What it looks like in the lab

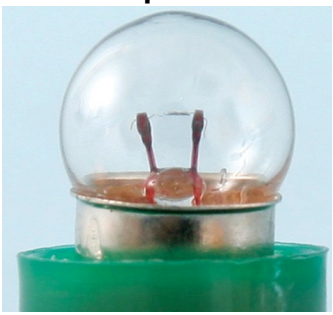
How it is represented in a diagram

Uses

- An electrical instrument used to measure the voltage between two points in a circuit.

Laboratory Equipment

Bulb/Lamp



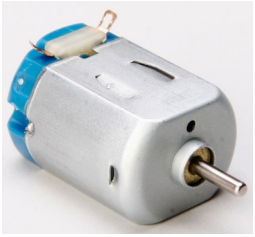
What it looks like in the lab

How it is represented in a diagram

Uses

- A component that converts electrical energy into light energy. It emits light when electrical energy is passed through it.

Motor



What it looks like in the lab

How it is represented in a diagram

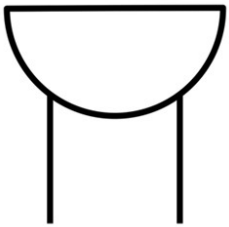
Uses

- A component that converts electrical energy into kinetic energy., allowing the movement of objects attached to it.

Laboratory Equipment

Buzzer/Speaker

What it looks like in the lab



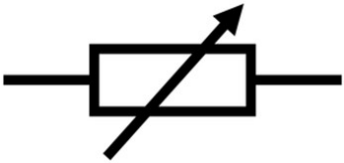
How it is represented in a diagram

Uses

- A component that converts electrical energy into sound energy, producing a noise as electricity is passed through it.

Variable Resistor

What it looks like in the lab



How it is represented in a diagram

Uses

- Also called a rheostat, it is a component that allows resistance to be adjusted.

Exam Exemplars

Exemplar 1

Foundation Chemistry 1CH0_2F_Question paper 2019

Q6a

(a) Name the apparatus that could be used to measure out 100 cm^3 of dilute hydrochloric acid.
(1)

Question number	Answer	Additional guidance	Mark
6(a)	Any suitable container for measuring volume of 100 cm^3 eg measuring cylinder	allow burette / pipette ignore beaker, conical flask, measuring jug	(1)

Examiners' report: This response was well answered on the whole with most responses scoring the 1 mark available.

The majority of responses correctly referred either to 'measuring cylinder' or occasionally a 'burette' or 'pipette' as the correct piece of apparatus needed to measure the dilute hydrochloric acid.

Misconception: Commonly seen errors in incorrect responses included the use of a: measuring tube; measuring

Exam Exemplars

Exemplar 2

Foundation Chemistry 1CH0_1F_Question paper 2022

Q3bi and ii

(b) A student wanted to distil a sample of potable water.
Figure 6 shows apparatus the student used.

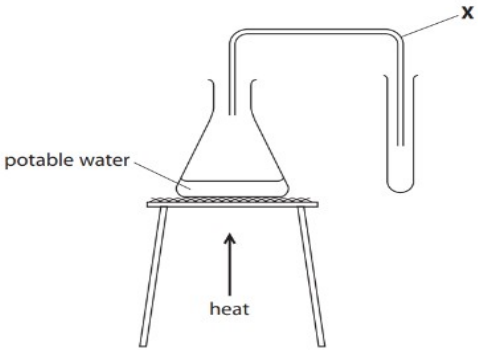


Figure 6

(i) Name the piece of equipment labelled **X** in Figure 6.

(1)

Question number	Answer	Additional guidance	Mark
3(b)(i)	(delivery) tube	allow {glass / rubber / plastic} tube	(1) AO2-1

(ii) The student made an error when setting up the equipment in Figure 6.
This error meant no water could be collected in the test tube.

Explain what the student needs to do so water can be collected.

