

Cambridge Secondary 1 Progression Test

Mark scheme

Cambridge
Secondary 1

Science

Stage 8



This table gives general guidelines on marking answers involving units of length. For questions involving other quantities, correct units are given in the answers. The table shows acceptable and unacceptable versions of the answer 1.85 m.

	Correct answer	Also accept	Do not accept
Units are not given on answer line and the question does not specify a unit	1.85 m	Correct conversions provided the unit is stated, e.g. 1 m 85 cm 185 cm 1850 mm 0.00185 km	1.85 185 m
If the unit is given on the answer line, e.g.m1.85.....m	Correct conversions, provided the unit is stated unambiguously, e.g.185 cm m185.....m1850.....m etc
If the question states the unit that the answer should be given in. e.g. "Give your answer in metres"	1.85 m	1.85 1 m 85 cm	185; 1850 Any conversions to other units.

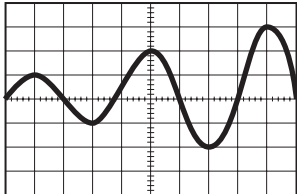
Stage 8 Paper 1 Mark Scheme

Question	1		
Part	Mark	Answer	Further Information
(a)	2	X = vein(s) Y = artery / arteries	Accept phonetic spelling Ignore named vessels e.g Vena Cava or Aorta
(b)	1	lung(s)	
Total	3		

Question	2		
Part	Mark	Answer	Further Information
(a)	4	<div> <div>name</div> <div>chemical symbol</div> <div> <div>neon</div> <div>sodium</div> <div>nitrogen</div> <div>aluminium</div> </div> <div> <div>Al</div> <div>Na</div> <div>Ar</div> <div>Ne</div> <div>N</div> <div>S</div> </div> </div>	<p>each correct answer = 1 mark</p> <p>more than one line from any name is incorrect</p>
(b)	2	<div> <div>aluminium</div> neon nitrogen <div>sodium</div> </div>	
(c)	3	<p>Any three from:</p> <p>high melting point</p> <p>high boiling point</p> <p>(good) conductor of heat</p> <p>(good) conductor of electricity</p> <p>malleable</p> <p>sonorous</p> <p>ductile</p> <p>high tensile strength</p> <p>hard</p> <p>high density</p> <p>lustrous</p>	<p>1 mark for each property</p> <p>Accept solid at room temperature if melting and boiling point not mentioned</p> <p>Accept (good) conductor for 1 mark if unqualified</p> <p>Accept can be worked into shapes</p> <p>Accept rings when hit</p> <p>Accept can be drawn into wires</p> <p>Accept strong</p> <p>Ignore tough</p> <p>Ignore heavy</p> <p>Accept shiny</p> <p>Accept chemical properties such as:</p> <p>form positive ions</p> <p>are reducing agents</p> <p>form basic oxides</p> <p>form ionic compounds with non metals</p>
Total	9		

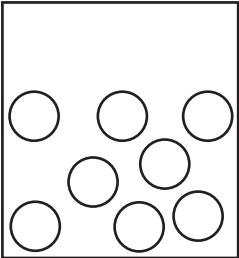
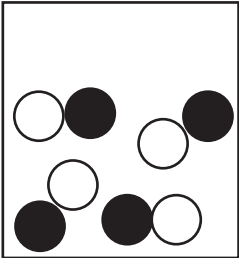
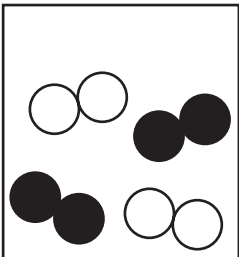
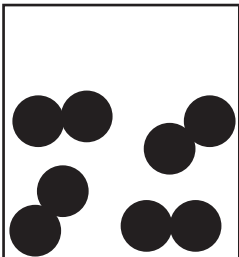
Question	3		
Part	Mark	Answer	Further Information
(a)	2	repel idea of having two poles that are the same	Accept the hanging magnet moves away
(b)	1	the idea that the iron stand is attracted to the magnet	Accept the magnet is attracted / moves towards iron stand
Total	3		


