

Sc

KEY STAGE

2

LEVELS

3–5

Mark schemes

Tests A and B

2010



National sampling for science

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Marking the science tests

Following the recommendations of the Expert Group on Assessment the Department of Children, Schools and Families decided to discontinue national curriculum tests in science at key stage 2 and to monitor national standards in science through externally-marked national sampling. The outcomes will be used to monitor national standards in key stage 2 science.

This booklet contains the mark schemes for tests A and B. External markers under contract to QCDA will mark the test papers using the mark schemes in this booklet.

General guidance

The structure of the mark schemes

The marking information for each question is set out in the form of tables. The ‘question’ column on the left-hand side of each table provides a quick reference to the question number and question part. The ‘mark’ column gives the number of marks available for each question part.

The ‘requirements’ column may include three types of information:

- a general statement describing what is required for the award of marks
- examples of specific creditworthy responses demonstrating correct science
- examples of creditworthy responses that are beyond the key stage 2 programme of study.

The ‘allowable answers’ column gives examples of allowable creditworthy responses, showing correct science which may not be as clearly expressed.

The ‘additional guidance’ column may include different types of information:

- specific responses which are not creditworthy either because information from the question has been rephrased, or because incorrect scientific knowledge is implied
- answers which are insufficient in themselves to gain credit, but are not incorrect science, and would therefore not lose credit if combined with a correct response.

Applying the mark schemes

The mark schemes give scientifically correct answers to each question as well as providing guidance on, and examples of, other answers which are allowable. In cases of alternative wording or where an answer is drawn rather than written, external markers will exercise their professional judgement.

In order to ensure consistency of marking, the most frequent queries are listed below, along with the action the marker will take.

What if...?	Marking procedure
The pupil gives two or more responses to a particular question part.	a) If a pupil qualifies a scientifically correct answer with a scientifically incorrect statement, no mark will be awarded for that question part. b) If a pupil qualifies a scientifically correct answer with an incorrect statement which is not relevant to the context of the question, the latter response is regarded as 'neutral' and the mark will be awarded.
The pupil has not used ticks to indicate the correct response in a multiple-choice question.	Any unambiguous positive indication of the correct answer will be accepted. Ticks take precedence over any other form of response. Therefore, when ticks and any other sort of response are given together, the boxes with ticks will be assumed to be the pupil's response. If the correct boxes are left blank, no marks will be awarded.
The pupil ticks more than the required number of boxes.	One mark will be deducted for each incorrect answer. Negative marks will not be awarded.
In a planning question, no answer is given in the expected place, but the correct answer is given in the drafting box.	Where a pupil has shown understanding of the question, the mark(s) will be given.
The pupil misspells a word.	a) If it is clear that the pupil has made a simple error, eg 'tow' for 'two' or 'son' for 'sun', then the incorrect spelling will be accepted and the mark awarded. b) If a pupil misspells a word copied from the text of the question or from a selection given, and the new word does not have any inappropriate meaning, the incorrect spelling will be accepted and the mark awarded. c) If specific scientific vocabulary is required in the answer, a creditworthy misspelling must be a phonetic equivalent of the required word, with the major syllables of the correct word represented in the answer.

Recording marks awarded

In the margin, alongside each question part, there is a mark box for each question part. Depending on the type of response made to each part of each question by the pupil, the external marker will put one of the following into each box:

- 1 for an acceptable/allowable response
- 0 for an incorrect response
- if no response is made.

The number of marks gained on each double page will be written in the box at the bottom of the right-hand page. The total number of marks gained on each paper will be recorded on the front of the test paper.

Each paper has 40 marks available.

The 2010 key stage 2 science tests and mark schemes were developed by the National Foundation for Educational Research (NFER) on behalf of QCDA.

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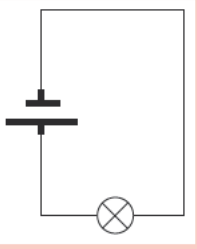
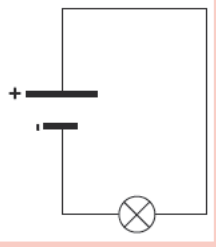
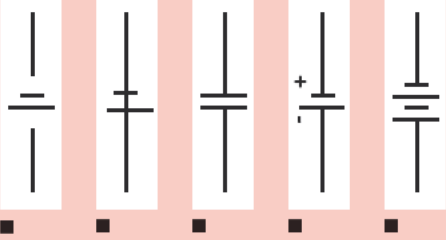
Test A question 1: Drinking water

Question	Mark	Requirements	Allowable answers	Additional guidance
1a 1/2c	1m	Award ONE mark for: <ul style="list-style-type: none"> ■ sieve. 	ONE mark may be awarded for: <ul style="list-style-type: none"> ■ (tea) strainer ■ (fishing) net ■ colander. 	Do not give credit for an insufficient response: <ul style="list-style-type: none"> ■ filter.
1b 2/5a	1m	Award ONE mark for correctly classifying both statements: <i>because the animals are adapted to live in the stream</i> True <i>so the animals do not get eaten by predators</i> False		
1c 3/3c,b	1m	Award ONE mark for explaining that bits of (insoluble) mud in the water will not fit through the filter but the water flows through it: <ul style="list-style-type: none"> ■ only the water goes through the paper and any mud is left behind ■ insoluble bits (of soil) are left on the filter paper, the rest goes through ■ the filter collects the big particles and lets the smaller ones through. 	ONE mark may be awarded for a response which describes what happens to either the mud or the water: <ul style="list-style-type: none"> ■ the mud is trapped in the filter ■ the water goes through (the holes in the filter) ■ the mud is too big for the holes. 	Do not give credit for an insufficient response that does not clearly imply the mud remains in the filter or the water goes through: <ul style="list-style-type: none"> ■ it filters it ■ there are holes in the filter ■ it filters the mud from the water [given]. Do not give credit for an insufficient response indicating the funnel separates the mixture: <ul style="list-style-type: none"> ■ the mud stays in the funnel.
1d 2/5f	1m	Award ONE mark for indicating that the micro-organisms could make people ill: <ul style="list-style-type: none"> ■ they could get sick/ill ■ they could catch a disease. 	ONE mark may be awarded for: <ul style="list-style-type: none"> ■ they could be harmed/(food) poisoned ■ they could catch germs/viruses/bacteria/bugs. 	Do not give credit for an insufficient response that does not make the link to infecting people: <ul style="list-style-type: none"> ■ they might/would die ■ micro-organisms are dangerous ■ there are germs/bacteria in the water. Do not give credit for an insufficient response that states people may develop an inappropriate medical condition: <ul style="list-style-type: none"> ■ they will get cancer.

