

---

**SCIENCE**

**0846/02**

Paper 2

**April 2018**

MARK SCHEME

Maximum Mark: 50

---

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Markers were instructed to award marks. It does not indicate the details of the discussions that took place at an Markers' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the End of Series Report.

Cambridge will not enter into discussions about these mark schemes.

---

This document consists of **14** printed pages.

**PUBLISHED**

## Annotations and abbreviations

/ OR alternate responses for the same marking point

( ) the words or units in brackets do not need to be stated

**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, however, full marks can still be achieved even with the 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

**note** provides extra information when necessary

Question	Answer	Marks	Further Information
1(a)	blood <b>bones</b> fat other muscles skin	1	more than one answer circled = 0 marks
1(b)	When Oliver runs the muscles in his legs move because the muscles <b>contract</b> .	1	<b>Accept</b> shorten / relax / lengthen / stretch / move our bones
Question	Answer	Marks	Further Information
2	fertilisation <b>2</b> germination <b>4</b> pollination <b>(1)</b> seed production <b>3</b>	1	all correct = 1 mark

Question	Answer	Marks	Further Information
3	glass block magnifying glass microscope mirror <b>telescope</b>	1	more than one answer circled = 0 marks
4(a)	it is camouflaged	1	
4(b)	they are covered in hair to keep cool they are covered in hair to keep warm they are grey to keep cool <b>they sometimes flap to keep cool</b> they stay still to keep warm	1	more than one answer circled = 0 marks

Question	Answer	Marks	Further Information
5(a)	This process is <b>melting</b> .	1	
5(b)	This process is <b>evaporation</b> .	1	
5(c)	This process is <b>freezing</b> .	1	<b>Accept</b> solidification
5(d)	This process is <b>condensation</b> .	1	
Question	Answer	Marks	Further Information
6(a)	Pull is an example of a <b>force</b> .	1	<b>Accept</b> different types of pulling force e.g. action force / muscular force / elastic force
6(b)	(idea that the string) changes shape / goes floppy / goes down / moves down / loosen(s) / slacken(s) / relax(es) / not tight / less tight / not stretched (anymore)  (because) less force / less pull (force)	2	correct change = 1 mark  correct reason = 1 mark  <b>Accept</b> Mia isn't pulling the string / weaker force / Mia is not using force

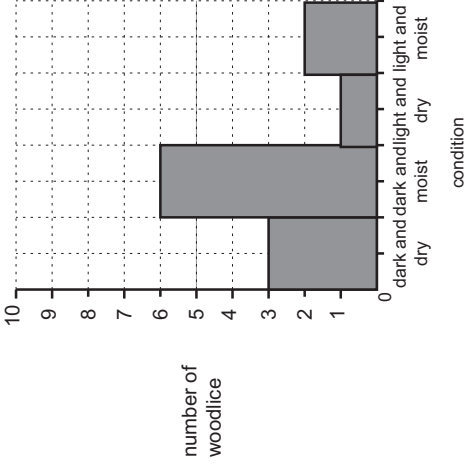
Question	Answer	Marks	Further Information
7(a)	conclusion data evidence <b>prediction</b> results	1	more than one answer circled = 0 marks
7(b)	<p>forcemeter <input type="checkbox"/></p> <p>light meter <input type="checkbox"/></p> <p>ruler <input checked="" type="checkbox"/></p> <p>sound meter <input type="checkbox"/></p> <p>stop clock <input checked="" type="checkbox"/></p> <p>weighing scales <input type="checkbox"/></p>	2	<p>each correct tick = 1 mark</p> <p><b>three</b> ticks, <b>two</b> correct = 1 mark</p> <p><b>three</b> ticks, <b>one</b> correct = 0 marks</p> <p>more than <b>three</b> ticks = 0 marks</p>

7(c)	<p>Label the axes of the graph correctly. <input type="checkbox"/></p> <p>Measure from the same point to the end of the shadow each time. <input checked="" type="checkbox"/></p> <p>Push the stick into the ground before measuring. <input type="checkbox"/></p> <p>Use a different stick in the ground each time. <input type="checkbox"/></p> <p>Use a ruler to draw the table of results. <input type="checkbox"/></p>	1	more than one tick = 0 marks
------	---	---	------------------------------

Question	Answer	Marks	Further Information
8	<p>keeps the blood moving</p> <p>pumps blood to the feet</p> <p>moves oxygen to the brain</p> <p><b>breathes out carbon dioxide</b></p>	1	more than one answer circled = 0 marks

Question	Answer	Marks	Further Information
9(a)	<b>Saturn</b>	1	
9(b)	<p>0   1   <b>2</b>   3   4</p>	1	more than one answer circled = 0 marks