(2)

Question number	Answer	Additional guidance	Mark
3(b)(ii)	an explanation linking: add bung / cork (to top of flask) (1) (so) {water / vapour / gas / steam} cannot escape (from top of flask) / will go into {(delivery) tube/ X} (1)	 ignore seal / block / lid / cover etc allow stopper allow incorrect naming of flask ignore 'so water is collected' allow incorrect naming of delivery tube mark independently for max 1 allow replacement of X with a (Liebig) condenser / cooling of delivery tube / ice bath around test tube (1)	(2) AO3 - 3b

Exam Exemplars

Examiners' report:

3 b I Candidates found naming the delivery tube challenging.

Misconception: Many candidates were not awarded the mark for a variety of incorrect answers ranging from scientific equipment, a condenser to filtration tube, to common words, such as water straw.

3 b ii Most candidates understood that the water vapour was escaping. However, fewer candidates knew the correct terminology to describe the bung that should be used to overcome the problem.

Misconception: References to using a lid, or cover, were frequently seen and did not gain credit. The following is a response that was awarded zero marks.

Exam Exemplars

Exemplar 3

Foundation Biology 2018 (1BI0_2F_Exam-paper_20180612

Q9ai

9 A student compared the number of stomata on the upper and lower surfaces of a leaf.

She completed a leaf peel as shown in Figure 22.

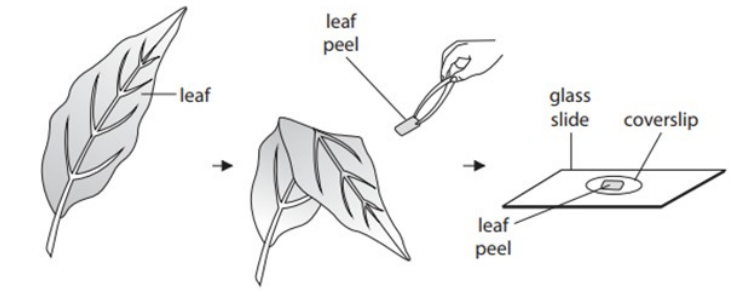


Figure 22

The layer of nail varnish shows an impression of the cells on the surface of the leaf.

(a) (i) State why a coverslip is placed on top of the leaf peel.

(1)

Question number	Answer	Additional guidance	Mark
9(a)(i)	Any one from: • keep leaf peel flat (1) • keep leaf peel in place (1) • protect the (objective) lens (1) • protect the specimen (1)	ignore to prevent drying out	**(1)** AO 2 2

Exam Exemplars

Examiners' report: Acceptable responses were those which referred to keeping the sample still or keeping it flat. Also acceptable was the idea of protecting the sample from damage. Contamination by bacteria was not creditable

Misconceptions: There are some misconceptions about the use of a coverslip with many candidates believing that it is used to allow light to shine onto the sample.

Exemplar 4

Higher Chemistry 1CH0_2H_Question paper 2019

(a) A student wanted to measure the amount of gas produced in two minutes.

The student suggested that this could be done by counting the number of bubbles formed.
However, the bubbles are produced too quickly to count them.

Figure 4 shows a conical flask in which the calcium carbonate and dilute hydrochloric acid are reacting.

Complete Figure 4 to show the apparatus that could be used to measure accurately the volume of gas given off in two minutes.

(2)

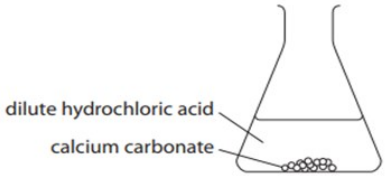


Figure 4

Exam Exemplars

Question number	Answer	Additional guidance	Mark
8(a)	delivery tube, not in liquid, connected to flask sealed with a bung/cork (1) gas syringe / measuring cylinder or burette inverted over water (1)	do not allow a single line for a delivery tube allow sealed cross sections (e.g. delivery tube going through solid bung) labels and graduations not required mark independently	(2)

Examiners' report: it was pleasing to see that the majority of candidates were familiar with this experiment and therefore the apparatus that should be required. However, the skill of drawing apparatus was weak. For the second mark, the majority keyed into the question and attempted to draw a gas syringe for accuracy rather than an inverted measuring cylinder over water, however both received credit for this part.

