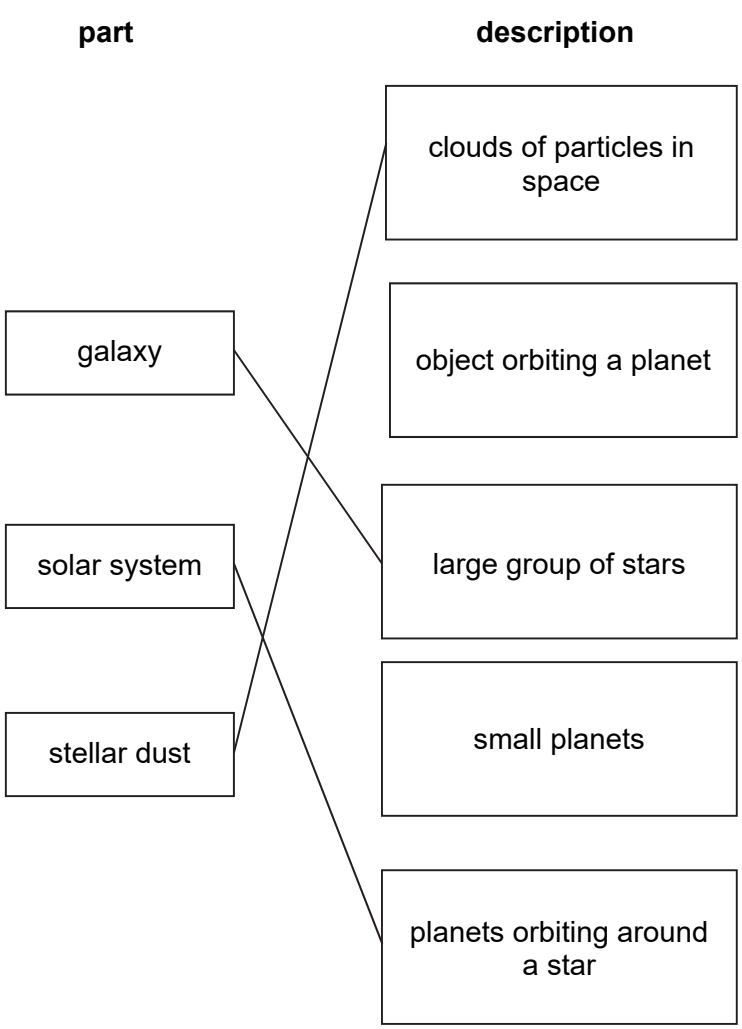
Question	Answer	Marks	Further Information
1(a)	**B** **C** **D**	**3**	each correct letter = 1 mark more than **one** letter in a box = 0 marks for that description
1(b)	(adaptation) thin wall (explanation) short diffusion distance **or** increases rate of diffusion **or** (adaptation) rich blood supply (explanation) to transport gases quickly **or** maintain diffusion gradient **or** increases rate of diffusion **or** (adaptation) large surface area (explanation) increases rate of diffusion **or** (adaptation) moist walls (explanation) so gases dissolve **or** increases rate of diffusion	**2**	any correct adaptation = 1 mark an explanation that is correctly linked to the adaptation = 1 mark **Accept** more efficient diffusion for increases rate of diffusion **Accept** more efficient diffusion for increases rate of diffusion **Accept** more efficient diffusion for increases rate of diffusion **Accept** more efficient diffusion for increases rate of diffusion **Note** award marks wherever written
1(c)	iron	**1**	**Accept** Fe

Question	Answer	Marks	Further Information
2(a)(i)	oxygen	**1**	**Ignore** O or O_2
2(a)(ii)	(safety risk) burning metal (how to control risk) need eye protection **or** (safety risk) bright flame (how to control risk) don't look directly at flame **or** look through a blue filter or blue glass **or** (safety risk) (idea that) equipment will be hot (how to control risk) wear heat protective gloves	**2**	a correct safety risk = 1 mark control correctly linked to the risk = 1 mark **Accept** named eye protection, e.g. goggles **Ignore** just gloves **Ignore** other safety controls, e.g. do not run **or** do not eat
2(b)	hydrogen magnesium chloride	**2**	each correct answer = 1 mark **Accept** one circle around both words. **three** circles **two** correct = 1 mark **three** circles **one** correct = 0 marks more than **three** answers circled = 0 marks **Accept** any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence

