

Cambridge Lower Secondary Checkpoint

SCIENCE**1113/01**

Paper 1

April 2020

MARK SCHEME

Maximum Mark: 50

Published

This mark scheme is published as an aid to teachers and learners, to indicate the requirements of the examination. However, we have not been able to adjust it to reflect the full range of answers that would have been seen as a part of the normal moderation and marking process, and it does not necessarily contain all the possible alternatives that might have arisen.

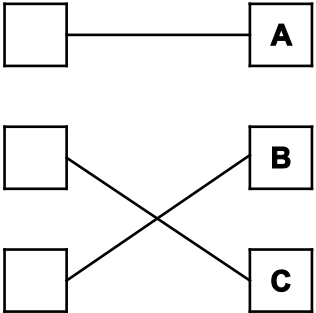
Cambridge will not enter into discussions about the mark scheme.

This document has **14** pages. Blank pages are indicated.

Question	Answer	Marks	Further Information																
1	<table border="1"> <tr> <th>part of a cell</th><th>only in animal cells</th><th>only in plant cells</th><th>in both animal and plant cells</th></tr> <tr> <td>cell membrane</td><td></td><td></td><td>✓</td></tr> <tr> <td>cell wall</td><td></td><td>✓</td><td></td></tr> <tr> <td>chloroplast</td><td></td><td>✓</td><td></td></tr> </table>	part of a cell	only in animal cells	only in plant cells	in both animal and plant cells	cell membrane			✓	cell wall		✓		chloroplast		✓		2	<p>all three correct = 2 marks</p> <p>two correct = 1 mark</p> <p>one correct = 0 marks</p> <p>if more than one tick in a row, 0 marks for that row</p>
part of a cell	only in animal cells	only in plant cells	in both animal and plant cells																
cell membrane			✓																
cell wall		✓																	
chloroplast		✓																	

Question	Answer	Marks	Further Information
2(a)	<p>metal property</p> <p>sonorous</p> <p>strong</p> <p>ductile</p> <p>hard</p> <p>use</p> <p>drill bit</p> <p>bridge across a river</p> <p>electrical wires</p> <p>bell</p>	2	<p>all four correct = 2 marks</p> <p>two or three correct = 1 mark</p> <p>one correct = 0 marks</p>
2(b)	<p>any two from</p> <p>plastic is an insulator/does not conduct electricity</p> <p>(idea of) makes the wires safe/prevents electrocution</p> <p>flexible</p> <p>can be coloured</p>	2	<p>each correct answer = 1 mark</p> <p>Accept other valid answers</p>
2(c)	<p>All metals have low melting points. <input type="checkbox"/></p> <p>Some metals are gases at room temperature. <input type="checkbox"/></p> <p>All metals conduct heat. <input checked="" type="checkbox"/></p> <p>All metals are brittle. <input type="checkbox"/></p>	1	<p>more than one box ticked = 0 marks</p>

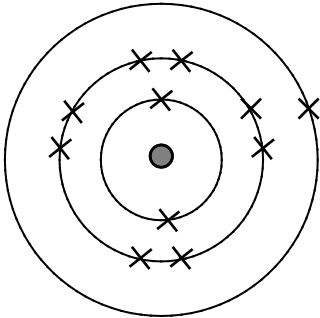
Question	Answer	Marks	Further Information
3(a)	Sun	1	
3(b)	<p>any two from</p> <p>planets move around the Sun / planets do not move around the Earth / only the Moon moves around the Earth</p> <p>the Earth moves / the Sun does not move</p> <p>(idea that) not all the planets are in the model</p> <p>the order of the planets is not correct</p> <p>orbit size is not correct / not to scale</p> <p>objects in model are not to scale</p>	2	<p>each correct answer = 1 mark</p> <p>Accept named planets missing e.g. Uranus is not in the model</p>
3(c)	<p>any one from</p> <p>the Moon moves around the Earth</p> <p>planets move in orbits</p> <p>a correct statement about the order of the planets e.g.</p> <p>a correct statement about the relative size of the planets e.g. Jupiter is the largest planet</p>	1	

Question	Answer	Marks	Further Information
4(a)		2	all three correct = 2 marks one or two correct = 1 mark
4(b)	A = artery C = vein	2	Accept aorta/named artery Accept vena cava/named vein

Question	Answer	Marks	Further Information
5(a)	chlorine and bromine	1	both correct = 1 mark Accept liquid and gas
5(b)	Cl	1	Accept Cl ₂
5(c)	<p>Forces between the particles push them apart. <input type="checkbox"/></p> <p>The particles are free to move. <input checked="" type="checkbox"/></p> <p>The particles can easily be squashed into a small space. <input type="checkbox"/></p> <p>The particles increase in size to fill the space. <input type="checkbox"/></p>	1	more than one box ticked = 0 marks
5(d)	<p>any two from</p> <p>particles gain energy/(some) particles have more kinetic energy/(some) particles move faster</p> <p>particles have overcome attraction between them/idea that forces between particles have been broken</p> <p>particles have spread further apart (in the gas phase)</p>	2	<p>Accept molecules instead of particles</p> <p>Do not accept boils</p> <p>Accept bromine changes to a gas/ bromine changes to vapour</p> <p>Accept particles diffuse into the air/ particles escape from the liquid</p>

