



Cambridge Primary Checkpoint

SCIENCE

0097/01

Paper 1

April 2024

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 **16** pages.

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)	(transfer of) energy	1	Accept energy flow Ignore idea of which organism eats/consumes which organism
1(b)	any one from grass → grasshopper → frog → snake → hawk grass → grasshopper → (small) bird → snake → hawk	2	correct order of five organisms = 1 mark all arrows drawn in correct direction = 1 mark Note arrow marking point is independent as long as first four organisms, starting with grass, are taken from the food web and in correct order e.g. Accept for 1 mark: grass → grasshopper → (small) bird → snake (→ eagle)

Question	Answer	Marks	Further Information
1(c)	(idea that) (toxic) substance goes from grass to mouse/grasshopper/herbivore (idea of) hawk eating mouse (containing the toxic substance) or toxic substance transferred through food chain to hawk	2	each correct answer = 1 mark Note maximum 1 mark if animals mentioned that are not in food chain e.g. snails or worms Ignore just 'toxic substance goes from grass to animal' (as not clear this animal is an animal that eats the toxic grass/plant) Accept correct description of food chain e.g. passes from grasshopper to small bird to snake to hawk or hawk has eaten animals that have eaten the toxic substance Accept higher level answers e.g. bioaccumulation (of toxic substance) or biomagnification (of toxic substance) or hawk is tertiary consumer so maximum concentration of toxins in their body Accept hawk eats mouse that ate the toxic substance in grass for 2 marks

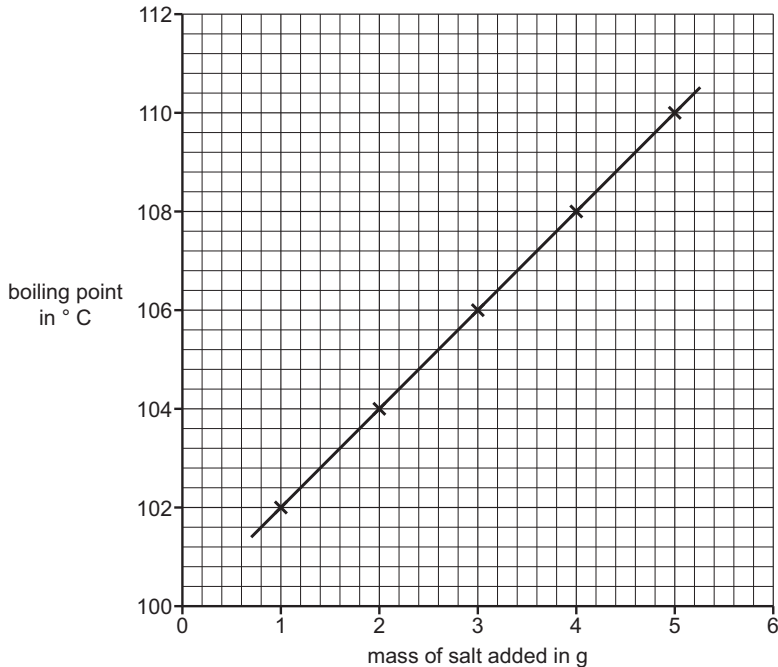
Question	Answer	Marks	Further Information
2(a)	liquid (changes to a) gas	1	both answers correct for the mark Accept vapour or gaseous state for gas Ignore water for liquid Ignore steam for gas
2(b)	any two from boiling takes place at a certain/one temperature or evaporation takes place at all/different/any temperatures evaporation (only) happens at the surface (of a liquid) or boiling happens everywhere (in a liquid) boiling produces bubbles or evaporation does not produce bubbles boiling is a fast process or evaporation is a slow process	2	each correct answer any order = 1 mark Accept boiling takes place at boiling point or evaporation takes place at temperatures below boiling (point) Ignore boiling takes place at high temperatures/100 (°C) or evaporation takes place at low temperatures/below 100 (°C) Accept boiling takes place under the surface or in boiling all particles have enough/gain energy or in evaporation only the top layer gains energy

Question	Answer	Marks	Further Information
2(c)	condensation	1	
2(d)	compressing (squeezing) a gas and dissolving salt in water	1	both answers correct for the mark Accept any indication of correct answers, e.g. circling or underlining, but ticking takes precedence Do not accept if baking or burning is ticked

Question	Answer	Marks	Further Information																					
3(a)	<table><tr><th>planet</th><th>mass in kg</th><th>weight in N</th></tr><tr><td>Mercury</td><td>(35)</td><td>(132)</td></tr><tr><td>Venus</td><td></td><td>317</td></tr><tr><td>Earth</td><td>(35)</td><td>(350)</td></tr><tr><td>Mars</td><td></td><td>132</td></tr><tr><td>Jupiter</td><td>35</td><td>885</td></tr><tr><td>Saturn</td><td>(35)</td><td>(372)</td></tr></table>	planet	mass in kg	weight in N	Mercury	(35)	(132)	Venus		317	Earth	(35)	(350)	Mars		132	Jupiter	35	885	Saturn	(35)	(372)	1	all four correct = 1 mark Do not accept units in the body of the table Ignore masses in the table for Venus and Mars
planet	mass in kg	weight in N																						
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Saturn	(35)	(372)																						
3(b)	35 (and) 35 (idea that mass) stays the same (idea that weight) changes	2	all three correct = 2 marks one or two correct = 1 mark Accept does not change or remains constant Accept (... the mass of Blessy) is 35 (kg) Accept (weight) = mass x gravity on planet																					
3(c)	any one from mass is the amount of matter weight is a force or weight is pull (of gravity)	1	Note assume answer is about mass unless otherwise stated Accept mass is measured with a balance/scale(s) Accept weight is the amount of (gravitational) attraction Accept weight is measured with a force meter																					

