



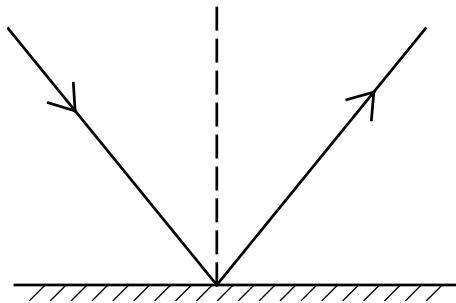
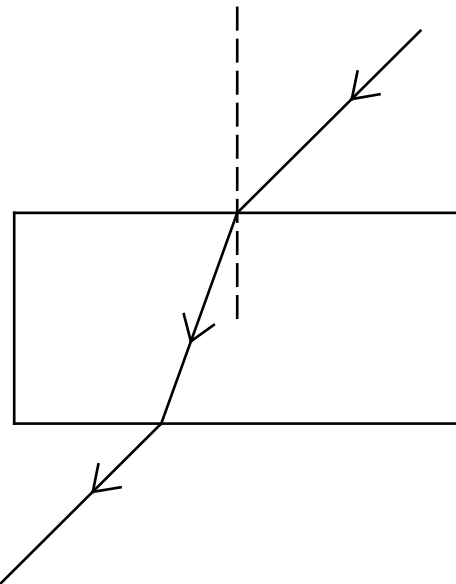
**Cambridge Assessment  
International Education**

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

**Science Paper 1**  
**Mark Scheme**  
**Stage 8**

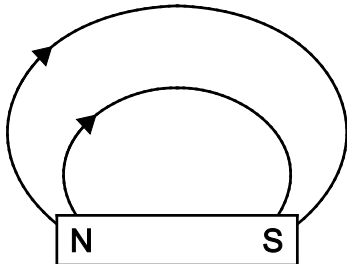
Question	Answer	Marks	Further Information
1(a)(i)	<b>X</b> = rib(s) (cage) <b>Y</b> = diaphragm	<b>2</b>	each correct answer = 1 mark <b>Ignore</b> intercostal muscles
1(a)(ii)	rib(s) (cage) moves up / moves out diaphragm contracts / moves down / flattens	<b>2</b>	each correct answer = 1 mark
1(b)(i)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

Question	Answer	Marks	Further Information
2(a)	positive charge on protons or nucleus <b>and</b> negative charge on electrons  attract each other	<b>2</b>	each correct answer = 1 mark
2(b)	<b>any two from</b>  different number of electrons / more electrons  different number of protons / more protons  different size (of electron cloud, nucleus or atom) / larger size	<b>2</b>	Assume answer refers to sodium unless lithium specified  <b>Accept</b> different number of neutrons / more neutrons  <b>Accept</b> 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) <b>and</b> 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 <b>Ignore</b> arrows on rays
3(b)	dispersion	1	

Question	Answer	Marks	Further Information
4(a)	<b>any one from</b>  growth  repair	<b>1</b>	<b>Accept</b> (makes) enzymes / (makes) muscles / (makes) hormones / (makes) skin / (makes) hair / lactation  <b>Ignore</b> for strength / energy
4(b)	water	<b>1</b>	<b>Ignore</b> vitamins, salts or minerals
4(c)(i)	194 (kJ)	<b>1</b>	
4(c)(ii)	carbohydrate	<b>1</b>	
4(d)	4 g of protein  RDA = 80 g	<b>2</b>	correct answer = 2 marks  sight of 4g of protein <b>or</b> $4 \times 20 = 1$ mark  <b>Accept</b> 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	<b>1</b>	<b>Accept</b> different dyes have different attraction to the paper
5(b)	<b>A</b>  the spots from ink <b>A</b> match the spots from the ink from the letter (exactly)	<b>2</b>	if any other letter given = 0 marks for the question

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

Question	Answer	Marks	Further Information
7(a)	<p><b>any two from</b></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>	<b>2</b>	<p>yes or no only = 0 marks</p> <p><b>Accept</b> maybe with one reason for yes and one reason for no</p>
7(b)	<p><b>any one from</b></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>	<b>1</b>	<p>yes or no only = 0 marks</p>

Question	Answer	Marks	Further Information
8(a)	temperature increases	1	<b>Accept</b> mixture gets hotter
8(b)	endothermic	1	<b>Accept</b> answer written in table but answer line takes precedence
8(c)	metals      non-metals <b>inert</b> explosive	1	<b>Accept</b> 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  <b>Accept</b> 7.692307 correctly rounded or truncated  <b>Do not accept</b> 8  <b>Accept</b> m s <sup>-1</sup>
9(b)	<b>B and C</b>	1	if more than one box ticked = 0 marks  <b>Accept</b> 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 <b>Piazzi</b>	1	
10(c)(i)	(pieces of) rock	1	<b>Accept</b> metals, e.g. nickel and iron
10(c)(ii)	they are too small / not spherical	1	
10(d)	<b>any two from</b>  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 <sub>2</sub> SO <sub>4</sub>	1	<b>Accept</b> 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  <b>Accept</b> particles hit surface of balloon harder  <b>Accept</b> atoms or molecules instead of particles