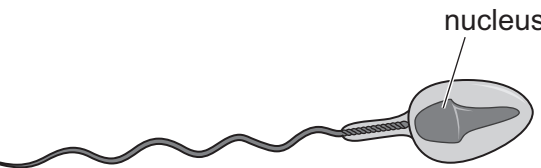
Question	4		
Part	Mark	Answer	Further Information
(a)	2	A = oesophagus B = large intestine	Accept gullet Accept colon
(b)	1	absorption (of nutrients) / chemical digestion / enzyme digestion	Accept specific examples of digestion e.g. fats are broken down / fats are emulsified / carbohydrates to sugars / proteins to amino acids or peptides
Total	3		

Question	5		
Part	Mark	Answer	Further Information
(a)	2	Sound is a type of energy . Sound is made when the particles in the air vibrate .	
(b)(i)	1	D	
(b)(ii)	1	C	
(b)(iii)	2	size of wave length stays the same height of wave increases from left to right	
Total	6		

Question	6		
Part	Mark	Answer	Further Information
(a)	4	<p>x-axis labelled time in minutes and y-axis labelled heart rate in beats per minute = 1 mark</p> <p>four correctly plotted points = 2 marks but two or three correctly plotted points = 1 mark</p> <p>smooth curve through most of the points = 1 mark</p>	<p>Accept time / min Do not accept time / m Accept heart rate / bpm Accept units placed in brackets</p> <p>Accept a plotting error of \pm half a square</p> <p>Accept curve if plots are incorrect</p>
(b)	1	result from the learner's graph for 2 minutes	Accept ± 4 beats per minute
(c)	2	<p>Any two from:</p> <p>(muscles/cells) need more oxygen / oxygen supplied faster</p> <p>(muscles/cells) need more glucose / glucose supplied faster</p> <p>removal of more carbon dioxide / carbon dioxide removed faster (from muscles/cells)</p>	<p>Accept O_2</p> <p>Accept $C_6H_{12}O_6$ Ignore sugar</p> <p>Accept CO_2</p>
Total	7		

Question	7		
Part	Mark	Answer	Further Information
(a)	2	Any two from: same distance between timing gates same (surface on) ramp same height same position of start line idea that the toy always travels parallel to edge of ramp	Ignore reference to releasing
(b)(i)	2	distance between the timing gates (in metres) time taken to travel between the timing gates (in seconds)	distance alone is not sufficient time alone is not sufficient
(b)(ii)	3	$\frac{\text{distance}}{\text{time}} / \frac{1}{2.5}$ 0.4 m/s	correct answer with no working out = 2 marks Accept metres per second
Total	7		

Question	8		
Part	Mark	Answer	Further Information
(a)	4	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>.....</p> <p>element</p> </div> <div style="text-align: center;">  <p>.....</p> <p>compound</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  <p>.....</p> <p>mixture</p> </div> <div style="text-align: center;">  <p>.....</p> <p>element</p> </div> </div>	each correct label = 1 mark
(b)	2	<p>hydrogen + oxygen \rightarrow water</p> <p>correct reactants and arrow = 1 mark</p> <p>arrow and correct product = 1 mark</p>	<p>Accept = instead of \rightarrow</p> <p>Accept reactants in either order</p> <p>Accept H₂ and O₂ and arrow</p> <p>Accept arrow and H₂O</p>
Total	6		

Question	9		
Part	Mark	Answer	Further Information
(a)	2	If an egg is present the sperm enters the egg.	5 and 4 in the correct place = 1 mark 2 and 3 in the correct place = 1 mark
		The journey continues into the oviduct (fallopian tube).	
		Sperm is deposited in the vagina.	
		Sperm travels through the cervix.	
		Sperm swim across the uterus (womb).	
(b)(i)	1	label, A , pointing to the tail 	
(b)(ii)	1	label, B , pointing to the nucleus 	Ignore labelled head of sperm cell
(c)	2	Any two from: idea that both eggs can be fertilised idea that this will lead to the development of twins idea of non-identical twins	
Total	6		

Stage 8 Paper 2 Mark Scheme

Question	1		
Part	Mark	Answer	Further Information
(a)	1	any value between 12 and 18	Accept any range between these values
(b)	2	<div style="display: flex; align-items: center; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">oxygen</div> <div>+</div> <div style="border: 1px solid black; padding: 2px 5px;">glucose</div> <div>→</div> <div style="border: 1px solid black; padding: 2px 5px;">carbon dioxide</div> <div>+</div> <div style="border: 1px solid black; padding: 2px 5px;">water</div> </div>	<p>correct reactants in any order = 1 mark</p> <p>correct products in any order = 1 mark</p> <p>Accept correct formulae O₂, C₆H₁₂O₆, CO₂, H₂O</p>
Total	3		