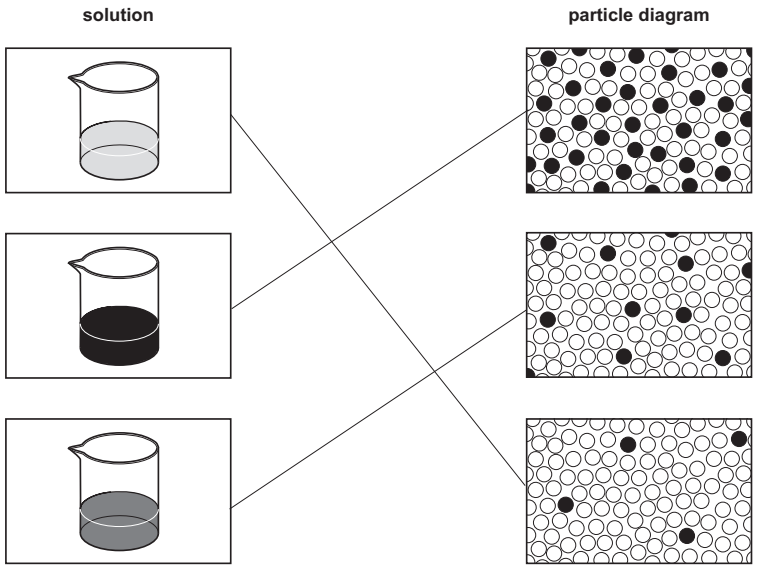
<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>3(a)</td><td><table><tr><th>current in A</th><th>number of pins</th></tr><tr><td>0.25</td><td>1</td></tr><tr><td>0.50</td><td>2</td></tr><tr><td>0.75</td><td>3</td></tr><tr><td>1.00</td><td>1</td></tr><tr><td>1.25</td><td>5</td></tr></table></td><td>1</td><td>Accept any indication of the correct answer, e.g. ticking or underlining or circling the current of 1.00 A, but circling 1 pin takes precedence</td></tr>
<tr><td>3(b)</td><td>wrapping more coils (around the core)</td><td>1</td><td>Accept more cells or greater voltage

Accept use thicker wire

Accept core material</td></tr>
</table>

Question	Answer	Marks	Further Information
4		3	each correct line = 1 mark if **two** lines from **one** part and **one** is incorrect = 0 marks for that part

Question	Answer	Marks	Further Information
5(a)	river	**1**	**Accept** a habitat that contains water, e.g. pond **or** lake **or** stream **or** sea **or** ocean
5(b)(i)	otters eat **many** big fish	**1**	**Accept** toxins accumulate in the body tissues (of the otter) **or** toxins are not broken down **or** toxins are not excreted
5(b)(ii)	bioaccumulation	**1**	**Accept** phonetic spellings
5(c)	loss of species **or** extinction of species **or** fewer top predators **or** (idea of) reduction in biodiversity	**1**	**Accept** correct example of impact on given food chain, e.g. otters die

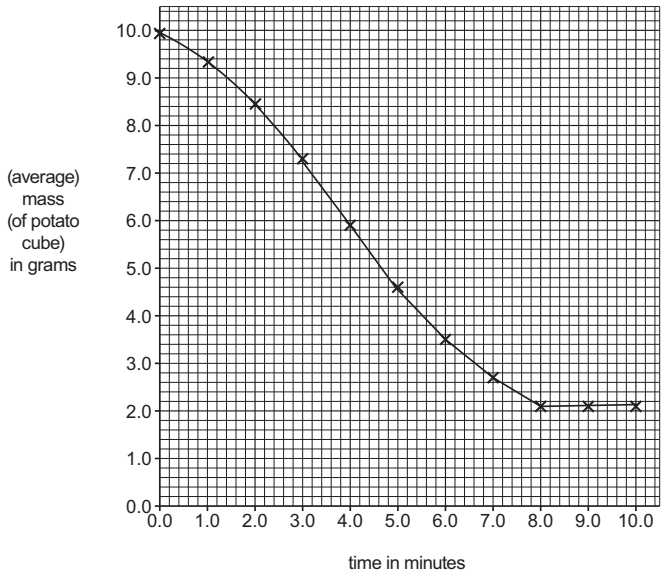
Question	Answer	Marks	Further Information
6(a)		1	**all three** lines correct for the mark
6(b)	solute solvent	1	**both** correct for the mark **Accept** soluble