Test A question 1: Drinking water (continued)

Question	Mark	Requirements	Allowable answers [‡]	Additional guidance
1e 1/2c	1m	Award ONE mark for: <ul style="list-style-type: none"> ■ <input type="checkbox"/> Hang it over a fire in a pot. <input checked="" type="checkbox"/> ■ <input type="checkbox"/> <input type="checkbox"/> 		
1f 3/2d	1m	Award ONE mark for: <ul style="list-style-type: none"> ■ <input type="checkbox"/> <input type="checkbox"/> 100°C <input checked="" type="checkbox"/> ■ <input type="checkbox"/> <input type="checkbox"/> 		

Test A question 2: Circuit

Question	Mark	Requirements	Allowable answers	Additional guidance
2a 4/1c	1m	<p>Award ONE mark for correctly drawing the symbol for a cell in the circuit:</p> 	<p>ONE mark may be awarded for vertical lines drawn at the end of the existing wires:</p> 	<p>Do not give credit for a response incorrectly connecting the cell to the circuit [with gaps between the cell and wires of more than 2 mm] or inaccurately drawing the cell or drawing more than one cell:</p> 
2b 4/1a	1m	<p>Award ONE mark for:</p> <ul style="list-style-type: none"> the button you press on and off 		<p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> crocodile clips a paperclip between two pins.
2c 1/2c,d	1m	<p>Award ONE mark for:</p> <ul style="list-style-type: none"> so she does not measure light from other sources <input checked="" type="checkbox"/> 		

Test A question 2: Circuit (continued)

Question	Mark	Requirements	Allowable answers [‡]	Additional guidance																				
2d 4/1b	2m or 1m	<p>Award TWO marks for correctly completing all four rows of the table as shown:</p> <table border="1" data-bbox="354 1335 577 1747"> <thead> <tr> <th data-bbox="354 1617 418 1747">Object used</th> <th data-bbox="354 1523 418 1617">The bulb... will be dimmer.</th> <th data-bbox="354 1429 418 1523">The bulb... will not change.</th> <th data-bbox="354 1335 418 1429">The bulb... will be brighter.</th> </tr> </thead> <tbody> <tr> <td data-bbox="418 1617 459 1747">copper wire</td> <td data-bbox="418 1523 459 1617"></td> <td data-bbox="418 1429 459 1523">✓</td> <td data-bbox="418 1335 459 1429"></td> </tr> <tr> <td data-bbox="459 1617 501 1747">a motor</td> <td data-bbox="459 1523 501 1617">✓</td> <td data-bbox="459 1429 501 1523"></td> <td data-bbox="459 1335 501 1429"></td> </tr> <tr> <td data-bbox="501 1617 542 1747">another cell</td> <td data-bbox="501 1523 542 1617"></td> <td data-bbox="501 1429 542 1523"></td> <td data-bbox="501 1335 542 1429">✓</td> </tr> <tr> <td data-bbox="542 1617 577 1747">another bulb</td> <td data-bbox="542 1523 577 1617">✓</td> <td data-bbox="542 1429 577 1523"></td> <td data-bbox="542 1335 577 1429"></td> </tr> </tbody> </table> <p>If you are unable to award two marks, award ONE mark for any three rows completed correctly.</p>	Object used	The bulb... will be dimmer.	The bulb... will not change.	The bulb... will be brighter.	copper wire		✓		a motor	✓			another cell			✓	another bulb	✓				
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copper wire		✓																						
a motor	✓																							
another cell			✓																					
another bulb	✓																							

Test A question 3: Heating water

Question	Mark	Requirements	Allowable answers	Additional guidance
3a 1/2d	1m	Award ONE mark for a response indicating the volume of water is being changed: <ul style="list-style-type: none"> the amount/volume of water how much water there is in the saucepan. 	ONE mark may be awarded for: <ul style="list-style-type: none"> height/depth/level of water length of water each time they did the test they added more water to the pan. 	Do not give credit for a response that includes incorrect science where either the dependent or the control variables are given: <ul style="list-style-type: none"> time/minutes method used to heat the water. <p>Do not give credit for an insufficient response: <ul style="list-style-type: none"> the water (in the saucepans) [ambiguous – may refer to temperature or type]. </p>
3b 1/2c	1m	Award ONE mark for an appropriate piece of equipment for measuring temperature: <ul style="list-style-type: none"> thermometer temperature sensor. 	ONE mark may be awarded for: <ul style="list-style-type: none"> heat sensor. 	Do not give credit for an insufficient response: <ul style="list-style-type: none"> sensor.
3c 1/2e 3/1b	1m	Award ONE mark for an indication that it will stop her getting burnt or that it will not conduct heat: <ul style="list-style-type: none"> it stops her burning her fingers wood is not a (thermal) conductor heat will not go through the wood wood is a (thermal) insulator. 	ONE mark may be awarded for: <ul style="list-style-type: none"> it will not get hot. <p>ONE mark may be awarded for: <ul style="list-style-type: none"> if it was metal it would burn her/heat the handle up. </p>	Do not give credit for a response that includes incorrect science: <ul style="list-style-type: none"> wood does not burn. <p>Do not give credit for an insufficient response: <ul style="list-style-type: none"> if it was plastic it would melt. </p>

Test A question 3: Heating water (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance																
3d 1/2m	1m	<p>Award ONE mark for an indication that the starting temperature of the water was not the same in all of the saucepans:</p> <ul style="list-style-type: none"> the temperature of the water in saucepan A started higher than the other saucepans the water in saucepan A was too hot at the beginning they did not all start at the same temperature. 	<p>ONE mark may be awarded for:</p> <ul style="list-style-type: none"> the water in saucepan A started at 20°C the water in saucepan A should have been at 10°C saucepans B and C started at 10°C A is at 20°C and B and C are at 10°C. 	<p>Do not give credit for a response that includes incorrect science:</p> <ul style="list-style-type: none"> the pans did not have the same heat they were heated for different times she used different amounts of water. <p>Do not give credit for an insufficient response comparing all pans but not specifically at the start:</p> <ul style="list-style-type: none"> because some were at different temperatures to the others the temperatures were not the same A was hotter. <p>Do not give credit for an insufficient response which does not refer to temperature or use the unit °C:</p> <ul style="list-style-type: none"> A was more than pans B and C A is at 20 and B and C are at 10. 																
3e 1/2i,h	1m	<p>Award ONE mark for both times correct:</p> <table border="1"> <thead> <tr> <th>Saucepan</th> <th>Time to reach 50°C (seconds)</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>42</td> </tr> <tr> <td>B</td> <td>59</td> </tr> <tr> <td>C</td> <td>66</td> </tr> </tbody> </table>	Saucepan	Time to reach 50°C (seconds)	A	42	B	59	C	66	<p>ONE mark may be awarded for times that fall within the given ranges:</p> <table border="1"> <thead> <tr> <th>Saucepan</th> <th>Time to reach 50°C (seconds)</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>greater than 40 and less than 43, including decimals/fractions</td> </tr> <tr> <td>B</td> <td>greater than 57 and less than 60, including decimals/fractions</td> </tr> <tr> <td>C</td> <td>66</td> </tr> </tbody> </table>	Saucepan	Time to reach 50°C (seconds)	A	greater than 40 and less than 43, including decimals/fractions	B	greater than 57 and less than 60, including decimals/fractions	C	66	
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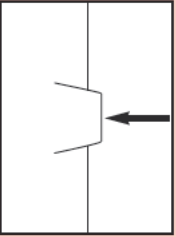
Test A question 4: River wildlife