Question	2		
Part	Mark	Answer	Further Information
(a)	1	photosynthesis	
(b)	2	<p>Any two from:</p> <p>carbon dioxide is needed for photosynthesis</p> <p>more photosynthesis / more food is made /</p> <p>bigger plants / increased crop yield / faster growth</p>	Accept CO ₂
(c)	2	<p>Any two from:</p> <p>height</p> <p>(dry) mass</p> <p>number of tomatoes (fruits)</p> <p>surface area of leaves / number of leaves</p>	Accept weight
Total	5		

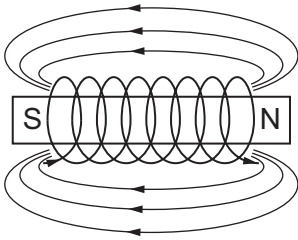
Question	3		
Part	Mark	Answer	Further Information
(a)	1	roots / root hairs	
(b)	1	osmosis / through cell walls (of root hair cells) / absorption (through roots)	
(c)	3	Any three from: transported (away) (transports) minerals / sugars travels up the stem goes to the leaves / other named part(s) of the plant (used in) photosynthesis evaporates (through leaves) / transpiration	Accept travels through the xylem Accept goes to stomata / leaf pore Accept is lost to the air
Total	5		

Question	4		
Part	Mark	Answer	Further Information
	3	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px;">elements</div> <div style="border: 1px solid black; padding: 2px 5px;">compound</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">magnesium</div> <div>+</div> <div style="border: 1px solid black; padding: 2px 5px;">oxygen</div> <div>→</div> <div style="border: 1px solid black; padding: 2px 5px;">magnesium oxide</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">lead</div> <div>+</div> <div style="border: 1px solid black; padding: 2px 5px;">sulfur</div> <div>→</div> <div style="border: 1px solid black; padding: 2px 5px;">lead sulfide</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">copper</div> <div>+</div> <div style="border: 1px solid black; padding: 2px 5px;">chlorine</div> <div>→</div> <div style="border: 1px solid black; padding: 2px 5px;">copper chloride</div> </div>	Accept sulphur Do not accept chlorine in place of chloride
Total	3		

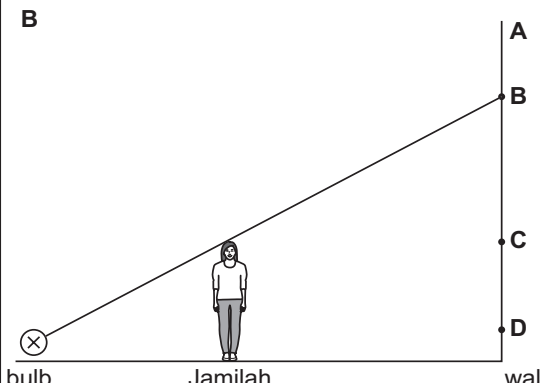
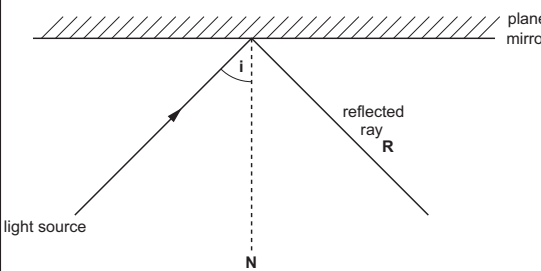
Question	5		
Part	Mark	Answer	Further Information
	3	carbon hydrogen oxygen	Accept any order
Total	3		

Question	6		
Part	Mark	Answer	Further Information
	3	red orange yellow green blue indigo violet	orange and yellow in correct place = 1 mark green in correct place = 1 mark blue and indigo in correct place = 1 mark
Total	3		