Question	Answer	Marks	Further Information
7(a)	yellow	**1**	more than **one** answer circled = 0 marks **Accept** any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
7(b)	(colour) blue (this is because magenta) reflects blue light **or** does not absorb blue light (colour) black (this is because green) absorbs blue light **or** does not reflect blue light	**2**	magenta colour and explanation **both** correct = 1 mark green colour and explanation **both** correct = 1 mark
7(c)	(colour light) green **and** (reason) yellow filter only lets the green through **or** absorbs all colours except for green **or** absorbs blue light	**1**	**Note** any colour other than green = 0 marks **Accept** cyan is green and blue, yellow is green and red (so only green passes through)

Question	Answer	Marks	Further Information
8(a)(i)	125	**1**	
8(a)(ii)	the higher the (global) temperature the lower the volume (of ice on Earth)	**1**	**Accept ora**
8(b)	average rainfall for a particular region ✓ changes in the atmosphere during a 24 hour period highest temperature recorded in a week long term temperature pattern in a given area ✓ predicting when the next thunderstorm will happen	**2**	**two** correct ticks = 2 marks **three** ticks **two** correct = 1 mark **three** ticks **one** correct = 0 marks more than **three** ticks = 0 marks **Accept** any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence

Question	Answer	Marks	Further Information
9(a)	43.25	**1**	
9(b)	10	**1**	**Accept ecf** from part **(a)** **Accept** any value above 10 and below 14

Question	Answer	Marks	Further Information
10	liquids mix **or** intermingle **or** collide **or** spread out faster **or** more quickly	**2**	**all three** correct = 2 marks **one** or **two** correct = 1 mark **Accept** a named liquid **Ignore** diffuse

Question	Answer	Marks	Further Information
11(a)		**4**	**all three** points plotted correctly = 1 mark x-axis label with unit = 1 mark y-axis label and unit = 1 mark **or** both units correct = 1 mark **or** both labels correct = 1 mark curve of best fit = 1 mark **Accept ecf** from plots **Do not accept** dot to dot **or** straight line
11(b)	no ticked (no marks) **and** the potato only contained 79% water. **or** if the prediction was correct the potato mass would have gone down to 1 g.	**1**	if both boxes are ticked = 0 marks if neither box ticked **accept** no within the explanation

Question	Answer	Marks	Further Information
12(a)	core	**1**	
12(b)	magnetic field or field lines	**1**	

Question	Answer	Marks	Further Information
13(a)(i)	1	**1**	
13(a)(ii)	(idea of) measure the same volume of water each time	**1**	**Accept** (idea of) stir at same speed **Ignore** same mass of solid **Do not accept** repeat investigation **or** get another set of results
13(a)(iii)	unreactive **or** does **not** react	**1**	
13(b)	calcium oxide + water → calcium hydroxide	**1**	**all** correct for the mark **Accept** calcium oxide and water in either order

Question	Answer	Marks	Further Information
14(a)	(moment =) force × distance **or** (moment =) 500 × 1.5 (moment =) 750 (unit) Nm	**3**	**Accept** 750 Nm with or without working = 3 marks **Accept** 750 with or without working = 2 marks correct equation **or** substitution = 1 mark **Accept (**moment =) F × d or Fd correct units = 1 mark **Accept** Newtonmeter
14(b)	weight × distance = 750 **or** 600 × d = 750 **or** d = 750 ÷ 600 1.25 (m)	**2**	**Accept** correct answer with or without working = 2 marks **Accept** equation or evidence of equation, e.g. correct substitution = 1 mark **Accept ecf** from **(a)** **Accept** 1.2 (m) **or** 1.3 (m)