

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

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

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

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THREE (a)	Describes structure Membrane / contains genetic information / nucleolus / pores.		
(b)	Describes eye spot function. Detect / sense : light / shadows. Not 'eyes' and not 'sees' not 'view'.		
(c)	Description of importance of photosynthesis AND factors that influence photosynthesis. Energy/glucose/ATP. AND TWO factors described: chlorophyll / chloroplasts / light / carbon dioxide / water / wavelength of light / larger SA to V / chloroplasts next to membrane .	Explanation of the importance of photosynthesis AND how other factors may influence photosynthesis. <ul style="list-style-type: none"> • energy/glucose /ATP: life processes, eg: growth • light: glucose Not 'survive' or 'will die' AND ONE point explained: <ul style="list-style-type: none"> • Enough / more : chlorophyll / chloroplasts : therefore more light • Enough / more: light : therefore more energy • Enough / more : carbon dioxide / water : therefore more glucose • Appropriate wavelength of light / temperature / depth in water / SA to V / location of chloroplasts : therefore more photosynthesis. 	Discussion of the importance of photosynthesis OR how factors may influence photosynthesis. Photosynthesis : energy / glucose : mitochondria / respiration / ATP : energy for movement / growth / starch storage. OR Explanation plus discussion of the factor in the least amount will limit the rate of photosynthesis. Eg: If plenty of CO ₂ present but not enough light this will mean that there is limited energy available for photosynthesis so less glucose will be produced.
FOUR (a)	Describes cellular respiration ATP/ energy / ATP.		
(b)	Describes function of mitochondria or why more <ul style="list-style-type: none"> • Mitochondria : respiration / ATP • More energy Bring evidence down from 4 (a).	Explanation 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 $6 \times A$	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 $1 \times E + 3 \times M + 4 \times A$