

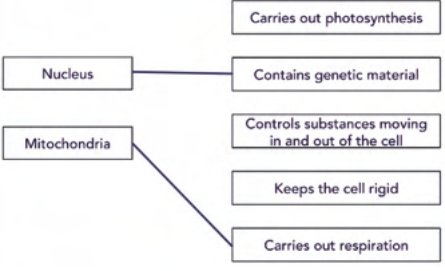

# GCSE Transition Assessment

## Mark Scheme

What if...?	Marking
The student gives two or more responses to a particular question part.	<ul style="list-style-type: none"><li>• Ignore any incorrect statements that are not relevant to the question.</li><li>• Deduct one mark for each relevant statement that is scientifically incorrect.</li><li>• Do not award negative marks.</li></ul>
The student ticks more than the required number of boxes.	<ul style="list-style-type: none"><li>• Deduct one mark for each incorrect answer.</li><li>• Do not award negative marks.</li></ul>
The student draws more than one line from each box.	<ul style="list-style-type: none"><li>• Deduct one mark for each incorrectly linked box.</li><li>• Do not award negative marks.</li></ul>
The student misspells a word.	<ul style="list-style-type: none"><li>• Accept any unambiguous misspellings.</li><li>• Misspellings of required scientific vocabulary must be phonetically equivalent.</li></ul>
The student has written their answer somewhere other than the answer box or line.	<ul style="list-style-type: none"><li>• Accept any unambiguous indication of the correct answer.</li></ul>

## Part A: Subject knowledge

### Biology

Question	Answer	Marks	Notes
1.a	A: cytoplasm B: cell membrane	1 1	
1.b		1 1	Award <b>ONE</b> mark for each correctly matched cell structure.
2.a	energy	1	
2.b	glucose + <b>oxygen</b> → <b>carbon dioxide</b> + water	2	Award <b>ONE</b> mark for each correct substance.
2.c	lactic acid OR C <sub>3</sub> H <sub>6</sub> O <sub>3</sub>	1	
3.a	movement/spreading out of molecules/particles from (an area of) high(er) concentration to (an area of) low(er) concentration	1	Do <b>NOT</b> accept "movement of particles" unqualified.
3.b		1	
3.c	Carbon dioxide moving from the blood into the lungs	1	
4.a	Leaves	1	
4.b	carbon dioxide + water → glucose + oxygen	2	Award <b>TWO</b> marks for the correct equation. If you are unable to award two marks, award <b>ONE</b> mark for both correct reactants <b>OR</b> both correct products. Accept the reactants and products in either order. Do <b>NOT</b> accept the symbol equation.
4.c	(contains) chloroplasts/ chlorophyll	1	
5.a	Variations	1	

Question	Answer	Marks	Notes												
5.b	<table border="1"> <thead> <tr> <th>Characteristic</th> <th>Inherited only</th> <th>Inherited and affected by environmental conditions</th> </tr> </thead> <tbody> <tr> <td>Ear shape</td> <td>✓</td> <td></td> </tr> <tr> <td>Fur colour</td> <td>✓</td> <td></td> </tr> <tr> <td>Weight</td> <td></td> <td>✓</td> </tr> </tbody> </table>	Characteristic	Inherited only	Inherited and affected by environmental conditions	Ear shape	✓		Fur colour	✓		Weight		✓	1	Award <b>ONE</b> mark for all rows correctly filled.
Characteristic	Inherited only	Inherited and affected by environmental conditions													
Ear shape	✓														
Fur colour	✓														
Weight		✓													
5.c	<b>Male cell:</b> sperm (cell)	1													
	<b>Female cell:</b> egg (cell)/ovum	1													
5.d	DNA/deoxyribonucleic acid	1													

## Chemistry

Question	Answer	Marks	Notes
1.a		2	Award <b>TWO</b> marks for correctly matching <b>all three</b> states. If you are unable to award two marks, award <b>ONE</b> mark for correctly matching <b>any one</b> state.
1.b	150 g	1	Accept 0.15 kg.
1.c	evaporation/boiling	1	
1.d	Compound	1	
2.a	zinc + hydrochloric acid → zinc chloride + hydrogen	1	
2.b	$4\text{Na} + \text{O}_2 \rightarrow 2\text{Na}_2\text{O}$	1	Award <b>ONE</b> mark for <b>both</b> correct values. Accept valid whole multiples.
2.c	carbon dioxide	1	Do <b>NOT</b> accept CO <sub>2</sub> .
3.a	B C	1 1	
3.b	group(s)	1	
3.c	It is a liquid at room temperature	1	