Misconceptions: The first marking point, where candidates lost marks, it was often as they missed key pieces of apparatus for the apparatus to work such as the bung or drawing a bung that clearly left a big gap meaning that the gas would not have been collected in the rest of the apparatus, another common error was where candidates drew a delivery tube that extended down into the dilute hydrochloric acid.

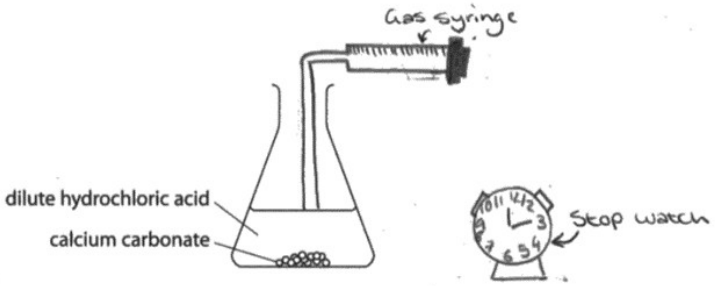


Figure 4

Exam Exemplars

Exemplar 5

Foundation Physics 1PF0_1F_Question Paper 2019

Q3b

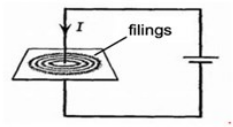
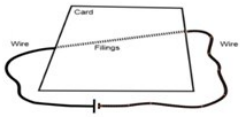
(b) A student has

- a power pack
- a long piece of wire
- a stiff card
- iron filings

Describe how the student could use this equipment to show the shape of the magnetic field produced by a current in the wire.

You may draw a diagram to help with your answer.

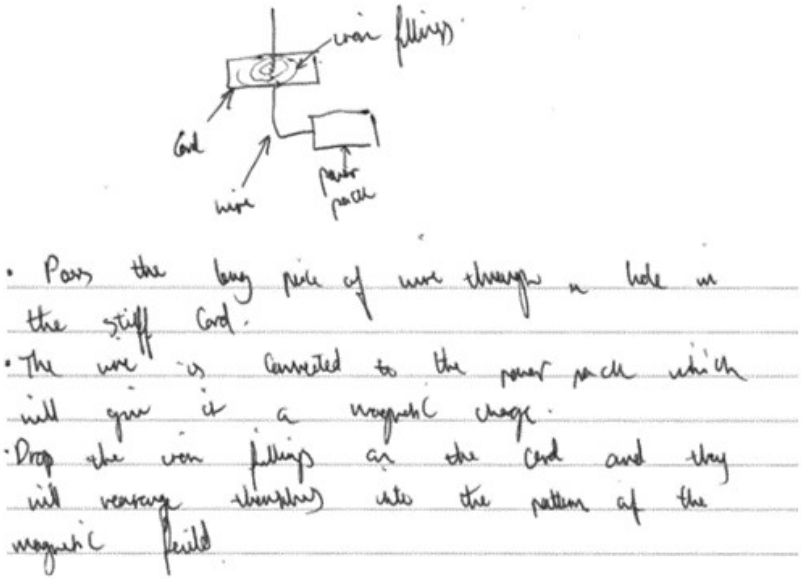
(4)

Question Number	Answer	Additional guidance	Mark
3(b)	An answer that combines four of the following points. MP1: Put wire {through card / near card / under card / over card / round rolled up card } (1) MP2: Put iron filings on card / around wire (1) MP3: Connect wire to power pack One wire is acceptable (1) MP4: Switch on or reference to current / charges flowing (in wire) NOT in filings (1) MP5: Filings attracted / moving / see if wire attracts filings (1) MP6: Pattern seen in filings – circles / lines / onion (1)	IGNORE use of apparatus not specified in the list (Iron nails etc)   marking points can be scored from a diagram filings show shape of field	**(4)**

Exam Exemplars

Examiners' report: Students were asked to describe an experiment to show the shape of a magnetic field produced by a current in a wire. The apparatus to be used was given in the question. It was obvious from the responses that many students had not done the experiment or seen it demonstrated. The mark scheme allowed for students to describe a variety of experiments in which wires, power packs, stiff card and iron fillings had been used.

