



Cambridge Primary Checkpoint

SCIENCE

0097/02

Paper 2

April 2025

MARK SCHEME

Maximum Mark: 40

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Markers were instructed to award marks. It does not indicate the details of the discussions that took place at a Markers' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the End of Series Report. Cambridge will not enter into discussions about these mark schemes.

This document has **18** pages. Any blank pages are indicated.

General guidelines on marking

Many descriptive answers can be expressed in a variety of ways. Professional judgement can be used in these cases, providing it matches the marking points and further information in the mark scheme.

Answers may have words spelt incorrectly. Credit is normally given for phonetically correct answers, unless the word has a scientifically different meaning. For example, where the answer should be antennae, credit will be given for antenna but not for anthen (too close to anther).

Only the science is being assessed so answers do not need to be grammatically correct. Significant figures will be indicated in the question or in the mark scheme. Unless specified all marking points are independent.

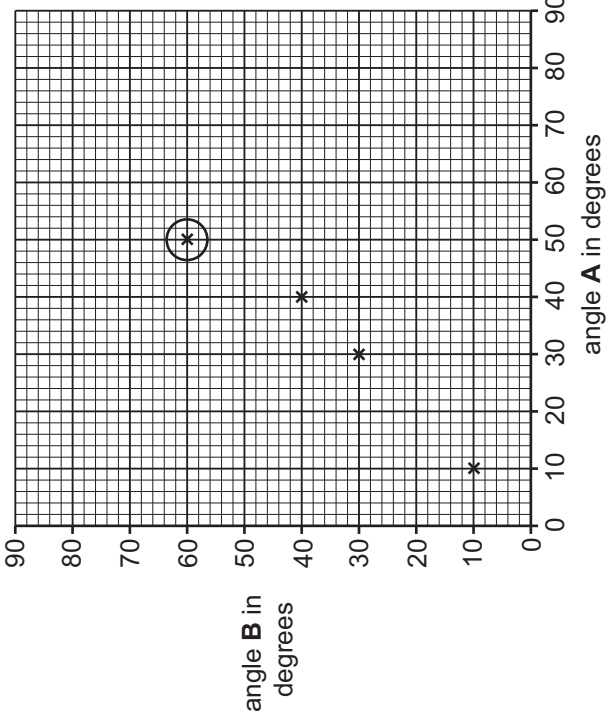
Annotations and abbreviations

/ or	alternate responses for the same marking point
() brackets	the words or units in brackets do not need to be stated, for example, (recycles or releases or provides) minerals = minerals scores the mark
<u>Underline</u>	exact word is required
Accept	an acceptable response
Do not accept	indicates an incorrect response that would contradict another otherwise correct alternative
Ignore	indicates an irrelevant answer that is not creditworthy. Full marks can still be achieved even with answers that are ignored.
Note	provides extra information when necessary
ecf	error carried forward; marks are awarded if an incorrect response has been carried forward from earlier working, provided the subsequent working is correct
ora	or reverse argument; for example, as mass increases, volume increases could be written as mass decreases, volume decreases

Question	Answer	Marks	Further Information
1(a)	A and C	1	both needed in any order for the mark
1(b)	vein capillary	2	each correct answer = 1 mark
1(c)	any two from nutrients oxygen waste	2	each correct answer = 1 mark Accept nutrition or named nutrients, e.g. minerals Accept digested food Ignore just ‘food’ or energy Accept oxygenated blood Accept carbon dioxide or urea or toxins

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Question	Answer	Marks	Further Information															
2(a)	<table><thead><tr><th>substance</th><th>(melting point in °C)</th><th>boiling point (in or /) °C</th></tr></thead><tbody><tr><td>water</td><td>(0)</td><td>(100)</td></tr><tr><td>paraffin</td><td>(52)</td><td>300</td></tr><tr><td>sand</td><td>(1550)</td><td>2230</td></tr><tr><td>silver</td><td>960</td><td>2170</td></tr></tbody></table>	substance	(melting point in °C)	boiling point (in or /) °C	water	(0)	(100)	paraffin	(52)	300	sand	(1550)	2230	silver	960	2170	2	correct heading for boiling point and unit = 1 mark all four temperatures in the correct place in table and no units in body of table = 1 mark Ignore just 'C' or just °
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water	(0)	(100)																
paraffin	(52)	300																
sand	(1550)	2230																
silver	960	2170																
2(b)	property	1	Accept any indication of the correct answer, e.g. circling the word 'property' in the list, but answer line takes precedence															

Question	Answer	Marks	Further Information
3(a)		1	more than one point circled = 0 Accept any indication of the correct answer, e.g. ticking, but circling takes precedence

3(b)		2	plotting of both points (70, 70) and (80, 80) correctly = 1 mark Accept points plotted with a tolerance of $\pm 1/2$ small square in any direction Ignore correct point plotted at (50, 50) one straight line of best fit = 1 mark Accept ecf straight line of best fit using incorrectly plotted points Accept if no other points plotted a straight line of best fit just using the first three points
3(c)	63°	1	Accept ecf from their line of best fit on the graph in (b)
3(d)	(idea that angle B) increases by 10 (degrees)	1	Accept increases by the same amount (as angle A) or will do the same (as angle A)

