Cambridge Assessment International Education

Cambridge Primary Checkpoint

SCIENCE **0097/01**

Paper 1

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.

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 antena 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
Underline	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)		**2**	each correct answer = 1 mark
	(idea that) (toxic) substance goes from grass to mouse/grasshopper/herbivore		**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)
	(idea of) hawk eating mouse (containing the toxic substance) **or** toxic substance transferred through food chain to hawk		**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

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>3(a)</td><td>
<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>
</td><td>1</td><td>all four correct = 1 mark

Do not accept units in the body of the table

Ignore masses in the table for Venus and Mars</td></tr>
<tr><td>3(b)</td><td>35 (and) 35

(idea that mass) stays the same

(idea that weight) changes</td><td>2</td><td>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</td></tr>
<tr><td>3(c)</td><td>any one from

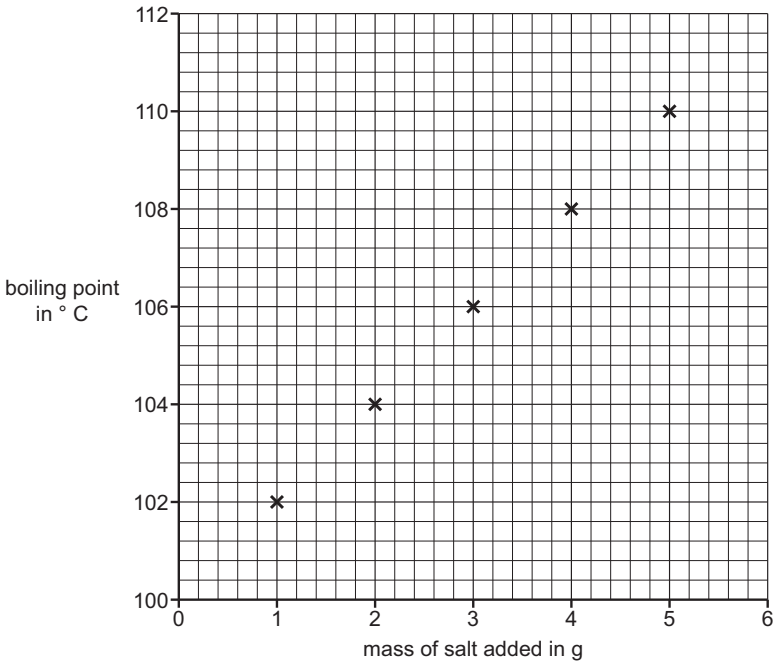
mass is the amount of matter

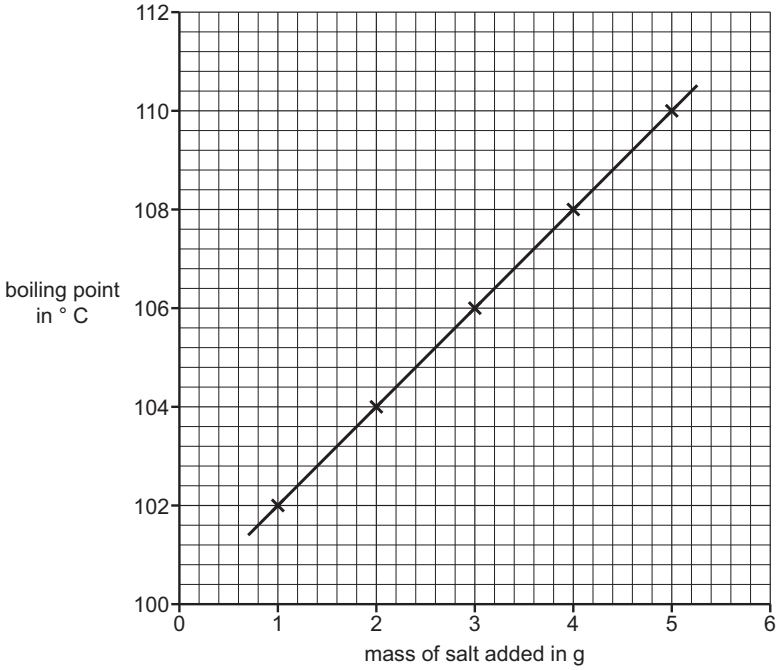
weight is a force or weight is pull (of gravity)</td><td>1</td><td>Note assume answer is about mass unless otherwise stated

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</td></tr>
</table>

Question	Answer	Marks	Further Information
4(a)	**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
4(b)	(oldest) shelled invertebrates (youngest) birds	**1**	**both** answers correct for the mark

Question	Answer	Marks	Further Information
5(a)		**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  	**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

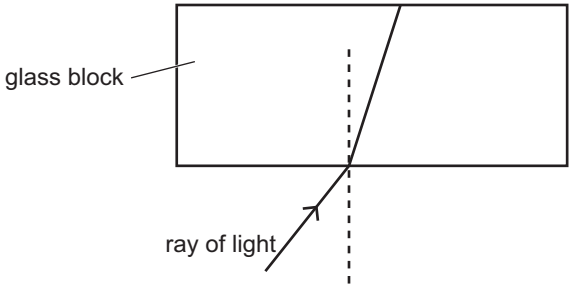
Question	Answer	Marks	Further Information
9(a)	(no) (idea that) if all conduct the lamp will be on every time	**1**	 **Accept** plastic and/or sulfur do **not** conduct (electricity) **or not** all materials (in the table) conduct (electricity) **Accept** (only) copper **and** iron conduct (electricity) **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/pubic 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