

Cambridge Primary Checkpoint

SCIENCE

0097/02

Paper 2

October 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.

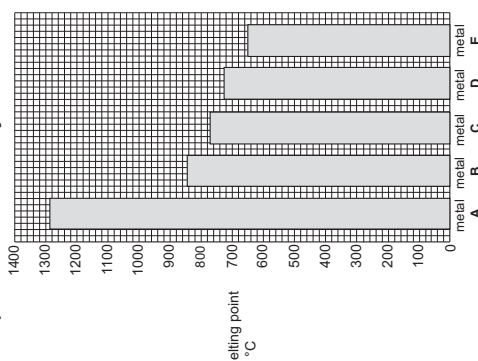
Answers may have words spelt incorrectly. Credit is normally given for phonetically correct answers, unless the word has a scientifically different meaning. For example, where the answer should be antennae, credit will be given for antenna but not for anthen (too close to anther).

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

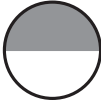
/ or	alternate responses for the same marking point
() brackets	the words or units in brackets do not need to be stated, for example, (recycles or releases or provides) minerals = minerals scores the mark
<u>Underline</u>	exact word is required
Accept	an acceptable response
Do not accept	indicates an 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)	7	1	Accept seven
1(b)	shrimp or cod or seal	1	Ignore fish
1(c)	(tiny) plants → zooplankton → shrimp (→ walrus)	1	

Question	Answer	Marks	Further Information
2(a)	property	1	Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence. more than one answer circled = 0 marks
2(b)	4	1	Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence. more than one answer circled = 0 marks
2(c)	bar plotted correctly 	1	Ignore width of bar
2(d)	Metal A has the highest melting point of the five metals.	1	Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence. more than one box ticked = 0 marks

Question	Answer	Marks	Further Information																		
3(a)	254 (cm ³)	1																			
3(b)	<table border="1"> <thead> <tr> <th>beaker</th> <th>mass of salt in g</th> <th>observation</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>0</td> <td>(idea that) egg sinks</td> </tr> <tr> <td>B</td> <td>10</td> <td>(idea that) egg sinks</td> </tr> <tr> <td>C</td> <td>20</td> <td>(idea that) egg sinks</td> </tr> <tr> <td>D</td> <td>30</td> <td>(egg floats under the water)</td> </tr> <tr> <td>E</td> <td>40</td> <td>idea that the egg floats (with part above water)</td> </tr> </tbody> </table>	beaker	mass of salt in g	observation	A	0	(idea that) egg sinks	B	10	(idea that) egg sinks	C	20	(idea that) egg sinks	D	30	(egg floats under the water)	E	40	idea that the egg floats (with part above water)	1	<p>all four correct = 1 mark</p> <p>Accept A does not float</p> <p>Accept B does not float</p> <p>Accept C does not float or points upwards or (idea that it) starts to float Ignore just 'floats under the water'</p> <p>E Accept does not sink</p> <p>Ignore nothing happens or no reaction</p>
beaker	mass of salt in g	observation																			
A	0	(idea that) egg sinks																			
B	10	(idea that) egg sinks																			
C	20	(idea that) egg sinks																			
D	30	(egg floats under the water)																			
E	40	idea that the egg floats (with part above water)																			

Question	Answer	Marks	Further Information
3(c)	<p>any two from</p> <p>size (of egg) or volume (of egg)</p> <p>shape (of egg)</p> <p>mass (of egg) or weight (of egg)</p> <p>age</p> <p>(idea that) cooked or raw</p> <p>(amount of) air in the egg</p> <p>(amount of) yolk in the egg</p> <p>named species of egg, e.g. chicken and duck eggs</p>	2	<p>each correct answer = 1 mark</p> <p>Accept surface area (of egg)</p> <p>Accept (idea that) part of egg is hollow/empty Ignore just 'egg is hollow/empty'</p> <p>Ignore just 'types of egg'</p> <p>Ignore if egg is cracked or colour</p>

Question	Answer	Marks	Further Information
4(a)	Earth	1	<p>Ignore a planet</p> <p>Do not accept the Sun or the Moon</p>
4(b)	spin or turn or rotate	1	<p>Accept spin (the model) or turn (the model) or rotate (the model)</p> <p>Ignore just 'moves her head' or 'moves her eyes'</p> <p>Do not accept orbit</p>
4(c)		1	

Question	Answer	Marks	Further Information
5(a)	(idea that) toxic substance(s) move through the food chain	1	<p>Accept other words for toxic substance(s), e.g. poison</p> <p>Accept descriptions of movement up the food chain, e.g. shark eats tuna/prey which contains the toxic substance(s) or shark eats the tuna/prey which ate the mackerel containing the toxic substance</p> <p>Ignore just 'shark eats fish/animal which contains the toxic substance(s)'</p> <p>Do not accept shark eating any other organism e.g. mackerel or herring or tiny plants</p>