The response below scores all four marks:



The labelled diagram shows a wire through a piece of card (MP1), iron filings on the card (MP2), the wire connected to a power pack (MP3), a pattern of iron filings (MP6). All four marks can be obtained from the diagram, even though the diagram does not show a complete circuit. Full marks are gained without the need to look at the written work although this correctly supports the diagram.

Exam Exemplars

Exemplar 6

Foundation Chemistry 1CH0_1F_Question paper 2019

(b) Figure 5 shows the apparatus that a student set up to obtain pure water from ink.

There are three mistakes in the way the apparatus has been set up.

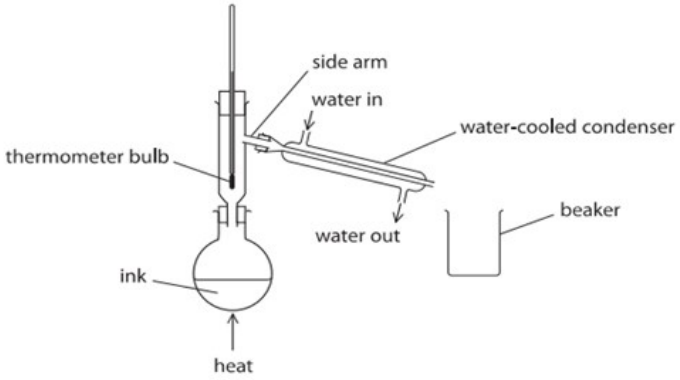


Figure 5

(i) One mistake is that the bulb of the thermometer is too low.

The bulb of the thermometer should be level with the side arm.

Give a reason why the bulb of the thermometer should be level with the side arm.

(1)

(ii) State **one** other mistake in Figure 5.

(1)

Exam Exemplars

Question number	Answer	Additional guidance	Mark
4(b)(i)	to measure the temperature of the {water vapour / steam / gas} passing into the condenser	to measure the boiling point of the water / the vapour should be at 100 °C when collected allow does not measure accurate boiling point where thermometer is on the diagram (or words to that effect)	(1)

Question number	Answer	Additional guidance	Mark
4(b)(ii)	beaker not under condenser exit / water entering condenser in wrong place / water flow in condenser wrong way round	ignore references to no Bunsen burner / clamps shown allow beaker not under where (condensed) water comes out / no {anti-bumping granules / chips} allow beaker {is too far away (from the condenser exit)/ too far to the right / is not in the right place / needs to be closer} reject water out (without reference to end of condenser)	(1)

Examiners' report

Question 4 (b) (i)

This question was poorly answered on the whole with the majority of responses not scoring the 1 mark available. It was clear to examiners that very few candidates really understood the need for the presence of the thermometer in the distillation apparatus, namely to measure the temperature of the water vapour passing into the condenser. This is an area of the specification frequently examined.

Misconceptions: incorrect answers given include, measuring the temperature of the water or ink, or that thermometer would get too hot or that the thermometer was a barrier to the water vapour escaping.

Exam Exemplars

Question 4 (b) (ii)

This question was very well answered on the whole, with the majority of responses scoring the 1 mark available. The most commonly seen correct responses correctly referred to the beaker in the diagram not being under the condenser exit, with fewer responses referring the incorrect water flow in the condenser.

Misconceptions: in those responses which did not score, it was often clear that candidates confused the 'water out' labelled on the condenser with the condenser exit.

(ii) State **one** other mistake in Figure 5.

(1)

The beaker needs to be under the part labelled "water out" so it can catch the water.

ResultsPlus
Examiner Comments

This response did not score since the candidate has incorrectly referred to the 'water out' on the condenser, rather than the exit of the condenser.

