



Cambridge Assessment
International Education

Cambridge Lower Secondary Progression Test

Science 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
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.
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

Stage 8 Paper 1 Mark scheme

Question	1																	
Part	Mark	Answer	Further Information															
	3	<table border="1"> <thead> <tr> <th>organ</th> <th>letter</th> <th>function</th> </tr> </thead> <tbody> <tr> <td>large intestine</td> <td>(A)</td> <td>absorbs water</td> </tr> <tr> <td>(stomach)</td> <td>B</td> <td>(digests protein)</td> </tr> <tr> <td>small intestine</td> <td>C</td> <td>produces enzymes</td> </tr> <tr> <td>pancreas</td> <td>D</td> <td>absorbs digested food</td> </tr> </tbody> </table>	organ	letter	function	large intestine	(A)	absorbs water	(stomach)	B	(digests protein)	small intestine	C	produces enzymes	pancreas	D	absorbs digested food	each correct organ, letter, function linkage = 1 mark
organ	letter	function																
large intestine	(A)	absorbs water																
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Question	2																				
Part	Mark	Answer	Further Information																		
	4	<table border="1"> <thead> <tr> <th>element</th> <th>chemical symbol</th> </tr> </thead> <tbody> <tr> <td></td> <td>Ni</td> </tr> <tr> <td>nitrogen</td> <td>P</td> </tr> <tr> <td>phosphorus</td> <td>N</td> </tr> <tr> <td>potassium</td> <td>Na</td> </tr> <tr> <td>silicon</td> <td>Po</td> </tr> <tr> <td>sodium</td> <td>S</td> </tr> <tr> <td>sulfur</td> <td>K</td> </tr> <tr> <td></td> <td>Si</td> </tr> </tbody> </table>	element	chemical symbol		Ni	nitrogen	P	phosphorus	N	potassium	Na	silicon	Po	sodium	S	sulfur	K		Si	<p>six correct lines = 4 marks</p> <p>five correct lines = 3 marks</p> <p>four correct lines = 2 marks</p> <p>two or three correct lines = 1 mark</p> <p>one correct line = 0 marks</p> <p>more than one line from an element is incorrect</p>
element	chemical symbol																				
	Ni																				
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sodium	S																				
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Total	4																				

Question	3																													
Part	Mark	Answer	Further Information																											
	3	see table below	four correct rows = 3 marks three correct rows = 2 marks one or two correct rows = 1 mark more than one tick in a row = 0 marks for that row Accept any indication of correct answers, e.g. crosses or stars																											
		<table border="1"> <thead> <tr> <th>question</th> <th>decreases</th> <th>increases</th> <th colspan="2">stays the same</th> </tr> </thead> <tbody> <tr> <td>What happens to the loudness of the sound between X and Y?</td> <td>✓</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>What happens to the amplitude of the sound between X and Y?</td> <td>✓</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>What happens to the pitch of the sound between X and Y?</td> <td></td> <td></td> <td colspan="2">✓</td> </tr> <tr> <td>What happens to the frequency of the sound between X and Y?</td> <td></td> <td></td> <td colspan="2">✓</td> </tr> </tbody> </table>				question	decreases	increases	stays the same		What happens to the loudness of the sound between X and Y ?	✓				What happens to the amplitude of the sound between X and Y ?	✓				What happens to the pitch of the sound between X and Y ?			✓		What happens to the frequency of the sound between X and Y ?			✓	
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Total	3																													

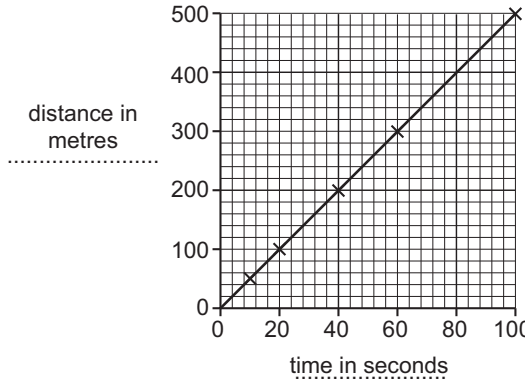
Question	4		
Part	Mark	Answer	Further Information
(a)	2	put the material between the clips / put material in to complete circuit (close the switch) lamp lights	
(b)	2	brittle <input type="checkbox"/> ductile <input checked="" type="checkbox"/> heat insulators <input type="checkbox"/> high melting point <input checked="" type="checkbox"/> low melting point <input type="checkbox"/>	each correct tick = 1 mark if three ticks two correct = 1 mark if three ticks one correct = 0 marks if four or five ticks = 0 marks Accept other indications of the correct answers but ticks take precedence
Total	4		

