

Question	Answer			Marks	Further Information															
2	<table border="1"> <thead> <tr> <th>physical property</th> <th>metal</th> <th>non-metal</th> </tr> </thead> <tbody> <tr> <td>electrical conductivity</td> <td>high</td> <td>(low)</td> </tr> <tr> <td>thermal conductivity</td> <td>(high)</td> <td>low</td> </tr> <tr> <td>melting point</td> <td>high</td> <td>(low)</td> </tr> <tr> <td>density</td> <td>(high)</td> <td>low</td> </tr> </tbody> </table>	physical property	metal	non-metal	electrical conductivity	high	(low)	thermal conductivity	(high)	low	melting point	high	(low)	density	(high)	low			2	<p>all four correct = 2 marks</p> <p>two or three correct = 1 mark</p> <p>one correct = 0 marks</p>
physical property	metal	non-metal																		
electrical conductivity	high	(low)																		
thermal conductivity	(high)	low																		
melting point	high	(low)																		
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3(a)(i)	because the distance (between object A and object B) is the same	1	<p>Accept the variable of distance is controlled</p> <p>Accept only mass is changed</p>
3(a)(ii)	<p>(measurement) 3 (N)</p> <p>(explanation) (idea that) the gravitational force is the product of the masses of the two objects</p>	2	<p>each correct answer = 1 mark</p> <p>Accept numerical explanation, e.g. $2 \times 2 = 4$ or $2 \times 2 \neq 3$</p>
3(b)	attraction	1	

Question	Answer	Marks	Further Information
4	A	1	more than one answer circled = 0 marks Accept other indications of the correct answer, e.g. ticking, underlining or indicated on the diagram, but circling on the answer line takes precedence
Question	Answer	Marks	Further Information
5(a)	small fish	1	
5(b)	<pre> graph LR Plankton --> SmallFish[small fish] SmallFish --> Penguin SmallFish --> Squid Penguin --> Whale Squid --> Whale </pre>	2	penguin and lines to small fish and whale = 1 mark both arrowheads in the correct direction = 1 mark
5(c)	to break down dead (organic) matter or to break down faecal matter	1	Accept full answer in terms of this food web, e.g. to break down dead penguins

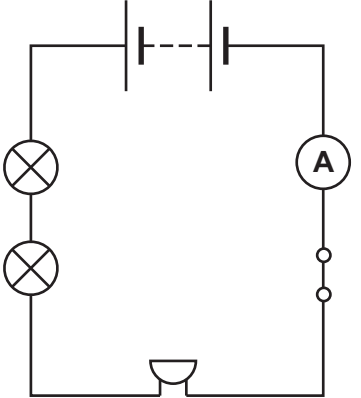
Question	Answer	Marks	Further Information
6(a)	<p>any two from</p> <p>bubbles or fizzing</p> <p>colour change</p> <p>(idea that) calcium carbonate disappears</p>	2	<p>each correct answer = 1 mark</p> <p>Accept makes gas</p> <p>Accept there is a temperature change or mixture gets hotter or mixture gets colder</p>
6(b)	increases or gets higher	1	<p>Accept specified increase of pH, e.g. 1 to 3 or 4 to 7</p> <p>Ignore pH becomes alkaline or pH becomes neutral</p>

Question	Answer	Marks	Further Information
7(a)	<p>sound is reflected (from the prey)</p> <p>sound travels back to the bat or the bat hears the (reflected) sound or the bat detects the (reflected) sound</p>	2	each correct answer = 1 mark
7(b)	(idea that) the bat hears the (reflected) sound in less time or detects the sound in less time	1	<p>Ignore the sound is louder or the sound is quieter</p> <p>Ignore the time is quicker</p> <p>Do not accept sound moves quicker or sound moves slower</p>

Question	Answer	Marks	Further Information
8(a)	<p>any two from</p> <p>shows the relative sizes of planets</p> <p>shows the number of planets</p> <p>shows the order of planets (from the Sun)</p>	2	each correct answer = 1 mark
8(b)	<p>any two from</p> <p>does not show the position of the Sun</p> <p>does not show the orbits</p> <p>does not show the (relative) distance from the Sun or does not show the (relative) distances between the planets</p> <p>does not show the spinning movement of the planets</p> <p>does not show what holds the planets in place</p> <p>does not show relative positions in three dimensions of the planets</p>	2	<p>each correct answer = 1 mark</p> <p>Accept any suitable limitations, e.g. does not show the moons or does not show the gas giants</p>

Question	Answer	Marks	Further Information
9(a)	<pre> graph LR Sensitivity[sensitivity] --- A[organisms take in and use nutrients] Sensitivity --- C[organisms detect changes and respond to them] Nutrition[nutrition] --- A Nutrition --- D[organisms break down nutrients to release energy] Movement[movement] --- E[organisms remove nutrients from their bodies] Movement --- F[organisms change their position] </pre>	3	<p>each correct line = 1 mark</p> <p>if two lines from one characteristic and one is incorrect = 0 marks for that characteristic</p>
9(b)(i)	viruses (may) reproduce (but only with a host cell)	1	<p>Accept viruses replicate or viruses multiply</p> <p>Accept viruses (may) move (but not independently)</p>
9(b)(ii)	viruses do not excrete or viruses do not respire or viruses do not grow or viruses do not require nutrition or viruses are not sensitive	1	

Question	Answer	Marks	Further Information
10	soluble insoluble	2	each correct answer = 1 mark Accept aqueous for soluble

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11		4	<p>M1 correct symbol for ammeter = 1 mark</p> <p>M2 correct symbols for two lamps and a closed switch = 1 mark</p> <p>M3 correct symbol for buzzer = 1 mark</p> <p>M4 series circuit drawn with no gaps (by eye) = 1 mark</p> <p>Accept M4 even if an open switch is drawn</p> <p>Accept M4 even if some of the components are missing</p> <p>Note components may be in any order</p>

Question	Answer	Marks	Further Information
12(a)	78(%)	1	
12(b)	(at least) two substances that are not bonded together or not chemically combined	2	each correct answer = 1 mark Accept element or compound for substances Accept not in a fixed proportion Accept can be separated by physical means, e.g. filtering

Question	Answer	Marks	Further Information
13(a)	(temperature) thermometer (volume) measuring cylinder	2	each correct answer = 1 mark Accept burette or graduated pipette or volumetric pipette Ignore syringe or unqualified pipette
13(b)	24	1	Accept answers next to question, but answer in table takes precedence
13(c)	<p>change in temperature in °C</p> <p>volume of alkali in cm³</p>	2	points plotted correctly within $\pm \frac{1}{2}$ a small square = 1 mark correct labels on axes = 1 mark Accept ecf from 13(b)

Question	Answer	Marks	Further Information
13(d)	line of best fit drawn	1	Accept ecf from incorrect points Note judge line by eye Do not accept dot to dot
13(e)	as volume of alkali increases the change in temperature increases	1	Accept ora Note answer must be comparative

Question	Answer	Marks	Further Information
14(a)	A air B (a vacuum) C water D thick oil	1	all three answers correct = 1 mark
14(b)	no air resistance (so) nothing to oppose motion or nothing to stop it falling or can fall freely or no upward force or no friction	2	each correct answer = 1 mark Accept no air particles