



Question	Answer	Marks	Further Information
1(a)(i)	(pH =) 10	1	
1(a)(ii)	as the volume increases the pH decreases	1	<b>Accept ora</b> <b>Ignore</b> pH becomes more acidic
1(a)(iii)	neutralisation	1	
1(b)	two soluble reactants make an insoluble product	2	each correct answer = 1 mark <b>Accept</b> two solutions (react) <b>Accept</b> to make a substance that does not dissolve

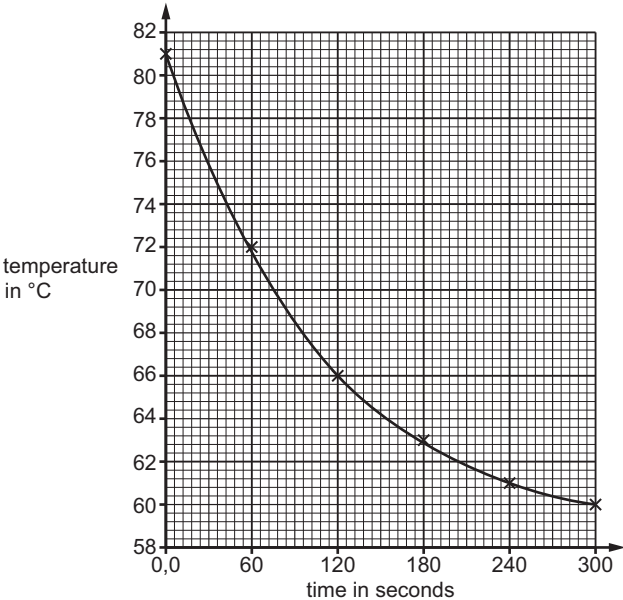
Question	Answer	Marks	Further Information
2	can (easily) go between soil particles increases (rate of) absorption of water <b>or</b> increases uptake of water	2	each correct answer = 1 mark <b>Accept</b> (idea that) plant can absorb water from a greater area around the root <b>Accept</b> (idea that) increases the absorption of minerals

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3	The force of attraction between two objects is called gravity. Air resistance does not act on an object in a vacuum.	1	<b>two</b> correct = 1 mark <b>one</b> correct = 0 marks more than <b>two</b> answers ticked = 0 marks <b>Accept</b> any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence
Question	Answer	Marks	Further Information
4(a)	correct alignment of Earth, Moon and Sun  Moon blocks light from the Sun	2	each correct answer = 1 mark Accept mark(s) from a labelled diagram, e.g.  Accept (idea that) the moon gets between the Earth and Sun blocking the light = 2 marks
4(b)	<b>any one from</b> correct alignment for lunar eclipse, Moon, Earth, Sun Earth blocks light from Sun lunar eclipse is at night solar eclipse is during the day	1	<b>Accept</b> mark from a labelled diagram, e.g. 

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5	palisade layer	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

Question	Answer	Marks	Further Information									
6(a)	<table border="1"> <thead> <tr> <th></th> <th>total number of atoms of hydrogen</th> <th>total number of atoms of nitrogen</th> </tr> </thead> <tbody> <tr> <td><b>reactants</b></td> <td>6</td> <td>2</td> </tr> <tr> <td><b>product</b></td> <td>6</td> <td>2</td> </tr> </tbody> </table>		total number of atoms of hydrogen	total number of atoms of nitrogen	<b>reactants</b>	6	2	<b>product</b>	6	2	2	<b>all four</b> correct = 2 marks  <b>two</b> or <b>three</b> correct = 1 mark  <b>one</b> correct = 0 marks
	total number of atoms of hydrogen	total number of atoms of nitrogen										
<b>reactants</b>	6	2										
<b>product</b>	6	2										
6(b)	any sensible limitation	1	Examples of sensible limitations include: (idea that it does not show) rate or speed of reaction <b>or</b> yield <b>or</b> whether the reaction goes to completion <b>or</b> purity of product <b>or</b> it only shows a sample of the reactants <b>or</b> (not to) scale <b>or</b> in reality all of the substances are colourless and cannot be seen <b>or</b> does not show state of matter of substances <b>or</b> does not show shape of molecules <b>or</b> does not show bonds <b>or</b> does not show structure of each atom									

Question	Answer	Marks	Further Information
7(a)	90 – 83 <b>or</b> 27 30(%)	2	each correct answer = 1 mark
7(b)	<b>any one from</b> volume of water room temperature	1	<b>Accept</b> mass of water <b>or</b> amount of water  <b>Accept</b> all beakers must have no lids <b>or</b> all must have a lid