Question	Mark	Requirements	Allowable answers	Additional guidance
4a i 2/4b	1m	<p>Award ONE mark for a feature of the duck and the swan that is similar:</p> <ul style="list-style-type: none"> ■ feathers ■ beak ■ body shape ■ wings. 	<p>ONE mark may be awarded for a response identifying similar behaviours:</p> <ul style="list-style-type: none"> ■ the duck and swan can fly. <p>ONE mark may be awarded for:</p> <ul style="list-style-type: none"> ■ they are both birds. 	<p>Do not give credit for an insufficient response giving a feature that is common to all three animals:</p> <ul style="list-style-type: none"> ■ webbed feet ■ legs/eyes/head ■ they can swim.
4a ii 2/4b	1m	<p>Award ONE mark for a feature of the duck and the swan that is not similar:</p> <ul style="list-style-type: none"> ■ the colour of the feathers ■ the length of the neck ■ the size of the bird. 	<p>ONE mark may be awarded for identifying a feature of one bird that is different from the other:</p> <ul style="list-style-type: none"> ■ the swan is white ■ has it got a long neck? ■ white feathers. <p>ONE mark may be awarded for:</p> <ul style="list-style-type: none"> ■ size ■ colour ■ neck. 	<p>Do not give credit for an insufficient response giving a feature that is common to both a swan and a duck:</p> <ul style="list-style-type: none"> ■ webbed feet ■ beak ■ body shape ■ feathers. <p>Do not give credit for an insufficient response repeating a feature already given in part 4ai which puts the duck and the swan in the same group:</p> <ul style="list-style-type: none"> ■ they both have long necks and frogs do not [part 4ai] long necks [part 4aii].
4b 2/4c	1m	<p>Award ONE mark for:</p> <ul style="list-style-type: none"> ■ <input type="checkbox"/> to help identify different ducks <input checked="" type="checkbox"/> ■ <input type="checkbox"/> <input type="checkbox"/> 		

Test A question 4: River wildlife (continued)

Question	Mark	Requirements	Allowable answers [‡]	Additional guidance
4c 2/4a	2m or 1m	Award TWO marks for both : <ul style="list-style-type: none"> ■ coot and moorhen [given in either order]. If you are unable to award two marks, ONE mark may be awarded for any one bird correctly identified.		
4d 2/4a	1m	Award ONE mark for an indication of the colours of both the wings and the beak: <ul style="list-style-type: none"> ■ The wings are (mostly) grey The beak is yellow. 		

Test A question 5: Foil boats

Question	Mark	Requirements	Allowable answers	Additional guidance
5a 4/2e	1m	<p>Award ONE mark for an arrow pointing upwards anywhere on the diagram:</p> 	<p>ONE mark may be awarded for an arrow that is within 45° of the vertical.</p> <p>ONE mark may be awarded for more than one creditworthy arrow drawn.</p>	<p>Do not give credit for a response that includes incorrect science where the arrow is pointing downwards.</p> <p>Do not give credit for a response that includes incorrect science where the arrow is pointing horizontally.</p>
5b 1/2l 4/2d	1m	<p>Award ONE mark for:</p> <p><input type="checkbox"/> <input type="checkbox"/> has the largest base.</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/></p>		
5c 4/2b 1/2j	2m or 1m	<p>Award TWO marks for correctly classifying all three statements:</p> <p>Compared with the other boats...</p> <p>boat 3 was more waterproof. False.....</p> <p>there was a bigger force from the water stopping boat 3 sinking. True.....</p> <p>there was less gravity pulling down on boat 3. False.....</p> <p>If you are unable to award two marks, award ONE mark for any two statements correctly classified.</p>		

Test A question 6: Model sheep

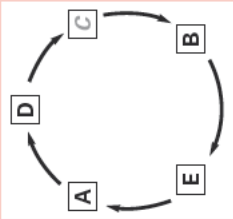
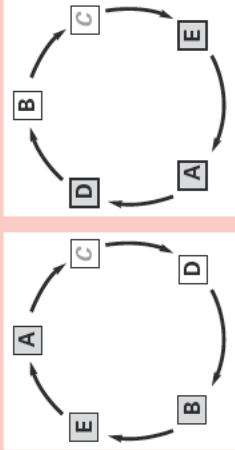
Question	Mark	Requirements	Allowable answers	Additional guidance
6a 3/2a 3/3b	1m	Award ONE mark for a response stating the solid dissolved: <ul style="list-style-type: none"> it has dissolved. <p>❖ Give credit for a correct response that goes beyond the key stage 2 programme of study, indicating that the solid is soluble or forms a solution.</p>		Do not give credit for an insufficient response: <ul style="list-style-type: none"> it has disappeared it is transparent.
6b 3/1a	1m	Award ONE mark for: <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> absorbent <input checked="" type="checkbox"/> <input type="checkbox"/> 		
6c 1/2/ 1/1a	1m	Award ONE mark for an indication that all the liquid has evaporated or that there is no liquid in the pot: <ul style="list-style-type: none"> the water has all evaporated there is no liquid in the pot all the special liquid has been absorbed into the cardboard sheep. 	ONE mark may be awarded for: <ul style="list-style-type: none"> it has no more water to absorb all the solid has been used up. 	Do not give credit for an insufficient response suggesting that the solid has been used up, but where the subject of the answer is not clear: <ul style="list-style-type: none"> it has all gone it dried up. <p>Do not give credit for an insufficient response stating evaporation/absorption is occurring without indicating the liquid has been used up: <ul style="list-style-type: none"> the liquid evaporated/soaked into the sheep. </p>
6d 3/2a	1m	Award ONE mark for: <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> salt <input checked="" type="checkbox"/> 		

When applying this mark scheme, please also refer to the *General guidance* given on pages 1 and 2.

