

Tier 3–6	Q No 1			
Part	Mark	Answer	Accept	Additional guidance
a i 1/2k	1	* A and C any one from * grass has germinated or grown * seeds did not germinate or grow in B	accept 'A and C have hair' accept 'something has grown in A and C' accept 'they have hair' accept 'they have longer or more grass' accept 'B has no hair'	answers may be in either order both the letters and the reason are required for the mark 'A and C are the same' is insufficient 'seeds need water to grow' is insufficient
a ii 1/2c 2/3a	1	any one from * it would have longer grass * the grass would have grown more	accept 'it had more grass or more hair' accept 'it grew more or faster' accept 'it would have grown less because it was over-watered'	'it would be greener' is insufficient 'it would be healthier' is insufficient
b 2/3a	1	any one from * it grew towards the light * that is where the light is coming from	accept 'it grew towards the Sun' accept 'to get light or sunlight' accept 'plants or grass need light' accept 'to get more Sun'	'because of the sunlight' is insufficient 'to get more heat' is insufficient
c i 2/1c	1	* B ✓		if more than one box is ticked, award no mark
c ii 2/3d	2	any two from * water * oxygen * minerals	accept 'moisture' or 'dampness' accept a named mineral accept 'nutrients' or 'salts' accept, for two marks, two named minerals such as 'nitrates' and 'phosphates'	<i>do not accept</i> 'plant food' or 'food' or 'nutrition'
Total	6			

Tier 3–6	Q No 2			
Part	Mark	Answer	Accept	Additional guidance
<p>a i 2/2m</p>	<p>2</p>	<p>* more blood travels to the surface of the body</p> <p>activity of the brain slows down</p> <p>sense of pain is reduced</p>	<p>reactions are slower</p> <p>a person loses weight</p> <p>skin gets warmer</p> <p>a person can get hurt without knowing it</p>	<p>award two marks for all three lines correct award one mark for any two lines correct</p> <p>if more than one line is drawn from any box, do not credit either line</p>
<p>a ii 2/2m</p>	<p>1</p>	<p>* reactions are slower</p>	<p>accept 'activity of the brain slows down'</p>	
<p>b i 2/2h</p>	<p>1</p>	<p>* placenta</p>	<p>accept 'umbilical cord' or 'cord'</p>	
<p>b ii 2/2h</p>	<p>1</p>	<p>* amniotic fluid</p>	<p>accept 'fluid' accept 'uterus'</p>	


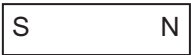
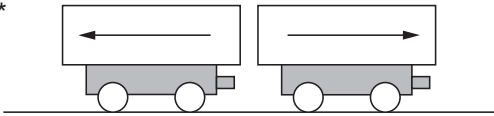
Tier 3–6	Q No 2			
Part	Mark	Answer	Accept	Additional guidance
c i 1/2i BS/2a	1 1	* toxic * flammable	accept 'inflammable'	answers must be in the correct order
c ii 2/2m BS/2b	1	any one from * they can cause brain damage * it makes you less co-ordinated * fumes stop you breathing or choke you * they prevent you taking in oxygen * you could become addicted	accept 'it makes you dizzy or light-headed' accept 'you can hallucinate' accept 'they affect the brain or liver' accept 'they damage your lungs' accept 'it burns your throat' accept 'it is poisonous' or 'they can kill you'	'it damages or harms your body or makes you ill' are insufficient as they are equivalent to <i>dangerous</i> 'they are toxic' is insufficient 'it contains solvents' is insufficient 'they may dissolve chemicals in the body' is insufficient
Total	8			

