



# Science

Stage 8

Paper 2

**2024**

Cambridge Lower Secondary Progression Test

## Mark Scheme

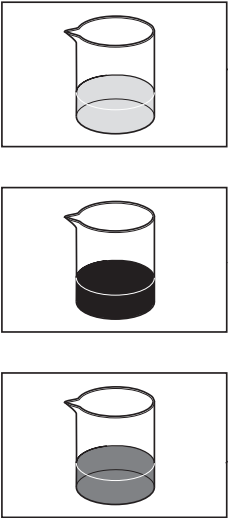
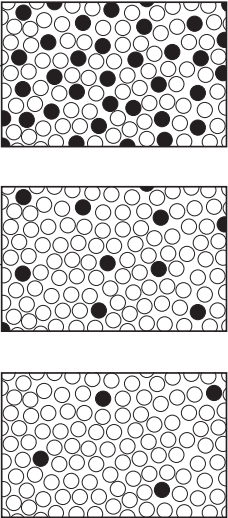
Question	Answer	Marks	Further Information
1(a)	<b>B</b> <b>C</b> <b>D</b>	<b>3</b>	each correct letter = 1 mark  more than <b>one</b> letter in a box = 0 marks for that description
1(b)	(adaptation) thin wall  (explanation) short diffusion distance <b>or</b> increases rate of diffusion  <b>or</b>  (adaptation) rich blood supply  (explanation) to transport gases quickly <b>or</b> maintain diffusion gradient <b>or</b> increases rate of diffusion  <b>or</b>  (adaptation) large surface area  (explanation) increases rate of diffusion  <b>or</b>  (adaptation) moist walls  (explanation) so gases dissolve <b>or</b> increases rate of diffusion	<b>2</b>	any correct adaptation = 1 mark  an explanation that is correctly linked to the adaptation = 1 mark  <b>Accept</b> more efficient diffusion for increases rate of diffusion    <b>Accept</b> more efficient diffusion for increases rate of diffusion    <b>Accept</b> more efficient diffusion for increases rate of diffusion    <b>Accept</b> more efficient diffusion for increases rate of diffusion    <b>Note</b> award marks wherever written
1(c)	iron	<b>1</b>	<b>Accept</b> Fe

Question	Answer	Marks	Further Information
2(a)(i)	oxygen	1	<b>Ignore</b> O or O <sub>2</sub>
2(a)(ii)	<p>(safety risk) burning metal</p> <p>(how to control risk) need eye protection</p> <p><b>or</b></p> <p>(safety risk) bright flame</p> <p>(how to control risk) don't look directly at flame <b>or</b> look through a blue filter or blue glass</p> <p><b>or</b></p> <p>(safety risk) (idea that) equipment will be hot</p> <p>(how to control risk) wear heat protective gloves</p>	2	<p>a correct safety risk = 1 mark</p> <p>control correctly linked to the risk = 1 mark</p> <p><b>Accept</b> named eye protection, e.g. goggles</p> <p><b>Ignore</b> just gloves</p> <p><b>Ignore</b> other safety controls, e.g. do not run <b>or</b> do not eat</p>
2(b)	<p>hydrogen</p> <p>magnesium chloride</p>	2	<p>each correct answer = 1 mark</p> <p><b>Accept</b> one circle around both words.</p> <p><b>three</b> circles <b>two</b> correct = 1 mark</p> <p><b>three</b> circles <b>one</b> correct = 0 marks</p> <p>more than <b>three</b> answers circled = 0 marks</p> <p><b>Accept</b> any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence</p>

Question	Answer	Marks	Further Information												
3(a)	<table><tr><th>current in A</th><th>number of pins</th></tr><tr><td>0.25</td><td>1</td></tr><tr><td>0.50</td><td>2</td></tr><tr><td>0.75</td><td>3</td></tr><tr><td>1.00</td><td>1</td></tr><tr><td>1.25</td><td>5</td></tr></table>	current in A	number of pins	0.25	1	0.50	2	0.75	3	1.00	1	1.25	5	1	<b>Accept</b> any indication of the correct answer, e.g. ticking or underlining or circling the current of 1.00 A, but circling 1 pin takes precedence
current in A	number of pins														
0.25	1														
0.50	2														
0.75	3														
1.00	1														
1.25	5														
3(b)	wrapping more coils (around the core)	1	<b>Accept</b> more cells <b>or</b> greater voltage <b>Accept</b> use thicker wire <b>Accept</b> core material												