Question	5				
Part	Mark	Answer			Further Information
(a)	1	Any one from temperature type of soil minerals / fertiliser amount of water supply of air / supply of CO ₂			Ignore time interval / size or species of plant / amount of light Accept same size of cover
(b)	1	Any one from mass of plants height of plants area of leaves / length of leaves / width of leaves			
(c)	2	most growth = clear and least growth = black/green most photosynthesis in clear / no or little photosynthesis in dark / green not absorbed by plant			colours = 1 mark linked explanation = 1 mark
Total	4				

Question	6															
Part	Mark	Answer			Further Information											
	3	<table border="1"> <thead> <tr> <th>colour of light he shines at the filter</th> <th>colour of filter</th> <th>colour of light, if any, that comes through the filter</th> </tr> </thead> <tbody> <tr> <td>(red)</td> <td>(red)</td> <td>red</td> </tr> <tr> <td>(green)</td> <td>(red)</td> <td>no light</td> </tr> <tr> <td>(white)</td> <td>(red)</td> <td>red</td> </tr> </tbody> </table>	colour of light he shines at the filter	colour of filter	colour of light, if any, that comes through the filter	(red)	(red)	red	(green)	(red)	no light	(white)	(red)	red	each correct answer = 1 mark for no light Accept nothing / black / no colour Do not accept white for no light	
colour of light he shines at the filter	colour of filter	colour of light, if any, that comes through the filter														
(red)	(red)	red														
(green)	(red)	no light														
(white)	(red)	red														
Total	3															

Question	7		
Part	Mark	Answer	Further Information
(a)	1	water evaporates faster	Accept more transpiration
(b) (i)	1	xylem	Ignore vessels
(ii)	2	Any two from hollow tube / no contents no end walls / combine to form long tubes waterproof walls thick walls / rigid walls / strong walls	
Total	4		

Question	8		
Part	Mark	Answer	Further Information
(a) (i)	1	the air	Accept water
(ii)	1	iron + oxygen + water → hydrated iron oxide	both needed for mark Accept O ₂ for oxygen
(iii)	1	iron hydroxide or iron chloride or iron sulfate or iron carbonate	Ignore the use of oxidation states in a formula Accept iron nitrate, iron phosphate Accept hydrated iron oxide
(b)	1	atoms	Accept ions, electrons, protons, neutrons
Total	4		

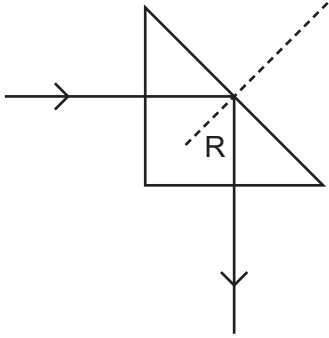
Question	9		
Part	Mark	Answer	Further Information
(a)	3	<p>x-axis labelled as time in s(econds) and y-axis labelled as distance in m(etres)</p> <p>(60, 300) and (100, 500) plotted correctly</p> <p>line of best fit drawn through the plotted points</p> 	<p>labelling = 1 mark</p> <p>plotting = 1 mark</p> <p>best fit (through origin) = 1 mark</p> <p>Accept $\pm \frac{1}{2}$ a small square error in plotting</p>
(b)	2	<p>distance/time</p> <p>but</p> <p>5 (m/s)</p>	<p>1 mark. Accept any correct pair of distance and time, e.g. 50/10</p> <p>2 marks. Accept correct answer with no working out</p>
Total	5		

Question	10		
Part	Mark	Answer	Further Information
(a)	1	respiration	<p>more than one answer circled = 0 marks</p> <p>Accept other indications of answer but circle takes precedence</p>
(b)	3	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">(oxygen)</div> <div style="margin: 0 10px;">+</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">glucose sugar</div> <div style="margin: 0 10px;">→</div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">carbon dioxide</div> <div style="margin: 0 10px;">+</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">water</div> </div>	<p>Accept carbon dioxide and water in any order.</p> <p>each correct answer in box = 1 mark</p> <p>Ignore energy in equation</p> <p>Accept chemical formulae but names take precedence</p> <p>glucose is $C_6H_{12}O_6$</p> <p>carbon dioxide is CO_2</p> <p>water is H_2O</p>
Total	4		