Tier 3–6	Q No 3			
Part	Mark	Answer	Accept	Additional guidance
a 1/2e	1	* a ruler	accept 'a metre rule' accept 'a tape measure'	'cm' is insufficient 'a measuring stick' is insufficient
b i 1/2j	1	* 30		<i>do not accept</i> '30 seconds'
b ii 1/2j	1 1	* <i>A to B</i> : any number from 5 to 15 * <i>D to E</i> : any number from 45 to 80	accept a range such as '5 to 10' accept a range such as '50 to 60'	
c 1/2e	1	any one from * you can measure smaller intervals of time * the lines are closer	accept 'each section burns for a shorter time' accept 'it is more precise or accurate' accept 'the lines are close' accept 'the lines are further apart on candle 1' accept 'the lines are 1 cm apart on candle 1 and 0.5 cm apart on candle 3' accept 'there are more lines or smaller spaces or smaller segments' accept 'more sections or rings'	'it is easier to read' is insufficient 'the lines are smaller' is insufficient
Total	5			

Tier 3–6	Q No 4			
Part	Mark	Answer	Accept	Additional guidance
a i 1/2k 3/3a	1	any one from * bubbles * fizzing * gas is given off	accept 'effervescence'	'metal goes into solution or turns into a salt' and 'there would be a rise in temperature' are insufficient answers as they are not shown in the drawings
a ii 3/3c 1/2k	1	* magnesium zinc iron copper	accept 'Mg' accept 'Zn' accept 'Fe' accept 'Cu'	answers must be in the correct order all four answers are required for the mark
b i 3/1d	1	* copper	accept 'Cu'	
b ii 3/3a	1	* iron	accept 'Fe'	
Total	4			

Tier 3–6	Q No 5			
Part	Mark	Answer	Accept	Additional guidance
a i 1/2g	1	* 60 cm ³		
a ii 1/2k	1	* 10 cm ³	accept '60 – 50'	
b i 1/2j	1	* lead weight	accept 'lead' or 'weight'	'800 g' is insufficient
b ii 1/2j	1	* wood puzzle	accept 'wood' or 'puzzle'	'500 cm ³ ' is insufficient
c i 3/1a 3/3a	1	any one from * it has a low density * it does not rust	accept 'it is light' accept 'it does not bend' accept 'it is strong'	<i>do not accept</i> 'it does not rust as easily as other metals'
c ii 4/2d	1	* friction		
Total	6			

Tier 3–6	Q No 6			
Part	Mark	Answer	Accept	Additional guidance
a i 4/2b	1	* C	accept 'down'	
a ii 4/2c	1	* A	accept 'up'	
b i 1/2m 4/2b	1	* increases ✓		if more than one box is ticked, award no mark
b ii 4/2b	1	any one from * there are two people on the same or Jo's trapeze * the weight is greater * there is Sara as well	accept 'Sara is pulling on Jo'	this mark cannot be awarded if the response given conflicts with part (bi) 'the force is greater' is insufficient 'it is heavier' is insufficient as 'it' refers to force
c 4/2b	1	* it decreases	accept 'it is less' accept 'there is less weight on it' accept 'there is no force' or 'it becomes zero'	'it springs back up' is insufficient
Total	5			

Tier 3–6	Q No 7			
Part	Mark	Answer	Accept	Additional guidance
a 4/1d	1	* Magnet A 		marks may be awarded for part (a) if the magnets are correctly labelled in part (b) and no answer is given in part (a) both poles are required for the mark
	1	* Magnet C 		
b 4/1d	1	* repel attract		answers must be in the correct order both answers are required for the mark
c 4/1d 4/2c	1	* 		both arrows are required for the mark
d i 3/1d 4/2c	1	* it is attracted	accept 'it gets faster'	'they stick together' is insufficient
d ii 3/1d	1	* nothing	accept 'it is not attracted or repelled' accept 'it is not attracted' accept 'it is not repelled'	do not accept 'it repels'
Total	6			

Tier 3–6	Q No 8	Answer	Accept	Additional guidance
a i 1/2e	1	any one from * add more books * make the pile of books higher	accept 'use bigger books' accept 'lift one end of the ramp higher' accept 'bring the ramp closer to the books'	'change the number of books' or 'change the size of the books' are insufficient 'lift the ramp higher' is insufficient do not award a mark for answers implying the use of a different ramp
a ii 1/2j	1	* E		
a iii 1/2h 1/2j	1	any one from * some results are the same * some results do not fit the pattern	accept 'there are two 16s' accept 'to check her results' accept 'to make it more reliable' accept 'in case one was an odd result'	do not accept '34' 'because there was no pattern' is insufficient do not accept 'to make it a fair test'
b i 1/2j	1	* 26 cm		
b ii 1/2k 1/2j	1	* increases	accept 'goes up'	
Total	5			