Question	Answer	Marks	Further Information												
4	<table><tr><th>part</th><th>description</th></tr><tr><td></td><td>clouds of particles in space</td></tr><tr><td>galaxy</td><td>object orbiting a planet</td></tr><tr><td>solar system</td><td>large group of stars</td></tr><tr><td>stellar dust</td><td>small planets</td></tr><tr><td></td><td>planets orbiting around a star</td></tr></table>	part	description		clouds of particles in space	galaxy	object orbiting a planet	solar system	large group of stars	stellar dust	small planets		planets orbiting around a star	3	each correct line = 1 mark  if <b>two</b> lines from <b>one</b> part and <b>one</b> is incorrect = 0 marks for that part
part	description														
	clouds of particles in space														
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Question	Answer	Marks	Further Information
5(a)	river	1	<b>Accept</b> a habitat that contains water, e.g. pond <b>or</b> lake <b>or</b> stream <b>or</b> sea <b>or</b> ocean
5(b)(i)	otters eat <b>many</b> big fish	1	<b>Accept</b> toxins accumulate in the body tissues (of the otter) <b>or</b> toxins are not broken down <b>or</b> toxins are not excreted
5(b)(ii)	bioaccumulation	1	<b>Accept</b> phonetic spellings
5(c)	loss of species <b>or</b> extinction of species <b>or</b> fewer top predators  <b>or</b> (idea of) reduction in biodiversity	1	<b>Accept</b> correct example of impact on given food chain, e.g. otters die

Question	Answer	Marks	Further Information
6(a)	<div><div>solution</div><div></div><div>particle diagram</div><div></div></div>	1	all three lines correct for the mark
6(b)	<div>solute</div> <div>solvent</div>	1	both correct for the mark  Accept soluble

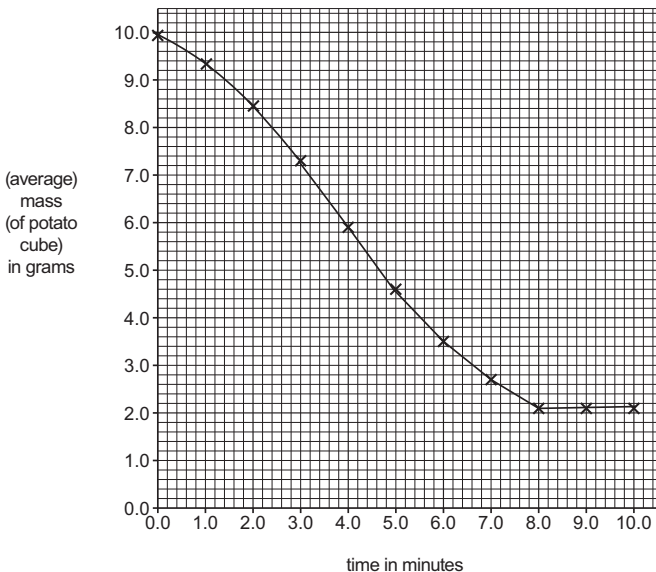
Question	Answer	Marks	Further Information
7(a)	yellow	1	more than <b>one</b> answer circled = 0 marks  <b>Accept</b> any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
7(b)	(colour) blue  (this is because magenta) reflects blue light <b>or</b> does not absorb blue light  (colour) black  (this is because green) absorbs blue light <b>or</b> does not reflect blue light	2	magenta colour and explanation <b>both</b> correct = 1 mark  green colour and explanation <b>both</b> correct = 1 mark
7(c)	(colour light) green  <b>and</b>  (reason) yellow filter only lets the green through <b>or</b> absorbs all colours except for green <b>or</b> absorbs blue light	1	<b>Note</b> any colour other than green = 0 marks  <b>Accept</b> cyan is green and blue, yellow is green and red (so only green passes through)



