

**Assessment Schedule – 2007****Biology: Describe cell structure and function (90464)****Evidence Statement**

<b>Q</b>	<b>Achievement</b>	<b>Achievement with Merit</b>	<b>Achievement with Excellence</b>
ONE (a)	<p>Describes diffusion movement : particles / material / atoms / molecules / compounds / gases/substances / liquids : high to low concentration.</p> <p><b>Not accepted.</b> ‘along’, ‘down’, ‘across’, ‘with’ the concentration gradient.</p>		
(b)	<p><b>Description</b> of limiting factor Large cell : SA to v ratio decreases / not enough surface / movement distance too long / movement taking too long. <b>OR</b> Small cell / limited size: SA to v ratio increased / enough surface /movement distance short / movement time short.</p> <p><b>Not accepted.</b> ‘Can reach whole cell’, ‘Be efficient’.</p>	<p><b>Explanation of why cell size limited.</b> Large cell: SA to v ratio low / decreased : transport / osmosis/ diffusion : not enough surface / distance too long / taking too long. <b>OR</b> Small cell / limited size : SA to v ratio high / increased : transport /osmosis / diffusion: enough surface / short distance / short time.</p>	
(c)	<p><b>Description</b> of BOTH osmosis and active transport.</p> <p>FOUR points needed (see italics) including at least ONE for active tpt.</p> <p><b>Osmosis:</b> Movement : <i>water</i> : <i>high to low concentration / equalise concs : semi-permeable membrane.</i></p> <p><b>Active transport:</b> Movement : <i>energy / ATP : against conc gradient / low to high concentration / high to low conc / with or against conc gradient.</i></p>	<p><b>Explanation of energy requirements for both processes.</b></p> <p><b>Osmosis:</b> Movement : water :high to low concentration : semi-permeable membrane: with concentration gradient : therefore no energy required / passive.</p> <p><b>Active transport:</b> Movement : ions / (large) molecules / liquids / solids / particles / substance: against conc gradient / low to high concentrations / large molecules / mechanism: therefore energy is required.</p> <p>No comparison made.</p>	<p><b>Discussion compares</b> BOTH processes, giving reasons for similarities and differences.</p> <p>Similarity Transport across membranes Transport materials</p> <p>Differences Energy required : concentration gradient / particle size / mechanism eg. pores/carriers/pump/fusing folding.</p>

Q	Achievement	Achievement with Merit	Achievement with Excellence
TWO (a)	<p><b>Description</b> of structure            Enzyme :shape / active site / cleft : substrate shape/ reactive site:            match/wrong material will not fit  <b>OR</b>            Labelled diagram showing active site matching substrate shape            Labels enzyme and substrate.</p>	<p><b>Explanation</b> links shape of the active site to specificity</p> <p>Enzyme active site /cleft: match only one substrate/wrong material will not fit  <b>OR</b>            Annotated Diagram showing active site matching substrate shape and another molecule not matching            Annotations active site, substrate, matching, and active site, molecule not matching.</p>	
(b)	<p><b>Describes</b> the effect of temperature.</p> <p>TWO points needed</p> <ul style="list-style-type: none"> <li>• low temperature : low activity</li> <li>• increase temperature : increase activity</li> <li>• optimum temperature : most activity</li> <li>• higher temperature : no activity / low activity / denatures.</li> </ul> <p>If only 2 points – die / kills becomes N.</p> <p>Graph showing low temperature :low activity : higher temperature : reduced activity.</p>	<p><b>Explanation</b> of effect of temperature on enzyme activity:</p> <p>THREE points needed, <i>ONE explained</i>.</p> <ul style="list-style-type: none"> <li>• low temperature : <i>less movement/ energy/collisions</i> : low activity</li> <li>• increase temperature : <i>more movement / energy / collisions</i> : increase activity</li> <li>• optimum temperature : <i>movement / energy / collisions</i> : most activity</li> <li>• high Temperature : <i>change shape / denature / loss active site</i> : no / less activity.</li> </ul> <p>enzyme killed /dies or denatures in cold – Limit to A.</p>	<p><b>Discussion</b> of effect of temperature on enzyme activity:</p> <p>THREE points needed, <i>TWO linked in discussion</i>.</p> <ul style="list-style-type: none"> <li>• low temperature : <i>less movement/ energy/collisions</i> : low activity</li> <li>• increase temperature : <i>more movement / energy / collisions</i> : increase activity</li> <li>• optimum temperature : <i>movement / energy / collisions</i> : most activity</li> <li>• high temperature : <i>change shape / denature / loss active site</i> : no/less activity</li> <li>• high temperature : denature : no / less activity : shape active site change substrate not fit.</li> </ul>

<b>Q</b>	<b>Achievement</b>	<b>Achievement with Merit</b>	<b>Achievement with Excellence</b>
THREE (a)	<b>Describes structure</b> Membrane / contains genetic information / nucleolus / pores.		
(b)	Describes eye spot function. Detect / sense : light / shadows.  Not 'eyes' and not 'sees' not 'view'.		
(c)	<b>Description</b> of importance of photosynthesis <b>AND</b> factors that influence photosynthesis.  Energy/glucose/ATP.  <b>AND</b> TWO factors described:  chlorophyll / chloroplasts / light / carbon dioxide / water / wavelength of light / larger SA to V / chloroplasts next to membrane .	<b>Explanation</b> of the importance of photosynthesis <b>AND</b> how other factors may influence photosynthesis.  <ul style="list-style-type: none"> <li>• energy/glucose /ATP: life processes, eg: growth</li> <li>• light: glucose</li> </ul> Not 'survive' or 'will die'  <b>AND</b> ONE point explained:  <ul style="list-style-type: none"> <li>• Enough / more : chlorophyll / chloroplasts : therefore more light</li> <li>• Enough / more: light : therefore more energy</li> <li>• Enough / more : carbon dioxide / water : therefore more glucose</li> <li>• Appropriate wavelength of light / temperature / depth in water / SA to V / location of chloroplasts : therefore more photosynthesis.</li> </ul>	<b>Discussion</b> of the importance of photosynthesis <b>OR</b> how factors may influence photosynthesis.  Photosynthesis : energy / glucose : mitochondria / respiration / ATP : energy for movement / growth / starch storage.  <b>OR</b> Explanation plus discussion of the factor in the least amount will limit the rate of photosynthesis. Eg: If plenty of CO <sub>2</sub> present but not enough light this will mean that there is limited energy available for photosynthesis so less glucose will be produced.
FOUR (a)	<b>Describes</b> cellular respiration  ATP/ energy / ATP.		
(b)	<b>Describes</b> function of mitochondria or why more  <ul style="list-style-type: none"> <li>• Mitochondria : respiration / ATP</li> <li>• More energy</li> </ul> Bring evidence down from 4 (a).	<b>Explanation</b> why more mitochondria  mitochondria : respiration : more mitochondria /more energy.  Bring evidence down from 4 (a).	

**Judgement Statement — 2007**

Achievement	Achievement with Merit	Achievement with Excellence
SIX opportunities answered at Achievement level (or higher).  Minimum of 6 × A	SEVEN opportunities answered including at least THREE at Merit level (or higher) and FOUR at Achievement level (or higher).  Minimum of $3 \times M + 4 \times A$	EIGHT opportunities answered including at least ONE at Excellence level and THREE at Merit level (or higher) and FOUR at Achievement level (or higher).  Minimum of $1 \times E + 3 \times M + 4 \times A$