Tier 3–6 5–7	Q No 9 1	Part	Mark	Answer	Accept	Additional guidance
		a i 1/2j	1	* more fishing boats	accept 'more people were fishing' accept 'more fishing' accept 'more boats'	'more being caught' is insufficient
		a ii 1/2m 1/2k	1	any one from * overfishing * fish were caught before they could breed * fish were not allowed time to breed	accept 'too many fish were caught' accept 'few fish or herring were left in the sea' accept 'fish were smaller'	'lots of fish were caught' is insufficient <i>do not accept</i> 'no herring or fish left' <i>do not accept</i> 'too many boats' 'the herring are too young' is insufficient 'less being caught' is insufficient
		a iii 2/5a	1	any one from * to allow numbers to recover or increase * to allow more herring to breed * to allow more herring to mature	accept 'so the herring would be old enough or mature enough to breed' accept 'it is the breeding time'	<i>do not accept</i> 'they were becoming extinct' 'to allow herring to be born' is insufficient 'there were fewer herring left' is insufficient

Tier 3–6 5–7	Q No 9 1	Part	Mark	Answer	Accept	Additional guidance
		b i <i>2/5d</i>	1	any one from * cod eat sand eels instead of herring * cod eat more sand eels * cod eat capelin instead of herring so there is less food for sand eels	accept 'cod would eat more capelin' accept 'cod would eat the sand eels' food'	'cod have to eat something else' is insufficient 'cod eat sand eels' is insufficient 'less food for sand eels' is insufficient as it implies that sand eels eat herring 'because the cod only had two choices' is insufficient
		b ii <i>2/5d</i>	1	any one from * there would be more animal plankton * fewer cod	accept 'more plankton'	'they will have more to eat or more food' is insufficient 'the animal plankton would get bigger' is insufficient 'less food for cod' is insufficient
		Total	5			

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Tier 3–6 5–7	Q No 10 2	Part	Mark	Answer	Accept	Additional guidance
		a 1/2m 2/5c	1	* leaves are bigger	accept 'there are leaves or a canopy' accept 'leaves open or grow'	'trees block the light' is insufficient
		b 2/3a 2/5c	2	any two from * light is needed for photosynthesis * more (photosynthesis) * light provides energy for growth * biomass or food or sugar or starch or carbohydrate is produced	accept 'photosynthesis' accept, for two marks, 'the rate or amount of photosynthesis increases if the light increases'	'they need light to grow' is insufficient 'light is a source of food' is insufficient
		c 2/2k	1 1	* glucose * water		answers must be in the correct order
Total	5					

Tier 3–6 5–7	Q No 11 3	Part	Mark	Answer	Accept	Additional guidance
		a 1/2m 2/5a	1	any two from * less or no competition for food * plenty of food or water or they get fed * they have shelter * veterinary or medical treatment * they are less likely to be injured or killed or there is no hunting of lions	accept 'good or balanced diet' accept 'protected from bad weather' accept 'they are vaccinated' accept 'they are kept healthier' accept 'they do not fight as much' accept 'there are no predators of lions'	both answers are required for the mark 'they are looked after' is insufficient 'protection' is insufficient because it is not specific 'they get fewer diseases' is insufficient <i>do not accept</i> 'they are less likely to get a disease' 'they are healthier' is insufficient
		b i 1/2j	1	* an appropriate line of best fit		accept a curved or straight line
		b ii 1/2j	1	any one from * animals with longer pregnancies live longer * the shorter the pregnancy the shorter the life span	accept 'the shorter the life span the shorter the pregnancy'	a comparative answer is required