Test A question 7: Watering plants

Question	Mark	Requirements	Allowable answers	Additional guidance
7a 2/3a	2m or 1m	<p>Award TWO marks for any two correct responses:</p> <ul style="list-style-type: none"> ■ (sun)light ■ air ■ nutrients/minerals. <p>❖ Give credit for a correct response that goes beyond the key stage 2 programme of study if air is not already given:</p> <ul style="list-style-type: none"> ■ oxygen/O₂ ■ carbon dioxide/CO₂. <p>If you are unable to award two marks, award ONE mark for any one correct response.</p>	<p>Marks may be awarded for:</p> <ul style="list-style-type: none"> ■ warmth/heat ■ fertilizer/named type of commercial plant growth supplement [if nutrients or minerals are not also given]. 	<p>Do not give credit for a response that includes incorrect science:</p> <ul style="list-style-type: none"> ■ soil/compost [not taken in] ■ temperature. <p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> ■ Sun ■ water [given] ■ (plant) food ■ nutrition [this is a life process, not what is taken in]. <p>Do not give credit for a second response that is a repetition or restatement of the first.</p>
7b 1/2c,d	2m or 1m	<p>Award TWO marks for all four questions correctly answered:</p> <p>Should David use the same type of soil in each pot? yes <input checked="" type="checkbox"/> no <input type="checkbox"/></p> <p>Should David put the plant pots in the same place? yes <input checked="" type="checkbox"/> no <input type="checkbox"/></p> <p>Should David put the same amount of water in each pot? no <input checked="" type="checkbox"/> yes <input type="checkbox"/></p> <p>How many plants should David use? 5 plants <input checked="" type="checkbox"/> 1 plant <input type="checkbox"/></p> <p>If you are unable to award two marks, award ONE mark for any two or three questions correctly answered.</p>		

Test A question 7: Watering plants (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance
7c 2/3c	1m	<p>Award ONE mark for both:</p> <ul style="list-style-type: none"> ■ root and stem/stalk [given in either order]. 	<p>Marks may be awarded for 'trunk' and/or 'branches' but not in conjunction with 'stem/stalk'.</p>	
7d 3/2e	2m or 1m	<p>Award TWO marks for all four letters in the correct place:</p>  <p>■</p> <p>If you are unable to award two marks, award ONE mark for any two or three letters in the correct place.</p>	<p>ONE mark may be awarded for three letters in the correct order but incorrectly placed on the diagram [the only two possible correct responses indicated by the shaded boxes]:</p>  <p>■</p>	

Test A question 8: Ice

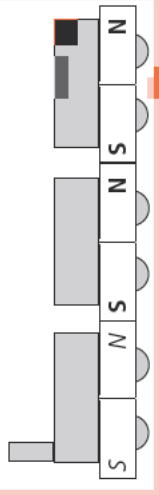
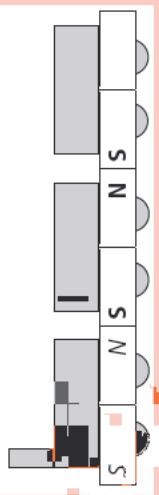
Question	Mark	Requirements	Allowable answers	Additional guidance																								
8a 3/2c	1m	Award ONE mark for a response identifying temperature is a measure of how hot or cold something is: <ul style="list-style-type: none"> how hot/cold the air/it is. 	ONE mark may be awarded for: <ul style="list-style-type: none"> warmth (the amount of) heat. 	Do not give credit for an insufficient response: <ul style="list-style-type: none"> air/gas degrees Celsius°C. 																								
8b i 3/2c 1/2c,j	1m	Award ONE mark for all five days correctly completed: <table border="1" data-bbox="549 1263 719 1765"> <thead> <tr> <th></th> <th colspan="5">Day</th> </tr> <tr> <th></th> <th>Mon</th> <th>Tues</th> <th>Wed</th> <th>Thurs</th> <th>Fri</th> </tr> </thead> <tbody> <tr> <td>Temperature (°C)</td> <td>3</td> <td>-2</td> <td>-1</td> <td>-1</td> <td>6</td> </tr> <tr> <td>Could Tom find ice on the puddle? Yes or no?</td> <td>No</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>No</td> </tr> </tbody> </table>		Day						Mon	Tues	Wed	Thurs	Fri	Temperature (°C)	3	-2	-1	-1	6	Could Tom find ice on the puddle? Yes or no?	No	Yes	Yes	Yes	No		
	Day																											
	Mon	Tues	Wed	Thurs	Fri																							
Temperature (°C)	3	-2	-1	-1	6																							
Could Tom find ice on the puddle? Yes or no?	No	Yes	Yes	Yes	No																							

Test A question 8: Ice (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance
<p>8b ii 1/2/1</p>	<p>1m</p>	<p>Award ONE mark for a response that recognises the temperature is below 0°C, the freezing point of water:</p> <ul style="list-style-type: none"> ■ because the numbers are below 0°C ■ water freezes at 0°C. 	<p>ONE mark may be awarded for a response implying the freezing point is at 0°C without referring to '°C' or 'temperature':</p> <ul style="list-style-type: none"> ■ because it is less than zero. 	<p>Do not give credit for a response that includes incorrect science giving an inaccurate freezing point of water:</p> <ul style="list-style-type: none"> ■ the temperature is below -1°C, the freezing point of water. <p>Do not give credit for an insufficient response which states the temperature is in negative numbers:</p> <ul style="list-style-type: none"> ■ when everything is in the minuses, it freezes ■ because they are negative numbers. <p>Do not give credit for an insufficient response repeating information from the table without interpretation:</p> <ul style="list-style-type: none"> ■ because it was -2°C and -1°C. <p>Do not give credit for an insufficient response identifying the cold(est) days have ice:</p> <ul style="list-style-type: none"> ■ because these were the coldest days ■ it was so cold it froze ■ the temperature was too low.

