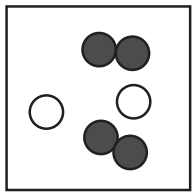
Question	Answer	Marks	Further Information
1(a)	(cell) membrane	**1**	
1(b)	(idea that) it controls what moves in and out of the cell	**1**	**Ignore** maintains the shape of the cell
1(c)	mitochondrion	**1**	**Accept** mitochondria
1(d)	(where aerobic) respiration (takes place) / the release of energy	**1**	**Accept** where ATP is produced

Question	Answer	Marks	Further Information
2(a)	a substance which is only made up of one type of atom which **cannot** be broken down into anything simpler	**2**	each correct answer = 1 mark
2(b)	compound (no mark) contains two elements / contains two types of atom that are chemically combined / that are bonded together	**2**	 each correct answer = 1 mark **Note** if mixture given only the first marking point can be awarded **Accept** contains element**s**/element **X and** element **Z** for first marking point
2(c)		**1**	**Note** there must be at least one molecule of **X** and one atom of **Y** **Do not accept** a model with a molecule of **X** touching an atom of **Y**

Question	Answer	Marks	Further Information
3(a)	switch	**1**	
3(b)		**1**	
3(c)	break in the circuit / flow of electron(s) has been stopped	**1**	**Accept** the current **cannot** flow

Question	Answer	Marks	Further Information
4(a)	gravity	**1**	**Accept** gravitational (force)
4(b)	the Moon is between the Earth and the Sun light from the Sun is blocked/stopped from reaching the Earth	**2**	each correct answer = 1 mark **Accept** marking points shown on diagram

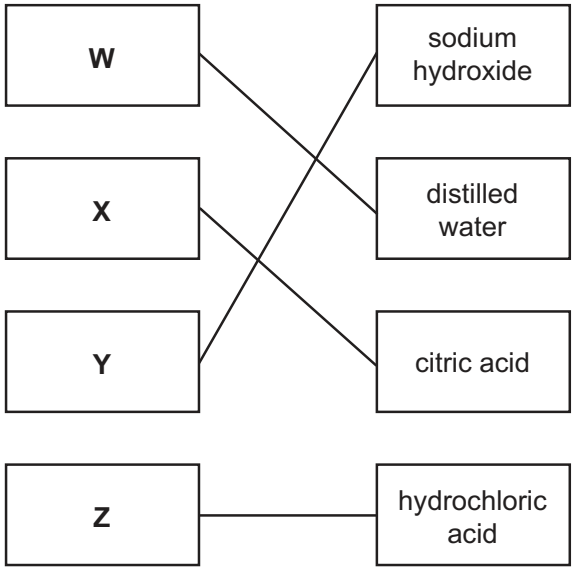
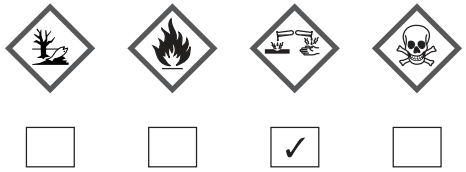
Question	Answer	Marks	Further Information
5(a)	temperature	1	**Ignore** heat
5(b)	**any three from** number of apple slices / same size slice of apple / same mass of apple slices from the same apple / same species of apple time of day the mass is measured amount of light amount of humidity/water vapour amount of oxygen/air / keep the lids on all the dishes / keep the lids off all the dishes	3	each correct answer = 1 mark **Ignore** same equipment used to measure the mass
5(c)(i)	(electronic / lever arm / top pan) balance **and** clock with a second hand / stopwatch / timer / chronometer	1	**both** answers correct for the mark **Accept** scale(s) **Ignore** weighing **Accept** alarm/timer on a digital device
5(c)(ii)	$\frac{\text{mass lost}}{\text{time taken}}$	1	**Accept** appropriate examples, e.g. change in mass over time / change in mass in a day

Question	Answer	Marks	Further Information
6(a)	(reactant) copper carbonate (products) copper oxide **and** carbon dioxide	**1**	reactant **and** both products in either order = 1 mark
6(b)	**any two from** colour change (large) heat or energy change gas made	**2**	each correct answer = 1 mark **Accept** changes from green to black **Accept** needs heat to take place **Accept** carbon dioxide is made / new substances made / copper oxide is made **Accept** there is a change in mass / mass is lost (as a gas)
6(c)	limewater	**1**	**Accept** calcium hydroxide solution **Accept** hydrogencarbonate indicator

Question	Answer	Marks	Further Information
7(a)	thermal / heat sound	**2**	each correct answer = 1 mark **Accept** kinetic / movement **Ignore** potential
7(b)	(metre) rule(r) / measuring tape	**1**	**Do not accept** trundle wheel
7(c)(i)	46	**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(c)(ii)	79	**1**	**Accept** correct answer in the space for working out, but answer in the table takes precedence **Accept** 68 if anomalous result circled is **not** from 10 cm row **Accept ecf** if 78 or 80 circled
7(c)(iii)	the test is **not** fair	**1**	**Accept** any correct answer in terms of energy or gravity **Accept** higher level answers, e.g. more energy is transferred to GPE than kinetic energy

Question	Answer	Marks	Further Information
8	evaporate condenses / cools down precipitation ground water	**4**	each correct answer = 1 mark **Accept** becomes a liquid **Do not accept** run-off / open water

Question	Answer	Marks	Further Information
9	(*Orconectes punctimanus*) B (*Cancer pagurus*) D (*Schistocerca gregaria*) C (*Enantiulus armatus*) A	**2**	**all four** organisms correct = 2 marks **two** or **three** organisms correct = 1 mark **one** organism correct = 0 marks

Question	Answer	Marks	Further Information
10(a)		**3**	**all four** correct = 3 marks **two** or **three** correct = 2 marks **one** correct = 1 mark if **two** lines from a solution and **one** is incorrect = 0 marks for that solution
10(b)		**1**	more than **one** box ticked = 0 marks **Accept** any indication of the correct answer, e.g. circling or underlining, but ticking takes precedence

Question	Answer	Marks	Further Information
11(a)	<table><tr><th>metal</th><th>non-metal</th></tr><tr><td>(E) **A** **D** **F**</td><td>**B** **C**</td></tr></table>	**2**	**all five** correct = 2 marks **three** or **four** correct = 1 mark **one** or **two** correct = 0 marks
11(b)	(improvement) use an ammeter / measure the current (explanation idea that) the higher the current the better the electrical conductor / if the current is the same the metals have the same electrical conductivity	**2**	each correct answer = 1 mark **Accept ora**

Question	Answer	Marks	Further Information
12(a)	the particles **vibrate** (in the same direction as the direction of travel)	**1**	
12(b)(i)	the particles are closer together (in glass)	**1**	**Accept** glass is more dense than air **Note** assume the answer refers to glass unless otherwise specified **Accept ora** if air specified
12(b)(ii)	any value greater than 300 and less than 2000 (m/s) (idea that) water is a liquid and so will have a speed in between the solid and the gas	**2**	each correct answer = 1 mark **Accept** correct answer in terms of particles/density
12(b)(iii)	(idea that) there are no particles (to vibrate in a vacuum)	**1**	