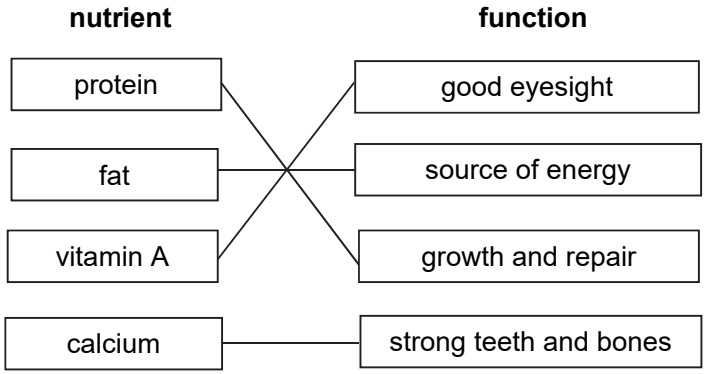
Question	Answer	Marks	Further Information
1		3	**all four** correct = 3 marks **two** or **three** correct = 2 marks **one** correct = 1 mark more than **one** line from a nutrient to different functions = 0 marks for that nutrient

Question	Answer	Marks	Further Information
2(a)	nucleus	1	
2(b)	electron	1	
2(c)	negative / –ve	1	**Accept** –1 / 1–

Question	Answer	Marks	Further Information
3(a)	exothermic	1	
3(b)	(idea of) highest temperature **change**	1	**Accept** largest temperature increase / biggest temperature rise **Ignore** the temperature change is 25 °C

Question	Answer	Marks	Further Information
4(a)	(distance) tape measure / metre ruler (time) stopclock / stopwatch	**2**	**Accept** ruler **Accept** timer / chronometer / chronograph / clock with a second hand
4(b)	divide distance by time **or** distance ÷ time	**1**	**Accept** $\frac{\text{distance}}{\text{time}}$ **Accept** (s =) d/t
4(c)	(support his prediction) because the result for 30 degrees is more than the result for 20 degrees/10 degrees **or** because the result for 20 degrees/10 degrees is anomalous (do **not** support his prediction) because the result for 20 degrees is less than the result for 10 degrees	**2**	

Question	Answer	Marks	Further Information
5(a)	thermometer	**1**	
5(b)	line graph	**1**	**Note** graph is **not** sufficient **Accept** bar chart
5(c)	Mia (no mark) because climate is average temperature / weather is temperature in a particular place because climate is change over a **long** period of time / weather is temperature at a particular time	**2**	if Lily given = 0 marks for the question each correct explanation = 1 mark

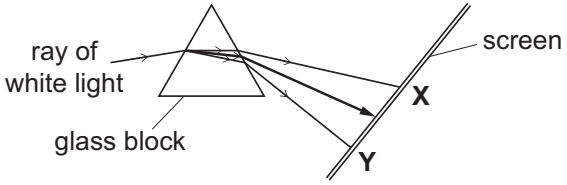
Question	Answer	Marks	Further Information
6(a)	C	**1**	more than **one** letter circled = 0 marks **Accept** any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
6(b)	mitochondria	**1**	**Accept** mitochondrion
6(c)	(releases) energy	**1**	

Question	Answer	Marks	Further Information
7(a)	iron	**1**	**Accept** steel / nickel / cobalt
7(b)	increase number of cells	**1**	**Accept** increase the current / increase the voltage

Question	Answer	Marks	Further Information
8(a)	**any two from** (idea that) temperature (change) is (broadly) similar at the start (idea that) temperature (change) increases since 1950 / temperature (change) higher since 1950 (idea that) there are still peaks and troughs / temperature (change) is still going up and down at different times	**2**	 **Accept** at start the temperature does **not** really change / at start the temperature is fairly constant **Accept** any dates between 1930 and 1950
8(b)	carbon dioxide	**1**	**Accept** CO_2 / methane / CH_4 / sulfur (VI) fluoride / SF_6
8(c)	1.0 to 1.5 (^oC)	**1**	**Accept** range of temperatures if within 1.0 to 1.5 (^oC)

Question	Answer	Marks	Further Information
9(a)	respiratory	**1**	more than **one** answer circled = 0 marks **Accept** any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
9(b)	a model (for a scientific concept or idea)	**1**	
9(c)	**any one from** the balloons represent the lungs the rubber sheet represents the diaphragm the tubing represents the trachea/bronchi the plastic bottle represents the ribcage	**1**	**Accept** an explanation about which part of the model relates to each part of respiratory system **Accept** (give) similarities **Accept** (give) differences **Accept** (show) how the respiratory system works

Question	Answer	Marks	Further Information
10(a)	30 (g / 100 cm^3)	**1**	
10(b)	B smallest mass of sugar in 100 cm^3	**2**	each correct answer = 1 mark **Accept** has the lowest concentration

Question	Answer	Marks	Further Information
11(a)	dispersion	**1**	more than **one** answer circled = 0 marks **Accept** any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence
11(b)		**1**	line drawn between paths of red and violet with at least one correct arrow = 1 mark **Note** the line must be straight as judged by eye
11(c)	faster / greater / higher	**1**	**Note** different is **not** sufficient

Question	Answer	Marks	Further Information
12(a)	asteroids	**1**	
12(b)	rocks	**1**	

Question	Answer	Marks	Further Information
13(a)	decreases / gets smaller increases / gets larger increases / gets larger	2	**all three** correct = 2 marks **one** or **two** correct = 1 mark
13(b)	**any two from** grey squirrels out competed red squirrels for food grey squirrels out competed red squirrels for shelter grey squirrels introduced disease	2	each correct answer = 1 mark **Accept** grey squirrels hunted red squirrels / grey squirrels killed red squirrels as an extra marking point

Question	Answer	Marks	Further Information
14(a)	**any two from** same volume of acid same concentration of acid same mass of metal powder same temperature	**2**	**Accept** amount of metal as an alternative to mass **Accept** amount of acid if volume of acid and/or concentration of acid has **not** been given as an answer **Accept** same surface area of metal **Ignore** same equipment
14(b)(i)	65 (seconds)	**1**	
14(b)(ii)	calcium	**1**	
14(c)	zinc + (dilute) hydrochloric acid → zinc chloride + hydrogen	**1**	**Accept** = instead of → **Note** reactants can be either order **Note** products can be either order
14(d)	inert	**1**	

Question	Answer	Marks	Further Information
15(a)	(idea of gas) particles colliding with the bottle	**1**	**Accept** particles hit the bottle / particles bounce off the bottle **Accept** reference to wall rather than bottle **Ignore** collisions between particles **Do not accept** particles expand
15(b)	because particles move more slowly / particles hit sides of bottle less hard / fewer collisions with bottle / particles have less energy	**1**	**Accept** less particles collide with bottle (per unit time) / particles lose energy / particles collide less often with bottle / reduced collision frequency with bottle
15(c)	diffusion	**1**	more than **one** answer circled = 0 marks **Accept** any indication of the correct answer, e.g. ticking or underlining, but circling takes precedence