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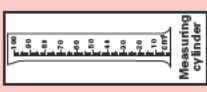
Test B question 1: Magnets

Question	Mark	Requirements	Allowable answers	Additional guidance
1a 4/2a	1m	<p>Award ONE mark for an unambiguous indication of:</p> 	<p>ONE mark may be awarded for:</p> 	
1b 4/2a, d	1m	<p>Award ONE mark for an indication that the magnets repel each other or that the magnets have like poles facing each other:</p> <ul style="list-style-type: none"> ■ the magnets are repelling each other ■ Nisha's magnet is pushing the train's magnet away ■ like poles repel ■ the two North poles on both magnets are facing each other. 	<p>ONE mark may be awarded for:</p> <ul style="list-style-type: none"> ■ the magnetic force pushes it away ■ Nisha put like poles together ■ it is repelling. <p>ONE mark may be awarded where an insufficient or no response is given but the left-hand pole of Nisha's magnet has been correctly labelled 'N'.</p>	<p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> ■ the magnet pushes it ■ Nisha's magnet is not the right way round ■ the magnets do not attract [does not imply repulsion]. <p>Do not give credit for an insufficient response implying the whole magnet is one pole:</p> <ul style="list-style-type: none"> ■ they are both North magnets so they will repel.

Test B question 2: Duckweed

Question	Mark	Requirements	Allowable answers	Additional guidance
2a 2/3c	1m	<p>Award ONE mark for an indication that the root takes in/soaks up minerals and/or water:</p> <ul style="list-style-type: none"> ■ they take up minerals ■ the root absorbs water. 	<p>ONE mark may be awarded for:</p> <ul style="list-style-type: none"> ■ the root absorbs/gets nutrients ■ it drains/takes/draws nutrients from the pond ■ the root collects/gathers water ■ it carries water to the leaves [as there is no stem] ■ it helps with dispersal [duckweed roots are sticky to facilitate transfer by the legs of water birds to new habitats]. 	<p>Do not give credit for a response that includes incorrect science indicating the root holds the leaves up:</p> <ul style="list-style-type: none"> ■ keeps the leaves standing. <p>Do not give credit for a response that includes incorrect science indicating that the root gives the plant food:</p> <ul style="list-style-type: none"> ■ it takes/sends up/brings it food ■ it feeds it ■ it gathers/absorbs food. <p>Do not give credit for a response that includes incorrect science indicating an active antheropomorphic mechanism:</p> <ul style="list-style-type: none"> ■ the root drinks/sucks/pulls up water. <p>Do not give credit for an insufficient response that implies the root keeps the plant stable or helps prevent movement [given]:</p> <ul style="list-style-type: none"> ■ it keeps the plant upright. <p>Do not give credit for an insufficient response where 'goodness' is used in place of 'nutrients', 'water' or 'minerals':</p> <ul style="list-style-type: none"> ■ it takes up goodness. <p>Do not give credit for an insufficient response that does not recognise the role of the root:</p> <ul style="list-style-type: none"> ■ for water.

Test B question 2: Duckweed (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance																
2b 1/2c	1m	<p>Award ONE mark for:</p> <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px;">  </div> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>																		
2c 1/2c	1m	<p>Award ONE mark for both rows of the table completed correctly giving numbers within the ranges shown:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Amount of sunlight (hours per day)</th> <th>Number of duckweed plants at the end of the week</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0 – 3 inclusive</td> </tr> <tr> <td>6</td> <td>4</td> </tr> <tr> <td>10</td> <td>greater than 4</td> </tr> </tbody> </table>	Amount of sunlight (hours per day)	Number of duckweed plants at the end of the week	0	0 – 3 inclusive	6	4	10	greater than 4		<p>Do not give credit for a response that includes incorrect science showing the reverse relationship:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Amount of sunlight (hours per day)</th> <th>Number of duckweed plants at the end of the week</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>greater than 4</td> </tr> <tr> <td>6</td> <td>4</td> </tr> <tr> <td>10</td> <td>0 – 3 inclusive</td> </tr> </tbody> </table> <p>Do not give credit for a response that includes incorrect science giving fractions of duckweed plants.</p>	Amount of sunlight (hours per day)	Number of duckweed plants at the end of the week	0	greater than 4	6	4	10	0 – 3 inclusive
Amount of sunlight (hours per day)	Number of duckweed plants at the end of the week																			
0	0 – 3 inclusive																			
6	4																			
10	greater than 4																			
Amount of sunlight (hours per day)	Number of duckweed plants at the end of the week																			
0	greater than 4																			
6	4																			
10	0 – 3 inclusive																			
2d 1/1b	1m	<p>Award ONE mark for:</p> <ul style="list-style-type: none"> ■ so she can collect evidence <input checked="" type="checkbox"/> ■ <input type="checkbox"/> ■ <input type="checkbox"/> ■ <input type="checkbox"/> 																		

Test B question 3: Rocket

Question	Mark	Requirements	Allowable answers	Additional guidance										
3a 3/2f 3/1e	1m	<p>Award ONE mark for both sentences correctly completed:</p> <p>(i) The bubbles show that a <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="padding: 2px;">solid</td></tr><tr><td style="padding: 2px;">liquid</td></tr><tr><td style="padding: 2px;">gas</td></tr></table> is produced.</p> <p>(ii) This change is <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="padding: 2px;">reversible.</td></tr><tr><td style="padding: 2px;">not reversible.</td></tr></table></p>	solid	liquid	gas	reversible.	not reversible.	<p>ONE mark may be awarded for a response where all three incorrect words have been crossed out, leaving both sentences correct:</p> <p>(i) The bubbles show that a <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="padding: 2px;">solid</td></tr><tr><td style="padding: 2px;">liquid</td></tr><tr><td style="padding: 2px;">gas</td></tr></table> is produced.</p> <p>(ii) This change is <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="padding: 2px;">reversible.</td></tr><tr><td style="padding: 2px;">not reversible.</td></tr></table></p>	solid	liquid	gas	reversible.	not reversible.	<p>Do not give credit for an insufficient response where only one sentence is correct.</p>
solid														
liquid														
gas														
reversible.														
not reversible.														
solid														
liquid														
gas														
reversible.														
not reversible.														
3b 1/2e	1m	<p>Award ONE mark for:</p> <p><input type="checkbox"/> <input type="checkbox"/></p> <p>■ He is not sure where the rocket will go. <input checked="" type="checkbox"/></p>												
3c 1/2i,j	1m	<p>Award ONE mark for a general comparison describing the relationship between the amount of tablet and the time taken for the rocket to go up:</p> <p>■ the smaller the (amount of) tablet, the longer the rocket takes to go up</p> <p>■ the more tablet there is, the less time the rocket takes to go up.</p>	<p>ONE mark may be awarded for two specific comparisons describing the relationship:</p> <ul style="list-style-type: none"> ■ the whole tablet makes the rocket take the shortest time and the quarter tablet makes the rocket take the longest time. <p>ONE mark may be awarded for references to the rate at which the rocket launched rather than the time taken:</p> <ul style="list-style-type: none"> ■ the smaller the tablet, the slower the rocket (launches) ■ the more tablet, the quicker the rocket goes up. 	<p>Do not give credit for a response that changes a variable:</p> <ul style="list-style-type: none"> ■ the bigger the tablet, the quicker it produces gas [incorrect science] ■ the smaller the tablet, the less gas made [insufficient]. <p>Do not give credit for an insufficient response which gives a single comparison of the variables:</p> <ul style="list-style-type: none"> ■ the smallest tablet makes the rocket take the most time ■ the rocket goes faster when the tablet is big. 										