Exam Exemplars

Exemplar 7

Foundation Chemistry 1CH0_2F_Question paper 2019

4 A student poured 50 cm^3 water into a beaker and measured the water's temperature.

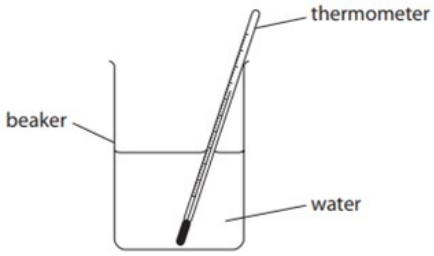


Figure 7

The student added 1.00 g calcium chloride to the water, stirred the mixture and then recorded the temperature.

(a) Give the name of the apparatus that could be used to measure 1.00 g of calcium chloride.

Question number	Answer	Additional guidance	Mark
4(a)	(top pan) balance (1)	allow (weighing) scale(s)	(1)

Examiners' report

This question was well answered with most candidates gaining the 1 mark available. The majority of responses correctly referred to 'balance' or 'scales' as the correct piece of apparatus needed to measure the mass of the solid. The inclusion of the term 'scale' alone in the mark scheme allowed many candidates to score.

Misconceptions: commonly seen errors in incorrect responses included the use of a: measuring cylinder; burette; pipette.

Exam Exemplars

Exemplar 8

Foundation Chemistry 1CH0_1F_Question paper 2019

Q7d

*(d) Ammonia solution and dilute sulfuric acid are used to prepare pure, dry ammonium sulfate crystals.

In an experiment a titration is carried out to determine the volumes of ammonia solution and dilute sulfuric acid that react together.
Then an ammonium sulfate solution is prepared from which the pure, dry crystals are obtained.

Describe in detail, using suitable apparatus, how this experiment should be carried out.

(6)

Question number	Indicative content	Mark
*7(d)	Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlines in the generic mark scheme. The indicative content below is not prescriptive and candidates are not required to include all the material which is indicated as relevant. Additional content included in the response must be scientific and relevant. **AO1 (3 marks) AO2 (3 marks)** • pipette to measure out the ammonia solution (25 cm^3) • into a suitable container, e.g. conical flask • add few drops of methyl orange indicator • put flask on a white tile • fill burette with sulfuric acid solution • read level of liquid in burette • add acid from the burette • swirl flask gently / mix • add drop-wise near end-point • until {indicator just changes colour} • read level on burette • repeat experiment until concordant results owtte • mix the same volumes of sulfuric acid and ammonia solution (determined from the titration experiment) • but leaving out the indicator/methyl orange • pour solution into an evaporating dish • heat the solution to point of crystallisation • leave to cool • filter off crystals • leave to dry	**EXP (6)**

Examiners' report: This area of the specification, the preparation of crystals of a salt and carrying out a titration, is a frequently tested part of this specification and also of the previous specifications and a Core practical.

Exam Exemplars

There were a wide range of indicators chosen across the cohort – but in the main they stated the correct colour change for the one they mentioned. Responses scoring lower level marks, at Level 1, often focused on either the titration or the crystallisation method. In those responses scoring at Level 2, candidates often referred to both the titration and the crystallisation method but not always with complete clarity. In those responses scoring at Level 3, the candidates stated everything required but just missed out repeating without the indicator. This being said, many examiners noted that there were many responses awarded the full 6 marks available - this suggests that they had a clear understanding of the practical procedures involved.

Misconceptions: examiners noted that in the majority of the responses seen there was confusion over terminology for key pieces of apparatus e.g. burette and in the sequencing of steps required. Many candidates simply wrote 'heat the solution with a Bunsen burner' to describe crystallisation.

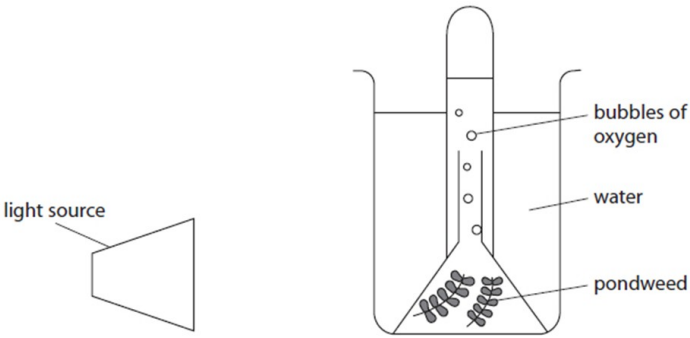
Exam Style Questions

1. A pH meter can be used to measure the pH of a reaction mixture. Why is a pH meter better than an indicator when measuring the pH of a reaction mixture? (1)

2. Name the meter represented by the symbol below. (1)

3. How should you connect the meter above in an electrical circuit? (1)

4. The diagram below shows how a student investigated the effect of light intensity on the rate of photosynthesis by measuring the number of oxygen bubbles in a given time period.