Question	Answer	Marks	Further Information										
10(a)	<table border="1"> <thead> <tr> <th>condition</th> <th>number of woodlice</th> </tr> </thead> <tbody> <tr> <td>dark and dry</td> <td><b>3</b></td> </tr> <tr> <td>dark and moist</td> <td><b>6</b></td> </tr> <tr> <td>light and dry</td> <td><b>1</b></td> </tr> <tr> <td>light and moist</td> <td><b>2</b></td> </tr> </tbody> </table>	condition	number of woodlice	dark and dry	<b>3</b>	dark and moist	<b>6</b>	light and dry	<b>1</b>	light and moist	<b>2</b>	1	all correct = 1 mark
condition	number of woodlice												
dark and dry	<b>3</b>												
dark and moist	<b>6</b>												
light and dry	<b>1</b>												
light and moist	<b>2</b>												
10(b)	 <p>number of woodlice</p> <p>condition</p> <p>dark and dry   dark and moist   light and dry   light and moist</p>	2	<p><b>all</b> bars drawn correctly = 1 mark (plotting must touch the line)</p> <p><b>all</b> bars labelled correctly = 1 mark</p> <p><b>Accept</b> label inside the bar</p> <p><b>Accept</b> any order</p> <p><b>ecf</b> from <b>(a)</b></p>										
<b>Question CPS00680</b>	<b>Answer</b>	<b>Marks</b>	<b>Further Information</b>										
11	<p>The lamp produces <b>ray(s)</b> of light.</p> <p>The surface of the book <b>reflect(s)</b> the light.</p> <p>The light reaches Carlos and enters his <b>eye(s)</b>.</p>	2	<p><b>three</b> words correct = 2 marks</p> <p><b>two</b> words correct = 1 mark</p> <p><b>one</b> word correct = 0 marks</p>										

Question	Answer	Marks	Further Information
12(a)	flowering germination pollination <b>seed dispersal</b> seed production	1	more than one answer circled = 0 marks
12(b)	spreads the seeds / disperses the seeds / allows the seeds space (to germinate) / prevent overcrowding / to stop too many seeds in one place	1	<b>Accept</b> 'plants' or 'poppies' for seeds <b>Accept</b> idea of reducing competition

Question	Answer	Marks	Further Information
13(a)	<b>A</b> – kidney <b>B</b> – bladder	2	each correct answer = 1 mark
13(b)	The function of organ <b>A</b> is to <b>filter blood</b> / <b>clean the blood</b> . The function of organ <b>B</b> is to <b>store urine</b> .	2	each correct answer = 1 mark

Question	Answer	Marks	Further Information
14(a)	breathing in / inhaling	1	<b>Accept</b> through her lungs / breathes / to her lungs
14(b)	cough medicine <div style="border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block; margin: 5px;"> <p><b>painkiller</b></p> </div> rash cream teething gel vitamins	1	more than one answer = 0 marks

Question	Answer	Marks	Further Information
15(a)	25 cm <sup>3</sup> / the same	1	
15(b)	20 °C / the same	1	
15(c)	to make investigation or results (more) reliable	1	<b>Accept</b> to check results
15(d)	more can dissolve at (higher temperatures)	1	

Question	Answer	Marks	Further Information
16(a)	The air inside the recorder <b>vibrates</b> .	1	
16(b)	put fingers on the holes / remove fingers from the holes / use a longer recorder / use a shorter recorder	1	
Question	Answer	Marks	Further Information
17	baking bread burning a match frying an egg <b>melting ice cream</b>	1	more than one answer = 0 marks

Question	Answer	Marks	Further Information				
18(a)	iron	<b>1</b>	more than one answer = 0 marks				
18(b)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">soluble materials</th> <th style="width: 50%;">insoluble materials</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">carbon dioxide magnesium sulfate</td> <td style="text-align: center;">gold hydrogen iron marble mercury paraffin</td> </tr> </tbody> </table>	soluble materials	insoluble materials	carbon dioxide magnesium sulfate	gold hydrogen iron marble mercury paraffin	<b>2</b>	each correct column = 1 mark
soluble materials	insoluble materials						
carbon dioxide magnesium sulfate	gold hydrogen iron marble mercury paraffin						
18(c)	<p>is it solid, liquid or a gas?</p> <p>does it have a high or a low melting point?</p>	<b>2</b>					

Question	Answer	Marks	Further Information
19(a)	As the distance increases the brightness of the lamp <b>decreases</b> .	1	<b>Accept</b> goes down / becomes less / becomes dim / lowers / dimmers / is less / dims / goes low
19(b)	0 20 <b>40</b> 60 80	1	more than one answer circled = 0 marks
19(c)	Graphite is a good electrical <b>conductor</b> .	1	

Question	Answer	Marks	Further Information
20(a)	rat snake dragonfly frog sardine tuna	1	any <b>two</b> correct = 1 mark
20(b)	grasshopper rat mosquito dragonfly animal plankton sardine	1	any <b>two</b> correct = 1 mark