Test B question 3: Rocket (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance
3d 1/2i	1m	Award ONE mark for a response which is greater than 0 and less than 5 seconds.		Do not give credit for a response that includes incorrect science: <ul style="list-style-type: none"> 0 seconds.
3e 3/2f	1m	Award ONE mark for: <ul style="list-style-type: none"> <input type="checkbox"/> vinegar and <input type="checkbox"/> bicarbonate of soda <input checked="" type="checkbox"/> 		

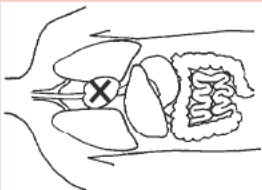
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Test B question 4: Drums

Question	Mark	Requirements	Allowable answers	Additional guidance																			
4a 4/2d	1m	Award ONE mark for: <ul style="list-style-type: none"> a pushing force from the drum skin <input checked="" type="checkbox"/> 	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> 																				
4b 4/3g	1m	Award ONE mark for an indication of the floor or drum stand: <ul style="list-style-type: none"> the ground the drum's legs. 	<p>ONE mark may be awarded for naming a material that the floor is made of:</p> <ul style="list-style-type: none"> wood tiles. <p>ONE mark may be awarded for naming parts of the drum stand:</p> <ul style="list-style-type: none"> metal bits rubber/plastic (ends). 	<p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> drum Evelyn's feet the air [given] oxygen [constituent of air] her body drumsticks vibrations legs [could mean Evelyn's legs]. 																			
4c 4/3e	1m	Award ONE mark for: <ul style="list-style-type: none"> vibrations she can feel the floor vibrate. 	<p>ONE mark may be awarded for a description of the vibration where the rapid speed of movement is indicated:</p> <ul style="list-style-type: none"> the floor moves up and down (very) quickly. 	<p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> the floor shakes/moves up and down [no indication of speed] the drum sound [repetition of stem]. 																			
4d 4/3f	1m	Award ONE mark for correctly completing all three rows of the table:	<table border="1"> <thead> <tr> <th rowspan="2">How Evelyn plays the drum</th> <th colspan="3">The sound...</th> </tr> <tr> <th>gets higher.</th> <th>gets louder.</th> <th>does not get higher or louder.</th> </tr> </thead> <tbody> <tr> <td>with a tighter drum skin</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>hit the drum with more force</td> <td></td> <td>✓</td> <td></td> </tr> <tr> <td>hit the drum faster with the same force</td> <td></td> <td></td> <td>✓</td> </tr> </tbody> </table>	How Evelyn plays the drum	The sound...			gets higher.	gets louder.	does not get higher or louder.	with a tighter drum skin	✓			hit the drum with more force		✓		hit the drum faster with the same force			✓	
How Evelyn plays the drum	The sound...																						
	gets higher.	gets louder.	does not get higher or louder.																				
with a tighter drum skin	✓																						
hit the drum with more force		✓																					
hit the drum faster with the same force			✓																				

When applying this mark scheme, please also refer to the General guidance given on pages 1 and 2.

Test B question 5: Keeping warm and healthy

Question	Mark	Requirements	Allowable answers [‡]	Additional guidance
<p>5a 2/2c</p>	<p>1m</p>	<p>Award ONE mark for both parts correct: (i) the centre of the cross drawn on the heart:  AND (ii) heart.</p>		
<p>5b 2/2d</p>	<p>1m</p>	<p>Award ONE mark for both correct boxes ticked:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> playing football <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> going for a walk <input type="checkbox"/> 		
<p>5c BoS 2a 2/2c</p>	<p>1m</p>	<p>Award ONE mark for:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> beats per minute <input checked="" type="checkbox"/> 		

Test B question 5: Keeping warm and healthy (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance
5d 1/2g,d	1m	<p>Award ONE mark for an indication that a large sample made Hassan's test reliable or that he used an appropriate control variable that made the test fair:</p> <ul style="list-style-type: none"> ■ he used 6/lots of children (not just one) ■ he took the pulse rates of the same children in the hot and cold ■ he used the same (6) children ■ all the children had been sitting only and not running about ■ he made sure the children were at rest in both places ■ he made sure the children had time to cool down or warm up in each place. 	<p>ONE mark may be awarded for an indication that accuracy was improved:</p> <ul style="list-style-type: none"> ■ he used a timer instead of a clock to measure the exact time. 	<p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> ■ he measured the air temperature in each place [this refers to ensuring the independent variable has been varied rather than to a control variable]. <p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> ■ he checked his results ■ he repeated his test [ambiguous as could refer to repetition of test at a different temperature, or with different children] ■ he made a fair test ■ he used the same number of children [not clear the pupil understands the children are the same in each test].
5e 1/2j	1m	<p>Award ONE mark for a conclusion identifying that the pulse rate was higher in the warm place or the converse:</p> <ul style="list-style-type: none"> ■ pulse rate is higher when it is warmer ■ the children had higher pulse rates in the warm classroom than they did in the cold playground ■ a low temperature makes your pulse go down ■ the warmer it is, the more heart beats. 	<p>ONE mark may be awarded for an absolute response:</p> <ul style="list-style-type: none"> ■ they had high/fast pulse rates in the warm/classroom ■ they had low/slow pulse rates in the cold/playground. <p>ONE mark may be awarded for a response indicating that the pulse rate was higher when the children felt the surroundings were warmer:</p> <ul style="list-style-type: none"> ■ the warmer you/the children/they are, the higher the pulse rate. 	<p>Do not give credit for an insufficient response that does not interpret the results:</p> <ul style="list-style-type: none"> ■ in the warm classroom the numbers are high.

When applying this mark scheme, please also refer to the *General guidance* given on pages 1 and 2.