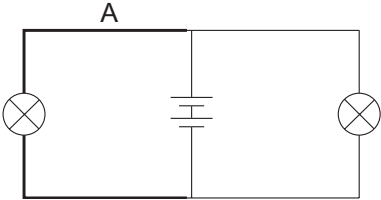
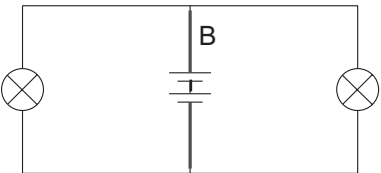
Tier 3–6 5–7	Q No 11 3	Part	Mark	Answer	Accept	Additional guidance
		c i 1/2i	2	* all three points plotted correctly	accept a tolerance of \pm half a small square	if all three points are correct, award two marks if one or two points are correct, award one mark
		c ii 1/2i	1	* no ✓ any one from * the data is more scattered * there is no link between the number of days pregnant and the expected life span * the human has the longest life span but the shortest pregnancy * the giraffe has the shortest life span but the longest pregnancy * the (new) points show the longer the pregnancy the shorter the life span	accept 'they do not go up in a straight line' accept 'they do not fit the line of best fit' accept 'giraffes or horses have a longer pregnancy than humans but a shorter life span' accept the converse accept 'they are opposite to the other results'	if more than one box is ticked, award no mark both the answer and the correct explanation are required for the mark
		Total	6			

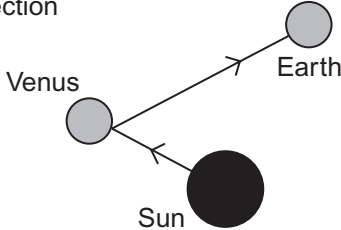
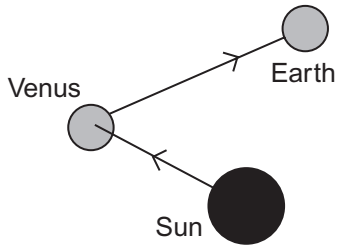
Tier 3–6 5–7	Q No 12 4	Part	Mark	Answer	Accept	Additional guidance
		a i 1/2k 3/1a	1	* mercury	accept 'Hg'	
		a ii 1/2k 3/1a	1	* iron	accept 'Fe'	
		a iii 1/2k 3/1a	1	* mercury	accept 'Hg'	
		a iv 1/2k 3/1a	1	* aluminium	accept 'Al'	
		b i 3/1a 1/2i	1	* an arrow drawn at 0°C	accept any unambiguous indication	
		b ii 3/1a 1/2i	1	* gas ✓		if more than one box is ticked, award no mark
		b iii 3/1a 1/2i	1	* liquid ✓		if more than one box is ticked, award no mark
		Total	7			

Tier 3–6 5–7	Q No 13 5	Part	Mark	Answer	Accept	Additional guidance
		a i 3/1h BS/1b	1	any one from * to stop water vapour or steam escaping * to stop lavender oil vapour escaping * to reduce heat loss	accept 'gas or vapour or particles could escape' accept 'to stop oil escaping' accept 'to make sure the oil goes down the tube' accept 'the oil or vapours could not be collected' accept 'to stop heat loss' or 'to keep heat in' accept 'to stop the heat escaping' accept 'to maintain the pressure'	'to stop water escaping or spilling out' is insufficient 'to stop the smell escaping' is insufficient
		a ii 1/2f 3/1b	1	any one from * it could explode * it could break	accept 'the lid might come off' accept 'so the pressure does not break the seal'	'the pressure would be too high' is insufficient 'it would get too hot' is insufficient
		b i 3/2c	1	* <i>from gas to liquid</i>		both answers are required for the mark answers must be in the correct order
		b ii 3/1a	1	any one from * it sinks * it is at the bottom	accept 'lavender oil floats' accept 'the oil is on the top'	'they are not mixed' is insufficient
		c 3/1b	1	* B		if more than one letter is identified, award no mark
		Total	5			