Question	Answer	Marks	Further Information														
4(a)	<table><thead><tr><th>statement</th><th>stage</th></tr></thead><tbody><tr><td>more sand and clay build up and harden</td><td>(4)</td></tr><tr><td>animal dies</td><td>1</td></tr><tr><td>soft tissues decompose leaving hard bones</td><td>(3)</td></tr><tr><td>animal quickly buried by sand and clay</td><td>2</td></tr><tr><td>erosion of rocks so fossils are seen</td><td>6</td></tr><tr><td>gradually the bones are replaced by minerals</td><td>5</td></tr></tbody></table>	statement	stage	more sand and clay build up and harden	(4)	animal dies	1	soft tissues decompose leaving hard bones	(3)	animal quickly buried by sand and clay	2	erosion of rocks so fossils are seen	6	gradually the bones are replaced by minerals	5	2	four correct = 2 marks two or three correct = 1 mark
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4(b)	(oldest) shelled invertebrates (youngest) birds	1	both answers correct for the mark														

Question	Answer	Marks	Further Information
5(a)	boiling point in °C mass of salt added in g	1	tolerance of $\pm \frac{1}{2}$ small square Ignore point plotted at (0, 100) Ignore point plotted at (6, 112) Ignore vertical lines to help plotting Do not accept bar chart Note plots must be visible Note if large dots used to plot then the centers of the dots must be within $\pm \frac{1}{2}$ small square

Question	Answer	Marks	Further Information
5(b)	line drawn between all the points  boiling point in °C mass of salt added in g	1	Accept ecf from (a) Accept line drawn to point (0, 100) or line drawn continued below (1, 102) plot or continued above (5, 110) point (i.e. extrapolation) Accept line drawn through correct points without plots visible Accept tolerance of $\pm \frac{1}{2}$ small square if line does not go through the plots
5(c)	112 (°C)	1	
5(d)	100 (°C)	1	

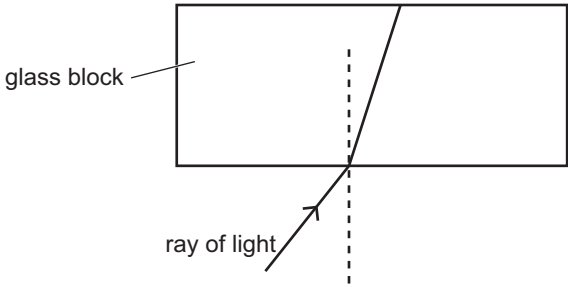
Question	Answer	Marks	Further Information
6(a)	veins capillaries	2	each correct answer = 1 mark Accept named veins e.g. vena cava
6(b)	pumps blood (round the body)	1	Accept pumps oxygenated/deoxygenated blood Ignore just 'pumps'

Question	Answer	Marks	Further Information
7(a)	any one from (idea of) putting padded material (under the spring) keep feet out of the way or wear protective boots (idea of) not using a very large mass (idea of) adding weight to base of clamp stand (to stop it falling over) or clamp the stand to the table wear goggles or wear safety glasses or wear protective glasses	1	Ignore stand a safe distance away (from the equipment) Accept (idea of) adding a stopper to end of clamp to stop the spring (and mass) falling off Ignore has adult supervision
7(b)	stretches or changes shape or gets longer (idea that there is a) force or pull	2	each correct answer any order = 1 mark Accept weight Ignore pressure

Question	Answer	Marks	Further Information
8(a)	sedimentation	1	more than one answer circled = 0 marks Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
8(b)	metamorphism	1	more than one answer circled = 0 marks Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
8(c)	(idea of) melts (idea of) cools	2	each correct answer = 1 mark Accept (idea of) heats it (until it melts) Accept methods of melting e.g. put it in the microwave or use an oven or boil it Accept methods of cooling e.g. put it in the refrigerator or freeze it or put in cold water

Question	Answer	Marks	Further Information
9(a)	(no) (idea that) if all conduct the lamp will be on every time	1	Accept plastic and/or sulfur do not conduct (electricity) or not all materials (in the table) conduct (electricity) Accept (only) copper and iron conduct (electricity) or the lamp is (only) on for copper and iron
9(b)	thermal conductivity or thermal conductor or thermal conduction	1	Ignore heat conductivity/conductor/conduction Ignore just conducts/conductivity/conduction
Question	Answer	Marks	Further Information
10	any two from skin mucus stomach acid	2	each correct answer = 1 mark Accept higher level answers e.g.: white (blood) cells or immune system or antibodies

Question	Answer	Marks	Further Information
11	C and D	1	more than one answer circled = 0 marks Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
Question	Answer	Marks	Further Information
12	C	1	more than one answer on answer line = 0 marks Accept any indication of the correct answer in the table, e.g. ticking, underlining or circling, but answer line takes precedence
Question	Answer	Marks	Further Information
13	(idea of) rapid growth or growth spurt	1	Ignore just grow taller or increase in weight/mass Accept growth of body/pubes hair Accept pimples or body odour or oily skin

Question	Answer	Marks	Further Information
14(a)		1	Accept one straight line through the glass block that has been refracted towards the normal and starts at point where ray touches bottom of glass block
14(b)	refraction or refracted or refracts or changes direction or it bends	1	Accept higher level answers, e.g. slows down or changes speed