Test B question 6: Moon trip

Question	Mark	Requirements	Allowable answers	Additional guidance
6a 4/2b	1m	Award ONE mark for: <ul style="list-style-type: none"> ■ weight ■ gravitational pull/attraction. 	ONE mark may be awarded for: <ul style="list-style-type: none"> ■ gravity. 	Do not give credit for an insufficient response: <ul style="list-style-type: none"> ■ downward pull.
6b 4/4a	1m	Award ONE mark for an indication that the Moon is spherical: <ul style="list-style-type: none"> ■ sphere. <p>❖ Give credit for a correct response that goes beyond the key stage 2 programme of study:</p> <ul style="list-style-type: none"> ■ ovoid ■ geoid. 	ONE mark may be awarded for: <ul style="list-style-type: none"> ■ (like a) ball. 	Do not give credit for an insufficient response: <ul style="list-style-type: none"> ■ round ■ circular ■ oval.
6c 4/4d	1m	Award ONE mark for: <div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> <input type="checkbox"/> </div> <ul style="list-style-type: none"> ■ 28 days <input checked="" type="checkbox"/> 		
6d 4/4c	1m	Award ONE mark for an indication that night and day are caused by the spin of the Earth: <ul style="list-style-type: none"> ■ the Earth/it spins/rotates (on its axis) ■ the Earth/it turns on its axis. 	ONE mark may be awarded for: <ul style="list-style-type: none"> ■ (the Earth moves) on its axis ■ it revolves (about its axis). <p>ONE mark may be awarded for a creditworthy response accompanied by an insufficient response describing the orbit of the Earth around the Sun:</p> <ul style="list-style-type: none"> ■ the Earth spins as it orbits the Sun ■ the Earth turns on its axis and moves around the Sun. 	Do not give credit for an insufficient response implying night and day are caused by the orbit of the Earth around the Sun: <ul style="list-style-type: none"> ■ the Earth's orbit ■ the Earth going around the Sun ■ the Earth spins/rotates/revolves around the Sun. <p>Do not give credit for an insufficient response: <ul style="list-style-type: none"> ■ the Earth/it moves around ■ the Earth/it turns ■ the rotation [does not indicate what is rotating] ■ during the day, the Earth faces the Sun, at night the Earth faces away from the Sun/ faces the Moon. </p>

Test B question 6: Moon trip (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance
6e 2/1b	1m	<p>Award ONE mark for naming any one of the following life processes:</p> <ul style="list-style-type: none"> ■ reproduction ■ nutrition. <p>❖ Give credit for a correct response that goes beyond the key stage 2 programme of study:</p> <ul style="list-style-type: none"> ■ movement ■ respiration ■ excretion ■ sensitivity. 		<p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> ■ growth [given] ■ germination ■ nutrients ■ die.
6f 1/1a 2/1c	1m	<p>Award ONE mark for both correct boxes ticked:</p> <ul style="list-style-type: none"> ■ <input type="checkbox"/> There is no rain. ■ <input type="checkbox"/> There is no air. 		

Test B question 7: Baby's bottle

Question	Mark	Requirements	Allowable answers	Additional guidance
7a 1/2b,c	1m	<p>Award ONE mark for recognising the need for comparison:</p> <ul style="list-style-type: none"> to see how quickly the bottle would normally cool down (without being wrapped up) it is a control bottle to see if wrapped is better than unwrapped to see if the milk will stay warmer if it is not wrapped. 	<p>ONE mark may be awarded for responses where it is not clear what is being compared:</p> <ul style="list-style-type: none"> to see the difference in the results so he can see which one stays warm for longer. 	<p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> so it is a fair test to see how quickly it cools.
7b 3/1b	1m	<p>Award ONE mark for:</p> <ul style="list-style-type: none"> (thermal) insulator. 		
7c 1/2d	1m	<p>Award ONE mark for all three correct variables ticked:</p> <ul style="list-style-type: none"> size of bottle <input checked="" type="checkbox"/> number of layers of material wrapping the bottle <input checked="" type="checkbox"/> volume of milk in bottle <input checked="" type="checkbox"/> 		
7d 1/2i	1m	<p>Award ONE mark for:</p> <ul style="list-style-type: none"> <input type="checkbox"/> B <input checked="" type="checkbox"/> <input type="checkbox"/> 		

Test B question 7: Baby's bottle (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance
<p>7e 1/2k, c</p>	<p>1m</p>	<p>Award ONE mark for both:</p> <ul style="list-style-type: none"> ■ wool <input checked="" type="checkbox"/> <input type="checkbox"/> <p>AND an explanation that indicates the wool was best at stopping heat loss for the bottle (so will also be best for insulating the lolly):</p> <ul style="list-style-type: none"> ■ the wool was best at keeping the bottle warm ■ it is the best insulator ■ wool will stop the lolly melting for longest as it kept the bottle warm for longest. 	<p>ONE mark may be awarded for both:</p> <ul style="list-style-type: none"> ■ wool <input checked="" type="checkbox"/> <input type="checkbox"/> <p>AND an absolute response:</p> <ul style="list-style-type: none"> ■ wool is a (good) insulator ■ it kept the bottle of milk warm. <p>ONE mark may be awarded if no box is ticked, but the creditworthy explanation indicates unambiguously that the pupil believes wool was best at preventing the ice lolly from melting for the longest time.</p>	<p>Do not give credit if either 'cotton' or 'paper' is ticked.</p> <p>Do not give credit for a response that includes incorrect science implying cold rather than heat travels:</p> <ul style="list-style-type: none"> ■ it kept the cold in/stopped the coldness getting through. <p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> ■ wool is thick. <p>Do not give credit for an insufficient response that gives sunlight as a source of warmth:</p> <ul style="list-style-type: none"> ■ it will block the sunlight from making it hot.