Question	7																																			
Part	Mark	Answer			Further Information																															
	5	<table><tr><th>colour of object</th><th>colour of light from spotlight</th><th>colour of light reflected</th></tr><tr><td rowspan="3">white</td><td>red</td><td>red</td></tr><tr><td>blue</td><td>blue</td></tr><tr><td>green</td><td>green</td></tr><tr><td rowspan="3">red</td><td>red</td><td>red</td></tr><tr><td>blue</td><td>black</td></tr><tr><td>green</td><td>black</td></tr><tr><td rowspan="3">blue</td><td>red</td><td>black</td></tr><tr><td>blue</td><td>blue</td></tr><tr><td>green</td><td>black</td></tr><tr><td rowspan="3">yellow</td><td>red</td><td>red</td></tr><tr><td>blue</td><td>black</td></tr><tr><td>green</td><td>green</td></tr></table>	colour of object	colour of light from spotlight	colour of light reflected	white	red	red	blue	blue	green	green	red	red	red	blue	black	green	black	blue	red	black	blue	blue	green	black	yellow	red	red	blue	black	green	green	each correct answer = 1 mark Accept no colour in place of black Accept no light (ray) in place of black		
colour of object	colour of light from spotlight	colour of light reflected																																		
white	red	red																																		
	blue	blue																																		
	green	green																																		
red	red	red																																		
	blue	black																																		
	green	black																																		
blue	red	black																																		
	blue	blue																																		
	green	black																																		
yellow	red	red																																		
	blue	black																																		
	green	green																																		
Total	5																																			

Question	8		
Part	Mark	Answer	Further Information
(a)	1	the result for 5 volts	Accept the idea of the result within the 27 to 29 paper clip range
(b)	1	(idea that) the paperclips were made from a non-magnetic material	Accept a named metal however do not award mark for metals or alloys that contain iron, cobalt or nickel
(c)	2		<p>at least two correct field lines, no two field lines should touch = 1 mark</p> <p>direction arrow from north to south every time it is drawn = 1 mark</p> <p>Ignore straight lines that leave the ends of the iron bar</p>
Total	4		

Question	9		
Part	Mark	Answer	Further Information
(a)	1	moves mucus	<p>Accept wafts mucus</p> <p>Accept Traps / moves out foreign objects</p>
(b)	1	paralyses (cilia) / stops (cilia) working	Do not accept kills (cilia)
(c)	1	nicotine	
Total	3		

Question	10		
Part	Mark	Answer	Further Information
(a)	2	<p>B</p>  <p>light travels in a straight line / correct straight line on the picture</p>	<p>if answer is not B = 0 marks</p> <p>Accept B if clearly shown in the picture</p>
(b)	3		<p>four correct = 3 marks two or three correct = 2 marks one correct = 1 mark</p> <p>Accept the arrow on either incident ray, reflected ray or on both providing no contradictions</p>
Total	5		

Question	11		
Part	Mark	Answer	Further Information
	3	<p>When she sits on the ball the mass of air inside it stays the same.</p> <p>When she sits on the ball the pressure inside it increases.</p> <p>When she sits on the ball the volume of air inside it decreases.</p>	
Total	3		

Question	12		
Part	Mark	Answer	Further Information
(a)	1	diffusion	
(b)	1	particles have more (kinetic) energy / particles move faster	
Total	2		

Question	13		
Part	Mark	Answer	Further Information
(a)	2	<p>no because</p> <p>Any two from:</p> <p>in dry air aluminium is slower than iron / aluminium has a lower number than iron</p> <p>in sea water aluminium is slower than iron / aluminium has a lower number than iron</p> <p>in acid rain aluminium is slower than iron / aluminium has a lower number than iron</p> <p>in distilled water aluminium is slower than iron / aluminium has a lower number than iron</p>	<p>no unqualified = 0 marks</p> <p>if yes = 0 marks</p>
(b)	1	<p>all the numbers are the same /</p> <p>all the corrosion speeds are the same</p>	it is not sufficient to just identify three or fewer numbers to be the same
(c)	1	corrosion is faster in acid rain / numbers are larger in acid rain	<p>Accept reverse argument</p> <p>answer must be comparative</p>
(d)	2	<p>Any two from:</p> <p>wear eye protection</p> <p>wear protective clothing e.g. lab coat</p> <p>wear gloves</p> <p>idea of acid not being too concentrated</p> <p>idea of having an acid neutraliser available e.g. sodium hydrogencarbonate</p> <p>put in a fume cupboard / hood</p>	<p>Ignore normal lab rules applicable for all experiments, the safety precautions must apply to the experiment in the question</p> <p>Ignore use of weak acid</p> <p>Accept alkali or base</p>
Total	6		

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