Question	Answer	Marks	Further Information
6(a)	vibrating / moving (air) particles	2	Accept rarefaction and compression as an alternative to vibrating
6(b)(i)	any wave with greater amplitude	1	At least one wave greater than 6 small squares. Above or below the midline Ignore frequency
6(b)(ii)	any wave with greater frequency	1	Diagram must show at least two complete waves Accept incomplete waves providing at least two complete waves are drawn Ignore amplitude

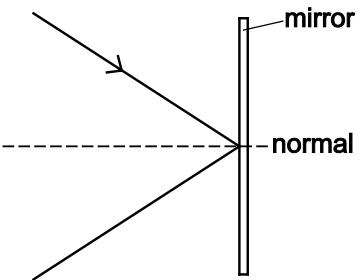
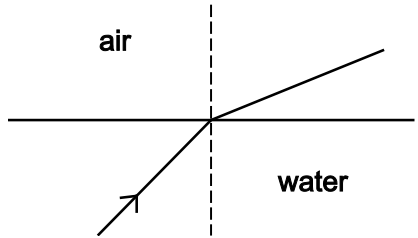
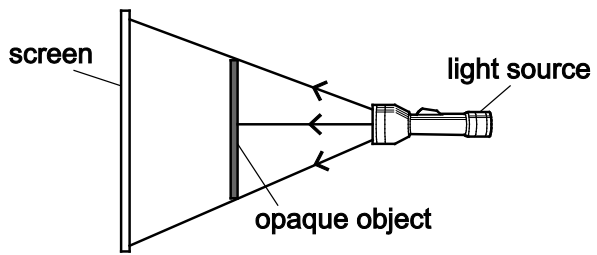
Question	Answer	Marks	Further Information									
7(a)	(seed germination) → pollination → fertilisation → seed formation	1	all three in correct order for one mark									
7(b)	<table><tr><td></td><td>method of seed dispersal</td><td>reason</td></tr><tr><td>A</td><td>by animals</td><td>have hooks / attach to hair or fur</td></tr><tr><td>B</td><td>by wind</td><td>light (weight) / feathery / parachute shaped</td></tr></table>		method of seed dispersal	reason	A	by animals	have hooks / attach to hair or fur	B	by wind	light (weight) / feathery / parachute shaped	2	each method and reason correctly linked = 1 mark
	method of seed dispersal	reason										
A	by animals	have hooks / attach to hair or fur										
B	by wind	light (weight) / feathery / parachute shaped										

Question	Answer	Marks	Further Information
8(a)(i)	3	1	
8(a)(ii)	4	1	
8(b)	2.8.1 or 	2	<p>If drawn ignore distribution of electrons within each shell so long as numbers are correct</p> <p>Accept dots or circles instead of crosses total of 11 electrons drawn outside of the nucleus = 1 mark</p> <p>But drawing showing 2.8.1 = 2 marks</p> <p>Accept correct use of 2.8.1 notation = 2 marks</p> <p>Ignore any particles shown in the nucleus</p>

Question	Answer	Marks	Further Information
9(a)(i)	both picked up 24 / both picked up the maximum number of paper clips	1	
9(a)(ii)	using more paper clips	1	Accept repeat using bigger paper clips / replace with iron filings and measure the mass of iron filings
9(b)(i)	fewer paper clips picked up	1	
9(b)(ii)	their hands are different / Pierre's hand is bigger / Mike's hand is smaller	1	

Question	Answer	Marks	Further Information
10(a)(i)	answer in the range pH 2 – pH 2.5	1	
10(a)(ii)	any two from test at more pH values test between pH 1 and pH 3/test at pH 2 repeat the experiment/take averages	2	each correct answer = 1 mark
10(b)(i)	any one from liquid is corrosive / burn tissue / liquid would harm skin	1	
10(b)(ii)	any one from wear goggles / wear gloves / apron / lab coat do not taste / smell the liquid use only small quantities	1	Accept avoid contact with skin / avoid contact with eyes / do not swallow / do not ingest it / mop up spillages
10(c)	any one from (keep same) temperature (use same) amount or proportion or concentration of enzyme (use same) amount or proportion or concentration of egg white mix liquids evenly	1	

Question	Answer	Marks	Further Information						
11(a)	colour change / fizzing / bubbles / new substance forms / some form of coating	1	Accept temperature change						
11(b)(i)	<table border="1"><tr><td>magnesium nitrate</td><td>x</td><td></td><td>x</td><td>x</td><td></td></tr></table>	magnesium nitrate	x		x	x		1	Ignore X in the grey box
magnesium nitrate	x		x	x					
11(b)(ii)	copper	1							

Question	Answer	Marks	Further Information
12(a)	<p>see diagram below</p> <p>reflection</p> 	1	<p>reflected ray correct by eye = 1 mark</p> <p>Do not accept arrow in the wrong direction</p> <p>note – arrow does not need to be shown</p>
12(b)	<p>see diagram below</p> 	1	<p>refracted ray correct by eye = 1 mark</p> <p>Ignore arrows</p>
12(c)	<p>see diagram below</p> 	2	<p>two rays from light source continued to edge of object and onto screen = 1 mark</p> <p>middle ray goes to object = 1 mark</p> <p>Ignore arrows</p>

Question	Answer	Marks	Further Information
13	(glucose) + oxygen \longrightarrow water + carbon dioxide	2	oxygen as a reactant = 1 mark water and carbon dioxide (either order) as products = 1 mark Accept formula but names take precedence <ul style="list-style-type: none">• oxygen, O₂• water, H₂O• carbon dioxide, CO₂