Tier 3–6 5–7	Q No 14 6	Part	Mark	Answer	Accept	Additional guidance
		a 1/2c 4/5f	1	* African its ears have a larger surface area	accept 'larger surface area' accept 'larger ears'	both the answer and the correct explanation are required for the mark 'they have large ears' is insufficient
		b i 1/2d	1	any one from * he used identical cans * he used the same amount of water	accept 'the cans were made of the same metal' accept 'the cans were the same size or shape' accept 'he used the same metal for the strips' accept 'he kept them in the same place'	'he used metal for the strips' is insufficient 'he took the temperature every 5 minutes for both' is insufficient
		b ii 1/2i	1	any one from * the pattern or relationship can be seen more easily or more quickly * anomalous results can be seen more quickly or easily	accept 'the pattern or relationship is clearer' accept 'the temperature change is clearer' accept 'the pattern can be seen straight away' accept 'you can compare them more easily' accept 'you can make predictions more easily or more quickly'	'the pattern or the way the temperature changes can be seen' is insufficient 'it is clearer' is insufficient 'to see them better' is insufficient <i>do not accept</i> 'a graph is more accurate'

Tier 3–6 5–7	Q No 14 6	Part	Mark	Answer	Accept	Additional guidance
		b iii 1/2l	1	* yes ✓ the greater the surface area of metal the greater the heat loss or the lower the temperature	accept 'the bigger strips cause the greatest heat loss' accept 'metal A represents big ears' accept 'the can with bigger strips cooled more quickly' accept answers that relate the size or surface of the strips to the size or surface of the ears accept 'no' and a relevant supporting explanation only if 'Indian elephant' is given as an answer to part (a). An example would be 'no, as I thought smaller ears would cool quicker'	if more than one box is ticked, award no mark both the answer 'yes' and the correct explanation are required for the mark <i>do not accept</i> 'can B was a better insulator'
		c 1/2g	1	any one from * it reduces error * readings are continuous * it can draw a graph	accept 'it is more accurate' accept 'less human error' or 'is more reliable' accept 'it is more precise' accept 'it takes more readings' accept 'you can leave it to take results' accept 'it would record the results for him'	'you can leave it' is insufficient
		Total	5			

Tier 3–6 5–7	Q No 15 7	Part	Mark	Answer	Accept	Additional guidance
		a i 4/1a	1	* 	accept a switch drawn and labelled A marked on any part of the circuit highlighted	do not accept a switch at either junction the switch must be labelled for the mark
		a ii 4/1a	1	* 	accept a switch drawn and labelled B marked on any part of the circuit highlighted	do not accept a switch at either junction the switch must be labelled for the mark
		b 4/3f	1	* they are absorbed	accept 'they are blocked or filtered out'	'they are filtered' is insufficient
		c 4/5e 4/5g	1 1 1 1	* chemical * electrical * light * thermal		answers must be in the correct order 'heat' is insufficient as the question asks for a word from the box
		Total	7			

Tier 3–6 5–7	Q No 16 8	Part	Mark	Answer	Accept	Additional guidance
		a 1/2m 4/4c	1	any one from * Venus is nearer to the Sun * the Sun's gravity on Venus is greater * it travels faster * it has a smaller orbit	accept 'it does not have as far to go'	a comparative statement is needed 'it is closer' is insufficient
		b 4/3b 4/4d	1 1	* a straight line from the Sun to Venus and a straight line from Venus to Earth * arrows drawn on both rays in the correct direction 	accept two discontinuous straight lines that touch the Sun, Venus and the Earth 	do not accept a line from the Sun which touches the Earth
		c i 1/1a 1/1c	1	any one from * they had not been discovered * they had not been seen	accept 'he did not know they existed' accept 'they could not be seen'	do not accept 'they did not exist' 'they are too far away' is insufficient
		c ii 1/2m 4/4b	1	any one from * the Earth is not at the centre * the planets do not go round the Earth or the planets orbit the Sun * the Earth goes round the Sun * the Sun is in the middle	accept answers which give the correct order of the planets in the solar system	answers must refer to the arrangement and not to missing planets 'there are more planets' is insufficient
		Total	5			