Question	Answer	Marks	Further Information
5(b)	<p>any one from</p> <p>stop/reduce burning fossil fuels</p> <p>reduce use of plastics</p> <p>(idea of) clean up plastic/litter/trash/rubbish (from beaches)</p> <p>recycle</p> <p>ban toxic substances</p> <p>stop/reduce mining</p> <p>clean up oil spills</p> <p>education</p>	1	<p>Ignore just ‘stop polluting/pollution’</p> <p>Accept examples of reduced use of fossil fuels e.g. use a bicycle or use electric cars</p> <p>Accept use reusable plastic or reduce the use of single use items</p> <p>Accept stop releasing (harmful) gas or stop using/releasing pesticides</p> <p>Accept specific examples, e.g. campaigns or laws or posters</p>


Question	Answer	Marks	Further Information
6(a)	reactant reactant product	2	all three correct = 2 marks one or two correct = 1 mark
6(b)	gas	1	Accept named gas, e.g. carbon dioxide Ignore air or vapour or steam Do not accept boiling
6(c)	colour change temperature change	2	each correct answer = 1 mark Accept gets warm or gets cold Ignore just 'temperature' Ignore gas/bubbles/fizz

Question	Answer	Marks	Further Information
7(a)	(rays of) light reflecting	2	each correct answer = 1 mark Accept changing direction Ignore bouncing Do not accept refracting
7(b)	(idea of) moves mirror to the centre/middle of his face	1	Accept move mirror up/higher or move mirror to touch his nose/chin/forehead or move mirror to the left or move mirror to the right Ignore just move/turn/adjust the mirror Do not accept move the mirror to the left and/or right in the same answer.
7(c)	use a cleaner mirror use a smoother mirror	1	both answers correct for the mark Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence

Question	Answer	Marks	Further Information
8(a)	(soil A) (idea that water moves) through the soil (soil B) (idea that water) stays on the top of the soil	1	both answers correct for the mark Accept absorbed by soil or moves down(wards) Ignore just 'moves easily' Accept does not move through the soil or not absorbed by the soil
8(b)	any one from (idea that) root(s) get water (idea that) root(s) have space (idea that) root(s) have oxygen	1	Accept root(s) have air

Question	Answer	Marks	Further Information
8(c)	<p>any two from</p> <p>minerals</p> <p>rock(s) or pebbles or stones</p> <p>clay</p> <p>silt</p> <p>sand</p> <p>organic material or organic matter</p> <p>animals</p> <p>oxygen or air</p>	1	<p>both answers correct for the mark</p> <p>Accept nutrients or named minerals, e.g. phosphorus or nitrogen</p> <p>Ignore vitamins or toxins</p> <p>Accept other examples, e.g. grit or gravel or fossils</p> <p>Ignore dirt or mud</p> <p>Accept animal faeces or humus or dead plant material or dead organisms</p> <p>Ignore waste or inorganic matter</p> <p>Accept named animals, e.g. earthworms or insects or microorganisms or bacteria or decomposers or fungi</p> <p>Ignore just 'plants' or just 'roots'</p> <p>Ignore rain or temperature or pH</p>

Question	Answer	Marks	Further Information
9(a)	A	1	Accept any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence more than one answer circled = 0 marks
9(b)	any two from nutrients oxygen waste	2	each correct answer = 1 mark Accept named nutrient, e.g. glucose or vitamins or minerals Accept digested food Ignore just 'food' or energy Ignore air Accept carbon dioxide or urea or toxins Ignore red blood cells or white blood cells or blood cells or plasma or platelets or arteries or veins or capillaries
Question	Answer	Marks	Further Information
10(a)	increases	1	Ignore expands
10(b)	any value in the inclusive range 55–0	1	Do not accept negative numbers

Question	Answer	Marks	Further Information
11(a)	(idea that) circuit is complete or there is no gap in the circuit or the loop touches the wire	1	
11(b)		1	Ignore wires drawn
Question	Answer	Marks	Further Information
12(a)	(idea that) she breaks the sugar cubes	1	Accept described method of breaking cubes, e.g. apply a force or smash or hit or cut or crumble Do not accept heat or melt or add water or dissolve
12(b)	(idea that) washes away or moves or transported or flows	1	Accept dissolves Ignore weathering or erosion Do not accept melt or turn to liquid or evaporate or boil
12(c)	igneous	1	Accept named igneous rocks e.g. andesite or basalt or dacite or obsidian or pumice or rhyolite or scoria or tuff Do not accept other rocks, e.g. metamorphic or sedimentary

Question	Answer	Marks	Further Information
13(a)	the volume of air that moves into his lungs	1	<p>Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence</p> <p>more than one answer ticked = 0 marks</p>
13(b)	<p>any one from</p> <p>(idea of) safe exercise practice</p> <p>(idea of) health concerns</p>	1	<p>Accept wear appropriate clothing/footwear or run in an open area or do the exercise in a safe place</p> <p>Ignore just 'safe exercise'</p> <p>Ignore use new mouthpiece or use clean mouthpiece or wear goggles/gloves/protective clothing or wash hands</p> <p>Accept do not do investigation if ill or stop if the activity makes him feel unwell or stop if struggling to breathe or do not do excessive exercise</p>