



Cambridge Lower Secondary Checkpoint

SCIENCE

0893/01

Paper 1

October 2024

MARK SCHEME

Maximum Mark: 50

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 **12** 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

PUBLISHED

Question	Answer	Marks	Further Information
1(a)	nucleus	1	
1(b)	chromosome	1	
1(c)	gene	1	Accept DNA

Question	Answer	Marks	Further Information
2(a)	density = mass ÷ volume 11.36 (g/cm ³)	2	11.36 or 11.4 with or without working = 2 marks Accept m / v or correct substitution into m / v = 1 mark
2(b)	B and has a low density	1	both gas and explanation required for the mark Accept it has the lowest density Accept almost no density Accept ecf from (a)

Question	Answer	Marks	Further Information
3(a)	3.6 (cm)	1	Accept tolerance of ± 0.1 cm
3(b)(i)	louder or increased volume	1	Accept noisier Note larger sound or more sound or increasing the sound or loud or loudness is not sufficient Do not accept louder pitch
3(b)(ii)	lower pitch or pitch decreases	1	Note answer must be comparative
Question	Answer	Marks	Further Information
4(a)	(clouds of) dust gas	2	each correct answer either order = 1 mark Accept stardust Do not accept rock and stone Accept hydrogen Ignore other named gases
4(b)	(idea that) where stars form	1	Accept where stars are born or where there are young stars or stars created

Question	Answer	Marks	Further Information
5	root hair (cells) absorption xylem (vessels) transpiration	4	each correct answer = 1 mark Accept osmosis or diffusion Accept evaporation or diffusion or evapotranspiration

Question	Answer	Marks	Further Information
6	any three from melting point decreases (from lithium to rubidium) boiling point decreases (from lithium to rubidium) atomic radius increases (from lithium to rubidium) density does not show a trend	3	each correct answer = 1 mark Accept ora if going up the group is specified Accept lithium has highest melting point and rubidium the lowest melting point Accept lithium has highest boiling point and rubidium the lowest boiling point Accept lithium has smallest atomic radius and rubidium the biggest atomic radius Ignore density increases but accept density increases, then decreases and then increases

PUBLISHED

Question	Answer	Marks	Further Information
7(a)	voltmeter	1	Do not accept voltmeter or volmeter or volumeter or voltage meter or voltemeter
7(b)	(resistance =) $\frac{\text{voltage}}{\text{current}}$ $\frac{V}{I}$ $\frac{0.63}{0.47}$ 1.3 (Ω)	2	Accept 1.3 or 1.34 (Ω) with or without working = 2 marks correct formula or evidence of correct substitution = 1 mark Accept answer in the blank space, but answer in the table takes precedence

Question	Answer	Marks	Further Information
7(c)	correct labels and scale for x-axis all points plotted correctly	2	each correct answer = 1 mark Accept length in cm and scale of 1cm on graph for 5 cm length Accept tolerance of $\pm$ half a small square Accept one error in plotting Ignore plot for 20 cm resistance Ignore any line of best fit
7(d)	any one from the wire heated up left the circuit on between taking readings	1	Ignore misread ammeter or voltmeter or ruler

Question	Answer	Marks	Further Information
8	collision (theory) similar	2	each correct answer = 1 mark Accept Big Splash (theory) Accept same or identical

Question	Answer	Marks	Further Information
9(a)	population decreases	1	Accept extinction Note will not survive is not sufficient
9(b)	any three from less food less habitat non-native species or increased competition	3	each correct answer = 1 mark Accept ecf from (a) Accept deforestation or lack of shelter Accept (idea of) lower reproduction rate Accept (idea of) increased predation Accept migration Accept disease Note unqualified pollution is not sufficient

Question	Answer	Marks	Further Information
10(a)	(idea of) a shared pair of electrons	1	Accept electrons shared Ignore any reference to metal atoms or electrostatic Do not accept one electron shared or an electron shared or electrons shared between ions
10(b)	molecule	1	Ignore compound
10(c)	2	1	

Question	Answer	Marks	Further Information
11(a)	wear gloves or avoid getting the blood on her hands	1	Accept wearing a mask Ignore unqualified do not touch or wear protective clothing
11(b)	to identify anomalous results to identify a trend	2	each correct answer = 1 mark Ignore have a variation or variety of results Accept to improve reliability Accept to calculate an average Accept to check the result or to make sure the results are the same Ignore data is more valid Do not accept to improve accuracy or a fair test

Question	Answer	Marks	Further Information
12(a)	conservation of energy	1	more than one answer ticked = 0 marks Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence.
12(b)	60 – 15 or 45 75 (%)	2	75 (%) with or without working = 2 marks Accept 45/60 or 0.75 (%) = 1 mark

Question	Answer	Marks	Further Information
13(a)	zinc + sulfuric acid $\longrightarrow$ zinc sulfate + hydrogen	1	Accept reactants in either order or sulfuric acid Accept products in either order Accept = instead of $\rightarrow$ Accept correct formulae or mix of words and formulae, but words take precedence e.g. $\text{Zn} + \text{H}_2\text{SO}_4 \longrightarrow \text{ZnSO}_4 + \text{H}_2$ Do not accept 'and' instead of +
13(b)	(idea of) measures the temperature change	1	Accept measure the temperature before and after Ignore compare temperatures but accept compare temperature changes

PUBLISHED

Question	Answer	Marks	Further Information
14(a)	no ticked (no marks) and (idea that) the results for experiment 1 and experiment 2 are not the same or similar	1	Accept difference between the two experiments is too large or none of the results match each other or idea that there are anomalous results in experiment 2 or if they were precise the results would be similar
14(b)	yes ticked (no marks) and (experiment 1) is similar to the scientist's results or results are similar to actual values	1	Accept same results (as the scientists)

Question	Answer	Marks	Further Information
15(a)	parallel (circuit)	1	
15(b)	0.8 (A)	1	

Question	Answer	Marks	Further Information
16(a)	98 (mm)	1	Accept ± 1 mm
16(b)	420 (g)	1	

Question	Answer	Marks	Further Information
17	mass of flask remains the same mass is conserved in chemical reactions or mass of products = mass of reactants	2	each correct answer = 1 mark Note if mass increases or decreases = 0 marks for the question Accept mass cannot be created or destroyed Accept no mass is gained nor lost Ignore energy is conserved