Question	11		
Part	Mark	Answer	Further Information
(a) (i)	1	A	two or more letters = 0 marks
(ii)	1	E	two or more letters = 0 marks
(iii)	1	B	two or more letters = 0 marks
(b) (i)	1	mixture because it contains salt and water	Accept mixture because it can be separated
(ii)	1	compound because it contains two elements joined together	Accept compound because sodium and chlorine are joined Accept compound because it has the formula NaCl
Total	5		

Question	12		
Part	Mark	Answer	Further Information
(a)	2	attract(ing) opposite poles / a N and a S / a north (pole) and a south (pole)	Ignore join together
(b)	2	repel(ling) like poles / a N and a N / two north (poles)	Ignore push apart
Total	4		

Question	13		
Part	Mark	Answer	Further Information
(a)	1	to withstand pressure / stop it bursting	Accept contains high pressure blood
(b)	1	so they can stretch / allow a pulse / keep them flexible	
Total	2		

Question	14		
Part	Mark	Answer	Further Information
	1		Accept label line to correct position
Total	1		

Stage 8 Paper 2 Mark scheme

Question	1		
Part	Mark	Answer	Further Information
(a)	1	protein / fibre / mineral(s) / vitamins / named vitamin (other than vitamin C)	Accept water
(b) (i)	1	fat	
(ii)	1	carbohydrate	
(c)	1	vitamin C destroyed by heating / vitamin C decomposed by cooking	Accept part of potato that contains the vitamin C is cut away from potato before cooking / skin is removed prior to cooking / vitamin C dissolves in water / vitamin C evaporates
Total	4		

Question	2		
Part	Mark	Answer	Further Information
	1	A to E	more than one answer circled = 0 marks Accept other indications of correct answer but circle takes precedence
Total	1		

Question	3		
Part	Mark	Answer	Further Information
	2	refracted / refraction the speed of light changes / the (ray of) light slows down	Accept the (ray of) light changes direction / bent Accept glass is denser than air / there is a change of medium Do not accept the ray of light speeds up
Total	2		

Question	4		
Part	Mark	Answer	Further Information
(a)	1	increases	Accept goes up
(b)	1	decreases	Accept goes down
(c)	1	decreases	Accept goes down
Total	3		

Question	5		
Part	Mark	Answer	Further Information
	3	1. true 2. false 3. false 4. false 5. false 6. true	all six correct = 3 marks four or five correct = 2 marks two or three correct = 1 mark one correct = 0 marks
Total	3		

Question	6		
Part	Mark	Answer	Further Information
(a) (i)	1	mass of salt	Accept concentration of salt / amount of salt / grams of salt
(ii)	1	volume of water / time nail left in water / temperature	Accept type of nail / size of nail Accept mass of water / amount of water
(iii)	1	the more salt the rustier the nail	Accept salt speeds up rusting
(b) (i)	1	oxygen	Accept O ₂ if name and formula used both must be correct
(ii)	1	little water / water cannot enter	Accept no air can get in / no oxygen can get in
Total	5		

Question	7		
Part	Mark	Answer	Further Information
(a)	2	group A (mass) increases (quickly) group B (mass) increases then (mass) decreases / (mass) increases slower than A	Accept goes up each correct answer = 1 mark
(b)	2	group A (mass) increases and then (mass) decreases group B (mass initially stays constant / decreases and then) increases	Accept goes down each correct answer = 1 mark
Total	4		

Question	8																
Part	Mark	Answer	Further Information														
(a)	1	protractor															
(b)	2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">angle A in °</th> <th style="width: 50%; text-align: center;">angle B in °</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	angle A in °	angle B in °													<p>correct headings = 1 mark</p> <p>Accept in degrees</p> <p>Accept incident angle for angle A / refracted angle for angle B</p> <p>enough space in table for 6 results = 1 mark</p> <p>horizontal lines not needed within table</p>
angle A in °	angle B in °																
Total	3																