Question	Answer	Marks	Further Information
4(a)	any one from (idea that clay soil) contains small(er) particles (idea that clay soil) particles are close(r) together	1	Accept has (very) fine particles Ignore it has different size particles, e.g. it has large and small particles = 1 mark for the small particles Accept particles are tightly packed together or particles stuck together or particles are compact Accept answers about the gaps or air pockets or holes that still mentions particles or other words meaning these clay particles, e.g. there are (very) small gaps between the particles or less space between the particles
4(b)	any one from (idea that) sand/large(r) particles have more space(s) for water to go through (idea that) particles are not close together so water goes through	1	Accept other wording, e.g. larger air pockets Accept more space for water to pass through it or sandy soil has more space so only holds a small amount of water Accept the soil becomes loose and does not hold the water as well or soil becomes loose improving drainage

Question	Answer	Marks	Further Information
5(a)	12 and 14	1	both answers correct in either order = 1 mark
5(b)	any one from they both start at 22 (cm per year) growth decreases between birth/0 and 8 (years) both grow fast(est) in first year growth is the same between birth and 7 (years) (idea that) they grow less and less each year until puberty growth decreases after the peak or growth decreases after puberty or growth decreases after sudden increase in growth (idea that) they follow the same (overall) pattern (but at different times of age) or the spurt lasts the same time (in boys and girls)	1	Accept both have the same start (in average growth) Do not accept they are the same height at birth Accept growth decreases between birth/0 (years) and any number of years until 8 (years), e.g. growth decreases from birth/0 (years) to 1 (year) Accept both grow fast(est) at birth/0 (years) Accept growth is the same between birth/0 (years) and 8 (years) Accept growth decreases and then increases (at puberty)

5(c)	puberty	1	Accept higher level answers, e.g. (named) hormones
Question	Answer	Marks	Further Information
6	(idea that) object is hollowed out	1	Accept description of being hollowed out, e.g. it is an empty box Accept larger surface (area) or other ideas, e.g. larger base or shaped like a boat Accept higher level answers, e.g. object is less dense (than water or than other objects) Ignore any reference to objects that sink Ignore reference to weight or mass of object

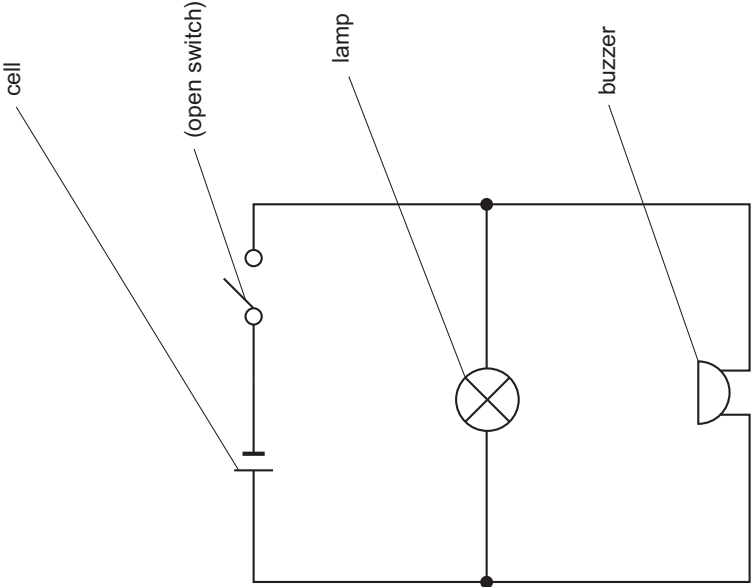
Question	Answer	Marks	Further Information
7(a)	(independent) material (of spoon) (dependent) time (for butter to drip into water)	1	both answers correct for the mark Accept how long it takes (to drip) or how fast it takes (to drip)
7(b)	thermal conductivity	1	more than one answer circled = 0 marks Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence