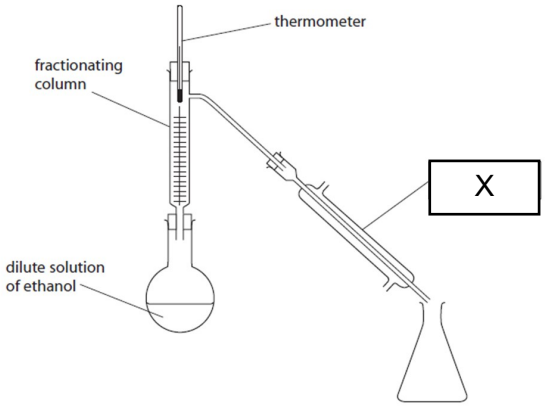
Suggest a piece of apparatus the student could use to measure the amount of gas produced, more accurately? (1)

Exam Style Questions

5. A student wanted to investigate the distribution of four types of seaweed at different distances from the sea at a shore. Name a piece of apparatus the student could use to sample the seaweed. (1)

6. A student wants to find the density of cooking oil. Give the names of two pieces of apparatus the student will need to take necessary measurements. (2)

7. The diagram below shows how a liquid can be separated from a solution.



A) Name the part labelled X. (1)

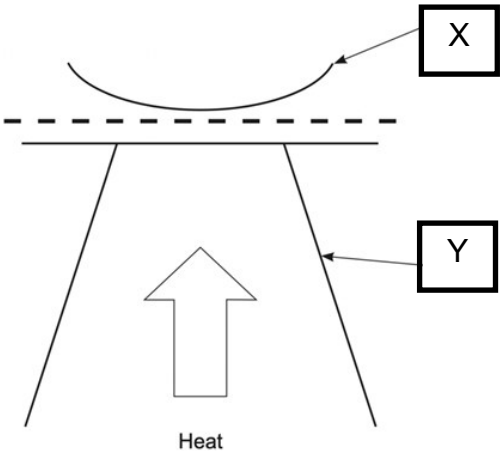
B) What is the name of this separation technique? (1)

C) Explain why the thermometer should be level with the sidearm? (1)

Exam Style Questions

8. A group of students wanted to measure the average speed of cyclist going down a hill. Name two pieces of apparatus that the students would need to measure the cyclist's average speed. (2)

9. Evaporation is a technique used to separate a solvent from a solution, to obtain a solute. Name the two pieces of apparatus below, labelled X and Y. (2)



10. Why is a coverslip placed on top of a specimen when creating a slide? (1)

Exam Style Questions

Question number	Indicative Content	Mark
1	pH meter is more accurate/provides a reading to one decimal place	1
2	Voltmeter	1
3	In parallel	1
4	Gas syringe	1
5	Quadrat	1
6	Measuring cylinder Mass balance	1 1
7	Condenser Distillation To measure the temperature of the vapour/gas/steam passing into the condenser	1 1 1
8	Measuring tape/metre ruler Stopwatch/Stop clock	1 1
9	X = Evaporating dish Y = Tripod	1 1
10	To keep the cells in position	1

Acknowledgements

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Conical flask, delivery tube and gas syringe held in clamp - © ANDREW LAMBERT PHOTOGRAPHY/SCIENCE PHOTO LIBRARY

Stop clock - © SCIENCE PHOTO LIBRARY

condenser - © SCIENCE PHOTO LIBRARY

water bath - © MARTYN F. CHILLMAID/SCIENCE PHOTO LIBRARY

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