Question	Answer	Marks	Further Information										
8(a)(i)	125	1											
8(a)(ii)	the higher the (global) temperature the lower the volume (of ice on Earth)	1	Accept ora										
8(b)	<table><tr><td>average rainfall for a particular region</td><td>✓</td></tr><tr><td>changes in the atmosphere during a 24 hour period</td><td></td></tr><tr><td>highest temperature recorded in a week</td><td></td></tr><tr><td>long term temperature pattern in a given area</td><td>✓</td></tr><tr><td>predicting when the next thunderstorm will happen</td><td></td></tr></table>	average rainfall for a particular region	✓	changes in the atmosphere during a 24 hour period		highest temperature recorded in a week		long term temperature pattern in a given area	✓	predicting when the next thunderstorm will happen		2	<p>two correct ticks = 2 marks</p> <p>three ticks two correct = 1 mark</p> <p>three ticks one correct = 0 marks</p> <p>more than three ticks = 0 marks</p> <p>Accept any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence</p>
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Question	Answer	Marks	Further Information
9(a)	43.25	1	
9(b)	10	1	<b>Accept ecf</b> from part (a) <b>Accept</b> any value above 10 and below 14

Question	Answer	Marks	Further Information
10	liquids mix <b>or</b> intermingle <b>or</b> collide <b>or</b> spread out faster <b>or</b> more quickly	2	<b>all three</b> correct = 2 marks <b>one</b> or <b>two</b> correct = 1 mark <b>Accept</b> a named liquid <b>Ignore</b> diffuse

Question	Answer	Marks	Further Information
11(a)	 <p>(average) mass (of potato cube) in grams</p> <p>time in minutes</p>	4	<p><b>all three</b> points plotted correctly = 1 mark</p> <p>x-axis label with unit = 1 mark</p> <p>y-axis label and unit = 1 mark <b>or</b> both units correct = 1 mark <b>or</b> both labels correct = 1 mark</p> <p>curve of best fit = 1 mark</p> <p><b>Accept ecf</b> from plots</p> <p><b>Do not accept</b> dot to dot <b>or</b> straight line</p>
11(b)	<p>no ticked (no marks)</p> <p><b>and</b></p> <p>the potato only contained 79% water. <b>or</b> if the prediction was correct the potato mass would have gone down to 1 g.</p>	1	<p>if both boxes are ticked = 0 marks</p> <p>if neither box ticked <b>accept</b> no within the explanation</p>
Question	Answer	Marks	Further Information
12(a)	core	1	
12(b)	magnetic field or field lines	1	

Question	Answer	Marks	Further Information
13(a)(i)	1	1	
13(a)(ii)	(idea of) measure the same volume of water each time	1	<b>Accept</b> (idea of) stir at same speed <b>Ignore</b> same mass of solid <b>Do not accept</b> repeat investigation <b>or</b> get another set of results
13(a)(iii)	unreactive <b>or</b> does <b>not</b> react	1	
13(b)	calcium oxide + water → calcium hydroxide	1	<b>all</b> correct for the mark <b>Accept</b> calcium oxide and water in either order

Question	Answer	Marks	Further Information
14(a)	<p>(moment =) force <math>\times</math> distance  <b>or</b> (moment =) <math>500 \times 1.5</math></p> <p>(moment =) 750</p> <p>(unit) Nm</p>	3	<p><b>Accept</b> 750 Nm with or without working = 3 marks</p> <p><b>Accept</b> 750 with or without working = 2 marks</p> <p>correct equation <b>or</b> substitution = 1 mark</p> <p><b>Accept</b> (moment =) <math>F \times d</math> or <math>Fd</math></p> <p>correct units = 1 mark</p> <p><b>Accept</b> Newtonmeter</p>
14(b)	<p>weight <math>\times</math> distance = 750 <b>or</b> <math>600 \times d = 750</math>  <b>or</b> <math>d = 750 \div 600</math></p> <p>1.25 (m)</p>	2	<p><b>Accept</b> correct answer with or without working = 2 marks</p> <p><b>Accept</b> equation or evidence of equation, e.g. correct substitution = 1 mark</p> <p><b>Accept</b> ecf from (a)</p> <p><b>Accept</b> 1.2 (m) <b>or</b> 1.3 (m)</p>