Test B question 8: Tomatoes

Draft box	<p>Markers should read the answers to all parts before marking this question. The draft box can be consulted when marking all parts for clarification of any ambiguity in the marked response or when no answer is given. If an answer is correct, ignore contradictory statements written in the draft box. Parts 8a–8d must form a coherent investigation.</p>				
Question	<p>8a 1/2a,d</p>	Mark	Requirements	Allowable answers	Additional guidance
<p>8b 1/2c,d</p>	<p>1m</p>	<p>Award ONE mark for an awareness of the independent variable (IV) in an experiment or survey which compares the tomato seeds:</p> <ul style="list-style-type: none"> ■ the brand of tomato seeds ■ the type of tomato. 	<p>ONE mark may be awarded for:</p> <ul style="list-style-type: none"> ■ tomatoes ■ different seeds ■ (kind of) seeds ■ (the) brand. 	<p>Do not give credit for a response that includes incorrect science giving the dependent variable or a control variable:</p> <ul style="list-style-type: none"> ■ the number of tomatoes ■ the place tomatoes are put. <p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> ■ (the) type. 	
<p>1m</p>	<p>Award ONE mark for any acceptable dependent variable (DV) identified:</p> <ul style="list-style-type: none"> ■ the number of tomatoes/flowers ■ the height of the plant ■ the mass/weight of the plant/crop ■ the size of the tomatoes ■ speed of germination/growth. 	<p>ONE mark may be awarded for:</p> <ul style="list-style-type: none"> ■ how tall it is ■ which one ripens fastest. <p>ONE mark may be awarded for subjective or qualitative measures:</p> <ul style="list-style-type: none"> ■ taste. 	<p>A DV (in part 8b) without an IV (in part 8a) can gain credit. If there is an IV the DV must agree with it.</p> <p>Do not give credit for an insufficient response repeating information given in the question:</p> <ul style="list-style-type: none"> ■ the growth of the seed/tomato ■ which seeds grow best. <p>Do not give credit for an insufficient response which does not explicitly describe the attribute of tomatoes to be measured:</p> <ul style="list-style-type: none"> ■ compare the tomatoes ■ time taken. 		

Test B question 8: Tomatoes (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance
8c 1/2d	1m	<p>Award ONE mark for any acceptable control variable (CV):</p> <ul style="list-style-type: none"> ■ light ■ water ■ temperature ■ soil ■ condition/situation in which the tomatoes are kept ■ time left to grow. 	<p>ONE mark may be awarded for:</p> <ul style="list-style-type: none"> ■ the place ■ number of seeds/plants. 	<p>Do not give credit for a CV that is inconsistent with, or repeats a creditworthy IV or DV offered in parts 8a or 8b respectively.</p> <p>Do not give credit for an insufficient response identifying a CV which could also be a DV where there is no correct DV for clarification.</p> <p>If neither an IV nor a DV is offered, the CV may gain credit provided it is consistent with the context of the investigation. An appropriate CV can gain credit where both the IV and DV are insufficient or incorrect.</p> <p>Do not give credit for an insufficient response which suggests everything is controlled:</p> <ul style="list-style-type: none"> ■ everything has to be the same.
8d 1/2h	2m or 1m	<p>Award TWO marks for an indication that the left-hand heading of the table is the IV (brand of seed) and the right-hand heading is the DV (as described in part 8b):</p> <p>Left-hand heading (8dli)</p> <ul style="list-style-type: none"> ■ (type of) seed ■ which brand? ■ tomato. <p>Right-hand heading (8dlii)</p> <ul style="list-style-type: none"> ■ number/mass of tomatoes ■ speed of germination/growth ■ height of the plant (cm) ■ taste scale (1–5). <p>If you are unable to award two marks, award ONE mark for either heading correct.</p>	<p>ONE mark may be awarded for a left-hand heading which repeats a non-creditworthy response given in 8a.</p> <p>ONE mark may be awarded for an appropriate unit of measurement in the right-hand column if it matches the DV given in 8b:</p> <ul style="list-style-type: none"> ■ cm. <p>ONE mark may be awarded for a right-hand heading which repeats a non-creditworthy response given in 8b.</p>	<p>The table headings must be consistent with any creditworthy IV and DV given. Units do not need to be given.</p> <p>The table headings can gain credit if they describe an appropriate IV or DV which has been omitted in the rest of the question or where an insufficient or incorrect IV or DV has been given. Insufficient responses in the left-hand or right-hand columns may be clarified from the answers to parts 8a and 8b respectively:</p> <ul style="list-style-type: none"> ■ type [can be clarified if 8a says 'type of seeds']. <p>Do not give credit for an insufficient response which generalises the right-hand column:</p> <ul style="list-style-type: none"> ■ results/findings ■ what happened.

When applying this mark scheme, please also refer to the General guidance given on pages 1 and 2.

Test B question 9: Separating salt

Question	Mark	Requirements	Allowable answers	Additional guidance
9a 3/3a	1m	Award ONE mark for a response indicating that the salt and pasta are different sizes: <ul style="list-style-type: none"> the salt is smaller than the pasta they are not the same size. 	ONE mark may be awarded for: <ul style="list-style-type: none"> the salt is small and goes through the sieve but the pasta does not the holes in the sieve are small so the salt can go through and the pasta cannot. 	Do not give credit for an insufficient response which does not compare the size of the solids: <ul style="list-style-type: none"> the salt is small (and goes through the sieve). Do not give credit for an insufficient response identifying that the size of the material affects the separation without indicating the sizes need to be different: <ul style="list-style-type: none"> size the sieve lets small things through. Do not give credit for an insufficient response: <ul style="list-style-type: none"> the salt goes through the sieve but the pasta cannot they are a different shape they are different.
9b i 3/3c	1m	Award ONE mark for a response identifying filtration: <ul style="list-style-type: none"> she should filter it use filter paper. 	ONE mark may be awarded for: <ul style="list-style-type: none"> filter paper put paper in the sieve use a finer sieve decant it. 	Do not give credit for a response that includes incorrect science implying evaporation will separate the sand and the salt: <ul style="list-style-type: none"> heat the mixture evaporate the water. Do not give credit for an insufficient response: <ul style="list-style-type: none"> use a funnel [all material would go through a funnel] use a small sieve.

Test B question 9: Separating salt (continued)

Question	Mark	Requirements	Allowable answers	Additional guidance
9b ii 3/3d	1m	Award ONE mark for an indication that the mixture can be separated by evaporating (the water leaving the salt behind): <ul style="list-style-type: none"> by evaporation evaporate the water (leaving the salt). 	<p>ONE mark may be awarded for a response explaining the mixture should be moved to a warmer place and/or left to dry:</p> <ul style="list-style-type: none"> move the mixture onto a sunny/warm window sill put it on a radiator leave the salt to dry heat it put it on a shelf and wait. 	<p>Do not give credit for a response that includes incorrect science implying the salt will evaporate:</p> <ul style="list-style-type: none"> evaporate the mixture/solution. <p>Do not give credit for an insufficient response where it is unclear what is being evaporated:</p> <ul style="list-style-type: none"> leave it out to evaporate the liquid evaporate it. <p>Do not give credit for an insufficient response:</p> <ul style="list-style-type: none"> leave it (out) the water disappears.
9c 3/3d	1m	Award ONE mark for a response indicating both the salt and the sugar would dissolve in the water: <ul style="list-style-type: none"> it will dissolve the sugar (too). 		

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