Question	Answer	Marks	Further Information														
7(c)	<p>six points plotted correctly</p> <p>smooth curved line of best fit</p> 	2	<p>each correct answer = 1 mark</p> <p><b>all six</b> points correctly plotted with a tolerance <math>\pm</math> half a small square = 1 mark</p> <p>points should be plotted at:</p> <table border="1"> <thead> <tr> <th>time in seconds</th> <th>temperature of water in beaker 1 in °C</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>81</td> </tr> <tr> <td>60</td> <td>72</td> </tr> <tr> <td>120</td> <td>66</td> </tr> <tr> <td>180</td> <td>63</td> </tr> <tr> <td>240</td> <td>61</td> </tr> <tr> <td>300</td> <td>60</td> </tr> </tbody> </table> <p><b>Do not accept</b> a bar graph</p> <p><b>Accept ecf</b> from incorrect plotting for best fit curve</p> <p><b>Do not accept</b> dot-to-dot</p> <p><b>Do not accept</b> a straight line</p>	time in seconds	temperature of water in beaker 1 in °C	0	81	60	72	120	66	180	63	240	61	300	60
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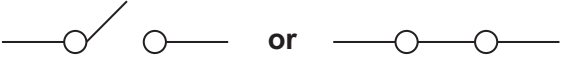
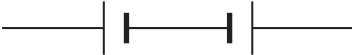


Question	Answer	Marks	Further Information
9(a)	<p><b>any two from</b></p> <p>sensitivity (is a characteristic of living organisms) <b>or</b> the plant has responded to the light</p> <p>movement (is a characteristic of living organisms)</p> <p>growth (is a characteristic of living organisms) <b>or</b> the plant has grown</p>	2	<p>each correct answer = 1 mark</p> <p><b>Accept</b> the plant has detected the light</p> <p><b>Accept</b> the plant gets taller</p> <p><b>Accept</b> the plant has moved towards the light = 2 marks (movement and sensitivity)</p> <p><b>Accept</b> the plant has grown towards the light = 2 marks (growth and sensitivity)</p> <p><b>Note</b> characteristics used in answers must be observable from the diagram</p>
9(b)	viruses (may) reproduce (but only with a host cell)	1	<p><b>Accept</b> viruses replicate or multiply</p> <p><b>Accept</b> viruses (may) move (but not independently)</p>

Question	Answer	Marks	Further Information
10(a)	(idea that) each element needs a different symbol <b>or</b> elements have different names in different languages	1	<b>Accept</b> you cannot have two elements with the symbol S <b>Accept</b> Na is also known as natrium
10(b)	<b>any three from</b> strong good thermal conductivity good electrical conductivity hard sonorous ductile malleable shiny <b>or</b> lustrous	3	each correct answer = 1 mark  <b>Note</b> if no marks awarded for both thermal conductivity and electrical conductivity, then <b>accept</b> metals have good conductivity = 1 mark  <b>Accept</b> metals make a ringing noise when hit <b>Accept</b> metals can be drawn into wires <b>Accept</b> metals can be beaten into shapes  <b>Ignore</b> references to boiling point <b>or</b> melting point <b>or</b> density
10(c)	<b>any one from</b> (elements) contain one type of atom (elements) cannot be chemically split up <b>and</b> <b>any one from</b> (compounds) contains two (or more) types of atoms (bonded together) (compounds) can be chemically split up	1	<b>Note one</b> correct statement about elements <b>and one</b> correct statement about compounds needed in either order for the mark

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11	the (first) sound reflects (from the cliff)  (produces an) echo	2	each correct answer = 1 mark  <b>Ignore</b> the sound bounces off the cliff

Question	Answer	Marks	Further Information
12	Horses and donkeys are different species.  Mules are infertile.	2	each correct answer = 1 mark  if <b>three</b> boxes ticked and <b>two</b> correct = 1 mark  if <b>two</b> or <b>more</b> incorrect boxes ticked = 0 marks  <b>Accept</b> any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence

Question	Answer	Marks	Further Information
13(a)	series	1	
13(b)	<b>A</b>	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
13(c)		1	
13(d)	<p>a circuit drawn which:</p> <p>is a complete series circuit with no gaps using standard electrical symbols containing at least one cell and one lamp</p> <p>contains <b>two</b> cells</p> <p>contains only <b>one</b> lamp</p>	3	<p>each correct answer = 1 mark</p> <p><b>Ignore</b> any ammeters drawn for all marking points</p> <p><b>Ignore</b> for this marking point number of cells lamps and ammeters</p> <p><b>Do not accept</b> cells connected with the two positive or two negative terminals next to each other, e.g.</p> 

Question	Answer	Marks	Further Information
14(a)(i)	any correct food chain starting from grass, e.g. grass → deer → cheetah → eagle	1	
14(a)(ii)	(decomposers) break down dead organism or recycle organic matter  (idea that) provides nutrients to producers or plants or replenishes nutrients in the soil	2	each correct answer = 1 mark  <b>Accept</b> decay for break down
14(a)(iii)	(idea that) the number of giraffes <b>or</b> rhinos <b>or</b> lions decreases	1	<b>Accept</b> (idea that) there is no change to food web as giraffes and rhinos find a different food source
14(b)	19 500  lower	2	each correct answer = 1 mark