Question	9		
Part	Mark	Answer	Further Information
(a)	1	oxygen	Accept other indication of correct answer but circle takes precedence two or more answers = 0 marks
(b)	2	decreases decreases	Accept increases and increases = 1 mark Accept stays the same and stays the same = 1 mark
(c)	1	amount of carbon dioxide temperature amount of water colour of light pH	Accept amount of chlorophyll Accept minerals
Total	4		

Question	10		
Part	Mark	Answer	Further Information
(a)	1	has more than one type of element (bonded together)	<p>Accept has copper and chlorine (bonded together)</p> <p>Accept has more than one type of atom</p> <p>Do not accept a mixture of elements or a mixture of copper and chlorine</p>
(b)	1	<p>Chlorine is a solid at room temperature because it has a high melting point. <input type="checkbox"/></p> <p>Chlorine conducts electricity because its molecules are close together. <input type="checkbox"/></p> <p>Chlorine is a gas at room temperature because it has a low boiling point. <input checked="" type="checkbox"/></p> <p>Chlorine conducts heat because its molecules are far apart. <input type="checkbox"/></p>	<p>Accept other indication of correct answer but tick takes precedence</p> <p>if more than one tick = 0 marks</p>
(c)	1	good conductor of heat / high melting point	<p>Ignore</p> <p>cooks food quickly / good conductor / good electrical / conductor / strong / malleable / shiny</p>
(d)	1	(very) strong	
Total	4		

Question	11		
Part	Mark	Answer	Further Information
(a)	2	(copper) wire wrapped around iron rod correct circuit to pass current through wire	Accept diagram or circuit diagram or mix of diagram and circuit diagram Ignore switches for two marks the electromagnet must work
(b)	1	can be turned off (and on)	Accept is not always on
Total	3		

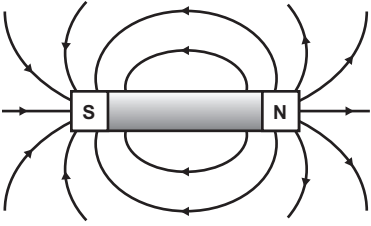
Question	12		
Part	Mark	Answer	Further Information
	3	<p>oxygen in the air</p> <pre> graph TD A[oxygen in the air] --> B[nose] B --> C[trachea] C --> D[bronchus] D --> E[bronchiole] E --> F[alveolus] F --> G[oxygen in the blood] </pre>	<p>nose correct = 1 mark</p> <p>trachea, bronchus and bronchiole correct = 1 mark</p> <p>alveolus correct = 1 mark</p>
Total	3		

Question	13		
Part	Mark	Answer	Further Information
	1	calcium carbonate → calcium oxide + carbon dioxide	calcium oxide and carbon dioxide can be in either order Accept correct formulae but words take precedence calcium carbonate is CaCO ₃ calcium oxide is CaO carbon dioxide is CO ₂
Total	1		

Question	14		
Part	Mark	Answer	Further Information
	2	Any two from Gabriella has lower resting pulse Gabriella's pulse does not rise as much Gabriella's maximum heart rate is less than Blessy's Gabriella's pulse returns to normal faster / recovery time is shorter	Accept converse comparative statements about Blessy statements must be comparative
Total	2		

Question	15		
Part	Mark	Answer	Further Information
	3	260 (s) $\frac{1500}{260}$ or $\frac{\text{distance}}{\text{time}}$ 5.8 (m/s)	1 mark Accept ecf from incorrect world record time 1 mark Accept ecf from incorrect distance used in equation or from incorrect world record time but final answer must be 2 significant figures correct answer on answer line with or without workings = 3 marks any answer that rounds to 5.8 / 5.7 / 6 = 2 marks
Total	3		

Question	16		
Part	Mark	Answer	Further Information
(a)	1	beryllium oxide	Ignore chemical formulae
(b)	2	two (or more) different atoms / two (or more) elements chemically joined / bonded together	each correct idea = 1 mark Do not accept a mixture Accept cannot be separated by physical means = 2 marks
Total	3		

Question	17		
Part	Mark	Answer	Further Information
	2		<p>correct field lines, none crossing, at least one above and one below magnet = 1 mark</p> <p>at least one arrow must be drawn but if more than one drawn they must all be in the correct direction = 1 mark</p>
Total	2		

