



# Science

Stage 8

Paper 1

**2024**

Cambridge Lower Secondary Progression Test

## Mark Scheme

Question	Answer	Marks	Further Information
1(a)	<b>C</b> <b>B</b> <b>A</b>	<b>2</b>	<b>all three</b> correct = 2 marks <b>one</b> or <b>two</b> correct = 1 mark
1(b)(i)	(advantages) <b>any one from</b>  easy to obtain  cheap  fast/quick way to get results  no need to have the equipment to carry out experiments yourself  (disadvantages) <b>any one from</b>  quality/accuracy of data unknown  could be biased  unknown experimental method	<b>2</b>	each correct answer = 1 mark  <b>Accept</b> any other reasonable response          <b>Accept</b> any other reasonable response
1(b)(ii)	no ticked (no marks)  <b>and</b>  correct use of data from the table, e.g. the dog has less mass than the horse but has red blood cells with a larger diameter	<b>1</b>	if both boxes are ticked = 0 marks  if neither box ticked <b>accept</b> no within the explanation  <b>Accept</b> any correct example from the table

Question	Answer	Marks	Further Information
1(c)	diffusion	1	<b>Accept</b> any indication of the correct answer, e.g. ticking, circling or underlining, but answer line takes precedence

Question	Answer	Marks	Further Information
2(a)(i)	(paper) chromatography	1	
2(a)(ii)	<b>any two from</b> ink would dissolve in the solvent (idea that) solvent becomes stained with ink (idea that) ink spreads out not getting a clear result	2	each correct answer = 1 mark
2(b)	<b>B</b> (idea of) identical pattern of spots	2	each correct answer = 1 mark  <b>Note</b> both have 3 spots is <b>not</b> sufficient

Question	Answer	Marks	Further Information
3	(Oliver) shakes marbles in the tray marbles collide with the side of the tray	2	each correct answer = 1 mark  <b>Ignore</b> just marbles collide (with each other)

Question	Answer	Marks	Further Information
4(a)(i)	will not run out <b>or</b> is not finite	1	<b>Ignore</b> (idea that) can be used again
4(a)(ii)	(idea that) Sun may be covered by clouds <b>or</b> affected by weather <b>or</b> does not work in the dark <b>or</b> affected by daylight length <b>or</b> affected by seasons	1	
4(a)(iii)	wind <b>or</b> tidal	1	<b>Accept</b> any suitable example, e.g. wave <b>or</b> hydroelectric <b>or</b> geothermal <b>or</b> (renewable) biomass  <b>Do not accept</b> nuclear
4(a)(iv)	natural gas <b>or</b> oil <b>or</b> fossil fuels <b>or</b> coal	1	<b>Accept</b> nuclear
4(b)	bioplastic	1	more than <b>one</b> answer circled = 0 marks  <b>Accept</b> any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence

Question	Answer	Marks	Further Information
5	<div> <div> <div>nutrient</div> <div> <div>calcium</div> <div>carbohydrate</div> <div>vitamin A</div> <div>protein</div> <div>water</div> </div> </div> <div> <div>function in the body</div> <div> <div>for healthy eyesight</div> <div>to prevent dehydration</div> <div>to make strong bones and teeth</div> <div>to provide energy and to be used as an energy store</div> <div>for tissue growth and repair</div> </div> </div> </div>	3	<p><b>all five</b> correct = 3 marks</p> <p><b>three</b> or <b>four</b> correct = 2 marks</p> <p><b>one</b> or <b>two</b> correct = 1 mark</p> <p>if more than <b>one</b> line from any nutrient to different functions = 0 marks for that nutrient</p>

Question	Answer	Marks	Further Information
6(a)(i)	<b>any two from</b>  nucleus should have a positive charge <b>or</b> nucleus should not have a negative charge  proton label should be electron  circles outside nucleus should have a negative charge	<b>2</b>	each correct answer = 1 mark   <b>Accept</b> electrons are not arranged (in shells) <b>Accept</b> protons should be in the nucleus
6(a)(ii)	Rutherford	<b>1</b>	
6(b)	attraction between protons and electrons  (idea of) attraction between positive and negative particles <b>or</b> electrostatic attraction	<b>2</b>	each correct answer = 1 mark  <b>Accept</b> attraction between nucleus and electrons   <b>Note</b> if no other marks awarded <b>Accept</b> attraction between opposite charges = 1 mark