Question	Answer	Marks	Notes
3.d	43.4 (g)	1	
4.a	<p>A mixture of elements</p> <p>A mixture of compounds</p> <p>A mixture of an element and a compound</p>	2	Award <b>TWO</b> marks for correctly matching <b>all three</b> diagrams. If you are unable to award two marks, award <b>ONE</b> mark for correctly matching <b>any one</b> diagram.
4.b	(a substance containing) a single element or compound <b>OR</b> an element or compound not (mixed) with any other substance	1	
4.c	They move quickly in all directions They are far apart	1 1	
4.d	5	1	Accept 1 carbon <b>and</b> 4 hydrogens.
4.e	O <sub>2</sub>	1	

## Physics

Question	Answer	Marks	Notes
1.a	<p>A</p> <p>B</p> <p>normal contact force</p> <p>thrust</p> <p>friction</p> <p>tension</p> <p>magnetic force</p>	1 1	Award <b>ONE</b> mark for each correctly matched force.
1.b	kinetic thermal	1 1	

Question	Answer	Marks	Notes																
1.c	<table border="1"> <thead> <tr> <th>Forces</th> <th>Moves left (←)</th> <th>Moves right (→)</th> <th>Does not move</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td></td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>✓</td> <td></td> </tr> </tbody> </table>	Forces	Moves left (←)	Moves right (→)	Does not move				✓		✓					✓		1	
	Forces	Moves left (←)	Moves right (→)	Does not move															
				✓															
	✓																		
		✓																	
2.a	chemical	1																	
2.b	2 (kJ)	1																	
2.c	total energy is constant <b>OR</b> total energy/sum of gravitational potential and kinetic energy at all points is 15 kJ	1																	
2.d	gravitational (force)	1	Accept gravity.																
3.a	Light travels in straight lines	1																	
3.b		1																	
3.c	(the light is) reflected	1	Do <b>NOT</b> accept bounces.																
4.a	parallel series	1 1																	
4.b	cell(s)/battery	1																	
4.c	D	1																	
4.d	Both lamps turn off	1																	
4.e	0.5 A, 0.5 A	1																	

## Part B: Working Scientifically

Question	Answer	Marks	Notes
1.a	<b>Independent variable:</b> (air) temperature <b>Dependent variable:</b> (average) growth (of the plants)	1 1	
1.b	284 (mm)	1	
1.c	25 (°C)	1	
2.a	7	1	
2.b	Area C contains the fewest bird species	1	
2.c	15.4 (°C)	1	allow a tolerance of ± 0.05°C
3.a	(the student may) burn/scald themselves (on the Bunsen burner/hot water)	1	
3.b	thermometer <b>OR</b> temperature probe	1	
3.c	$\frac{99.8 + 100.1 + 100.0 + 99.7}{4}$ <b>OR</b> $\frac{399.6}{4}$ $= 99.9 \text{ (}^\circ\text{C)}$	1  1	Award <b>TWO</b> marks for a correct answer of 99.9.
3.d	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">Accurate</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">Precise</div> </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">They are close to the actual boiling point of water</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">They are taken by the same student</div> </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">They are written to at least one decimal place</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">They are close to each other</div> </div> </div>	1  1	
4.a		1	
4.b	0.05 kg	1	

Question	Answer	Marks	Notes
4.c	any one from: <ul style="list-style-type: none"> <li>• clamp the stand to the desk</li> <li>• wear safety goggles/glasses</li> <li>• stand up/away from the apparatus</li> <li>• limit the total mass used</li> <li>• have masses over the base of the stand</li> </ul>	1	Allow any sensible safety precaution.
4.d		2	Award <b>ONE</b> mark for the missing point plotted correctly. Allow a tolerance of $\pm \frac{1}{2}$ a small square. Award <b>ONE</b> mark for a correctly drawn line of best fit.
4.e	The greater the mass applied to the spring, the greater the extension <b>OR</b> The extension is directly proportional to the mass applied	1	Accept converse statement.
4.f	newton <b>OR</b> N	1	
5.a	(type of) indigestion tablet used	1	
5.b	any two from: <ul style="list-style-type: none"> <li>• mass of tablet used <b>OR</b> number of tablets used</li> <li>• volume of acid</li> <li>• the temperature of the acid</li> <li>• starting pH/concentration of acid</li> <li>• same amount of stirring</li> </ul>	2	Award <b>ONE</b> mark for each correct control variable.
5.c	measuring cylinder <b>OR</b> volumetric/graduated pipette <b>OR</b> burette	1	
5.d	Bar graph	1	