7(c)	any two from A is the best/greatest (thermal) conductor or A is the worst/least (thermal) insulator D is the worst/least (thermal) conductor or D is the best/greatest (thermal) insulator (idea that) the more (thermal) conductivity the less time taken for the butter to melt or the less (thermal) conductivity the more time taken for the butter to melt	2	each correct answer = 1 mark Ignore A takes the least time Ignore D takes the most time Ignore reference to electrical conductivity or hardness or names of materials for the different spoons, e.g. spoon A is metal or spoon D is wood Note if no other mark scored, for 1 mark: Accept which spoon is the best/worst conductor or which spoon is the best/worst insulator or the material which takes the least time is a conductor or the material that took the most time is an insulator or correct comparison, e.g. A and C are better conductors than B or all the spoons conduct heat (as the butter melted)
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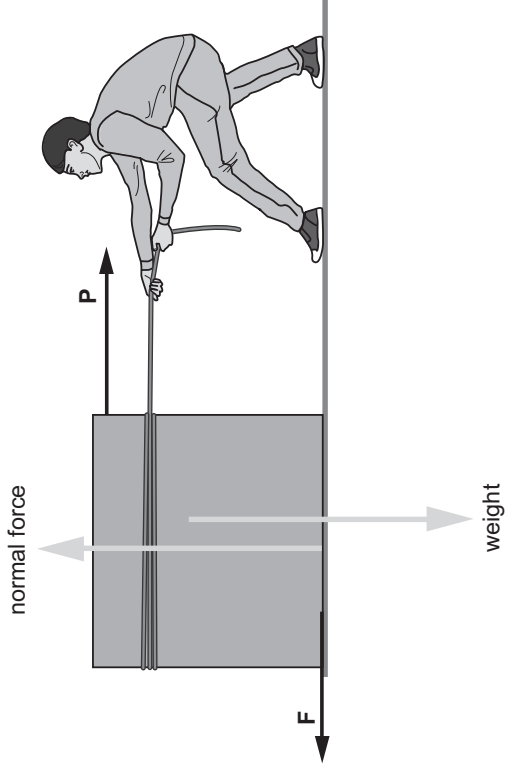
Question	Answer	Marks	Further Information
8(a)	2061 or 2062	2	Note correct answer on its own = 2 marks Accept 75 and/or 76 seen anywhere in their answer for one mark
8(b)	planet	1	Accept minor planet or named planets, e.g. Earth Accept asteroid or asteroid (belt) or meteorites Accept satellite or moon

Question	Answer	Marks	Further Information
9(a)	any one from bubbles gas produced a new substance is made	1	Accept fizzing or effervescence Accept (idea that) hydrogen is produced or hydrogen is made Accept a product is made or (two) products are made Accept colour change or it goes cloudy or a precipitate is formed Ignore magnesium hydroxide or cannot be reversed Do not accept magnesium melts
9(b)	magnesium (and) water	1	both needed in any order for the mark
9(c)	hydrogen (and) magnesium hydroxide	1	both needed in any order for the mark

Question	Answer	Marks	Further Information
10(a)	2016	1	Accept any indication of the correct answer, e.g. circling 2016 in the table, but answer line takes precedence Ignore 742
10(b)	(idea that) reduces number of mosquito bites or prevents mosquito bites	1	Accept (idea of) sucking blood or eating blood for biting Accept (idea that the net) stops the mosquito landing on skin or stops the mosquitos touching you
10(c)	(idea that) the toxic chemical is absorbed by the (small) plants (idea that) the birds eat the fish that eat the (small) plants	2	each correct answer = 1 mark Accept (idea that) from the plants the toxic chemical is transferred or fish eat plants that have the toxic chemical or plants are contaminated with the toxic chemical/water Note answer must refer to eating/consuming at least once, e.g. Accept plants eaten by fish which are the bird's prey

Question	Answer	Marks	Further Information
11(a)		2	all three correct = 2 marks two correct = 1 mark one correct = 0 mark Accept cells for cell Ignore voltage values or any other ideas about voltage for cell e.g. 15V cell = 1 mark but just '1.5' = 0 marks Do not accept battery or battery of cells for cell Accept bulb for lamp Ignore light for lamp Ignore button for buzzer
11(b)		1	Accept shaded circles or angled lines or just a line between the circles for a closed switch Accept in the answer space the whole circuit diagram from (a) drawn with a closed switch Accept closed switch symbol drawn on electrical circuit in (a) if answer space is blank but answer space takes precedence

Question	Answer	Marks	Further Information
12(a)	magma cools or lava cools or molten rock cools	1	Accept (idea of) solidifies or crystallises or freezes for cools, e.g. lava solidifies = 1 mark Accept melted rock for molten rock, e.g. melted metamorphic rock cools = 1 mark Ignore dries Ignore intrusive or extrusive Do not accept pressure
12(b)	(idea that) sediment is compacted	1	Accept (idea of) (small) bits of rock or mud or clay or silt or sand or soil for sediment, e.g. mud is compacted Accept (idea of) compressed or squashed or pressed or pushed or pressure applied or squished for compacted, e.g. sediment is squashed Ignore sedimentary for sediment Ignore sediments stick together or layers of sediment pile up together or rock undergoes sedimentation Ignore references to weathering or erosion Do not accept heat or melting

Question	Answer	Marks	Further Information
13		2	Note if no arrows drawn on the diagram check the space below the diagram but arrows on diagram take precedence P or pulling force or pull or applied force or Rajiv's force: - horizontal arrow (touching or not touching) - pointing to the right = 1 mark F or frictional force or friction or drag: - horizontal arrow (touching or not touching) - similar length as pulling force (by eye) - pointing to the left = 1 mark Note if no other marks awarded Accept just the frictional force showing that is horizontal and pointing to the left for 1 mark Accept two unlabelled horizontal arrows of similar length pointing in opposite directions, e.g. $\leftarrow \rightarrow$, for 1 mark

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