Question	Answer	Marks	Further Information
7(a)(i)	E	1	
7(a)(ii)	(idea that) difficult to measure distance in space	1	
7(a)(iii)	formed from rocks left over from formation of a planetary system	1	
7(b)	repeats with different sized balls  references to controlling a variable, e.g. drops ball from same height each time	2	each correct answer = 1 mark

Question	Answer	Marks	Further Information
8	connect wire to cell <b>or</b> connect wire to battery <b>or</b> connect wire to power supply  wrap wire around a piece of iron (core <b>or</b> rod)	2	each correct answer = 1 mark  <b>Note</b> marks may be awarded from a labelled diagram

Question	Answer	Marks	Further Information
9	<div><div><div><div><sup>1</sup>P</div><div>L</div><div>A</div><div>S</div></div><div><div><sup>4</sup>M</div><div>I</div><div>T</div><div>O</div><div>C</div><div>H</div><div>O</div><div>N</div><div>D</div><div>R</div><div>I</div></div><div><div>A</div></div></div><div><div><div><sup>2</sup>G</div><div>L</div><div>U</div><div>C</div></div><div><div>S</div><div>E</div></div></div><div><div><div><sup>3</sup>W</div><div>T</div></div><div><div><div><sup>5</sup>E</div><div>N</div><div>E</div><div>R</div><div>G</div><div>Y</div></div><div>R</div></div></div></div>	4	<p><b>all five</b> correct = 4 marks</p> <p><b>four</b> correct = 3 marks</p> <p><b>three</b> correct = 2 marks</p> <p><b>one</b> or <b>two</b> correct = 1 mark</p> <p><b>Accept</b> answers written on answer lines, but answers in the crossword take precedence</p>



Question	Answer	Marks	Further Information
10(a)(i)	magnetic field	1	
10(a)(ii)	<b>B</b> is a S pole <b>C</b> is a N pole	1	<b>both</b> correct for the mark  <b>Accept</b> any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence
10(b)	Pole <b>D</b> and pole <b>E</b> are both S poles.  Pole <b>D</b> and pole <b>E</b> are both N poles.	2	each correct answer = 1 mark  <b>Note</b> if <b>one</b> incorrect answer ticked = max 1 mark if <b>two</b> or <b>more</b> incorrect answers 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										
11(a)(i)	normal (line)	1											
11(a)(ii)	C	1	<b>Accept</b> any indication of the correct answer, e.g. ticking, circling, underlining or x and y, but letter on answer line takes precedence										
11(b)	<table><tr><th>angle of incidence in °</th><th>angle of reflection in °</th></tr><tr><td>(20)</td><td>20</td></tr><tr><td>(30)</td><td>30</td></tr><tr><td>(40)</td><td>40</td></tr><tr><td>(50)</td><td>50</td></tr></table>	angle of incidence in °	angle of reflection in °	(20)	20	(30)	30	(40)	40	(50)	50	1	<b>all four</b> correct = 1 mark
angle of incidence in °	angle of reflection in °												
(20)	20												
(30)	30												
(40)	40												
(50)	50												
11(c)	<p>(safety hazard) ray box may be hot</p> <p>(description) leave to cool <b>or</b> use gloves/cloth <b>or</b> turn off when not in use</p>	2	<p>correct hazard = 1 mark</p> <p>correct description associated with the hazard = 1 mark</p> <p><b>Accept</b> the equipment may be hot</p> <p><b>Accept</b> (hazard) electric shock (description) keep away from water <b>or</b> turn power supply off when connecting ray box</p> <p><b>Note</b> award marks for correct answers wherever written</p>										

Question	Answer	Marks	Further Information
12(a)	temperature (of water)	1	
12(b)	higher the temperature the more salt dissolves	1	<b>Accept ora</b>
12(c)	<p>results for 30 °C and 40 °C are too close together  <b>or</b>  results for 40 °C seems too low  <b>or</b>  results for 40 °C is an anomaly</p> <p>only one set of results  <b>or</b>  needs to repeat the investigation</p>	2	each correct answer = 1 mark