



**Cambridge Assessment
International Education**

Cambridge Lower Secondary Sample Test
For use with curriculum published in
September 2020

Science Paper 1
Mark Scheme
Stage 8

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).

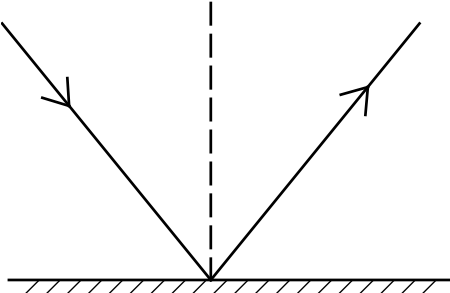
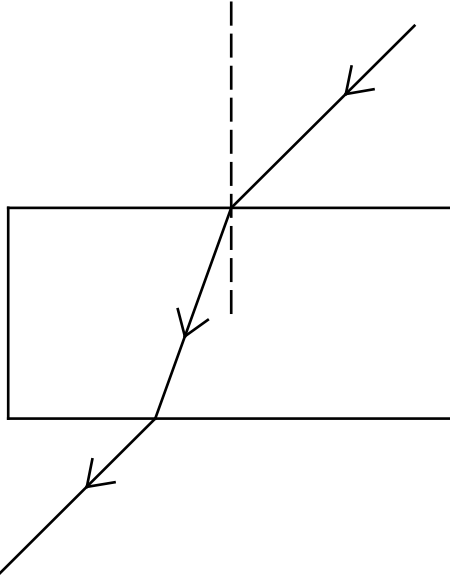
Only the science is being assessed so answers do not need to be grammatically correct. Significant figures will be indicated in the question or in the mark scheme. Unless specified all marking points are independent.

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

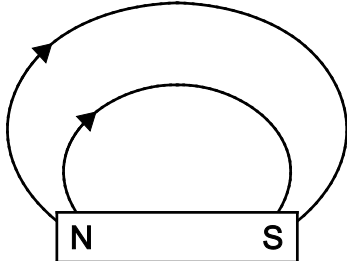
Question	Answer	Marks	Further Information
1(a)(i)	X = rib(s) (cage) Y = diaphragm	2	each correct answer = 1 mark Ignore intercostal muscles
1(a)(ii)	rib(s) (cage) moves up / moves out diaphragm contracts / moves down / flattens	2	each correct answer = 1 mark
1(b)(i)	stop-watch / timer	1	Accept data logger Ignore chest band / spirometer
1(b)(ii)	(running) speed	1	
1(b)(iii)	(same) duration / (same) person doing the running / (same) breathing rate at start	1	
1(b)(iv)	in a table / graph / bar chart	1	Do not accept pie chart

Question	Answer	Marks	Further Information
2(a)	positive charge on protons or nucleus and negative charge on electrons attract each other	2	each correct answer = 1 mark
2(b)	any two from different number of electrons / more electrons different number of protons / more protons different size (of electron cloud, nucleus or atom) / larger size	2	Assume answer refers to sodium unless lithium specified Accept different number of neutrons / more neutrons Accept higher level answers from Stage 9 e.g. Na has 3 shells

Question	Answer	Marks	Further Information
3(a)(i)		1	reflected ray drawn (with correct arrow) and angle of incidence approximately equal to angle of reflection by eye
3(a)(ii)		2	first refracted ray bends towards normal = 1 mark second refracted ray bends away from normal = 1 mark Ignore arrows on rays
3(b)	dispersion	1	

Question	Answer	Marks	Further Information
4(a)	any one from growth repair	1	Accept (makes) enzymes / (makes) muscles / (makes) hormones / (makes) skin / (makes) hair / lactation Ignore for strength / energy
4(b)	water	1	Ignore vitamins, salts or minerals
4(c)(i)	194 (kJ)	1	
4(c)(ii)	carbohydrate	1	
4(d)	4 g of protein RDA = 80 g	2	correct answer = 2 marks sight of 4g of protein or $4 \times 20 = 1$ mark Accept ecf of $20 \times$ mass of protein

Question	Answer	Marks	Further Information
5(a)	idea that different dyes move across the paper at different speeds	1	Accept different dyes have different attraction to the paper
5(b)	A the spots from ink A match the spots from the ink from the letter (exactly)	2	if any other letter given = 0 marks for the question

Question	Answer	Marks	Further Information
6(a)	two lines going from N to S and not crossing e.g. 	1	
6(b)	increase the number of turns (of wire) increase the number of cells / increase the current	2	each correct answer = 1 mark Accept have 7 or more turns (of wire) Accept have a larger voltage or potential difference

Question	Answer	Marks	Further Information
7(a)	<p>any two from</p> <p>yes (evidence shows that) iguanodons lived in lush vegetation which grew in warm conditions</p> <p>yes (evidence shows that) mammoths had thick woolly covering showing adaptations to cold conditions</p> <p>no because (idea of) one is in winter and one is in summer</p> <p>no because no evidence for what happens in between</p>	2	<p>yes or no only = 0 marks</p> <p>Accept maybe with one reason for yes and one reason for no</p>
7(b)	<p>any one from</p> <p>yes because (evidence shows that) almost 120 million years between hot and cold conditions</p> <p>yes because (evidence shows that) almost 120 million years between iguanodon and mammoth conditions</p> <p>yes because Europe is now warmer than it was 4000 years ago when mammoths existed</p> <p>no because you cannot tell how long either iguanodon or mammoth lived on Earth</p> <p>no because there is no evidence for time between 4000 years and 120 million years ago</p>	1	<p>yes or no only = 0 marks</p>

Question	Answer	Marks	Further Information
8(a)	temperature increases	1	Accept mixture gets hotter
8(b)	endothermic	1	Accept answer written in table but answer line takes precedence
8(c)	metals non-metals inert explosive	1	Accept any indication of the correct answer, e.g. underlining or ticking but circling takes precedence

Question	Answer	Marks	Further Information
9(a)	(speed =) 7.69/7.7 m/s or metres per second	2	correct speed = 1 mark correct units = 1 mark Accept 7.692307 correctly rounded or truncated Do not accept 8 Accept m s ⁻¹
9(b)	B and C	1	if more than one box ticked = 0 marks Accept any indication of the correct answer, e.g. circling or underlining but ticking takes precedence

Question	Answer	Marks	Further Information
10(a)	(idea that the asteroids are) too small to be seen / too dim to be seen / too far away to be seen / cannot be seen without the aid of powerful telescope	1	
10(b)	Galle Herschel Lippershey Piazzi	1	
10(c)(i)	(pieces of) rock	1	Accept metals, e.g. nickel and iron
10(c)(ii)	they are too small / not spherical	1	
10(d)	any two from can show more detail can see even the smallest asteroids can see more asteroids can see the asteroids that are further away	2	

Question	Answer	Marks	Further Information
11(a)	H ₂ SO ₄	1	Accept any order of symbols
11(b)(i)	idea of a model showing the similarity of like features for comparison	1	
11(b)(ii)	high concentration – a lot of children in the room low concentration – a few children in the room	2	each correct answer = 1 mark
Question	Answer	Marks	Further Information
12	prediction – diameter of balloon increases because at higher temperatures particles move faster or have more energy particles spread out / greater distance between particles / balloon walls pushed out	3	each correct answer = 1 mark Accept particles hit surface of balloon harder Accept atoms or molecules instead of particles

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