

Prior Learning	<ul style="list-style-type: none"> Year 7: Plant cell structure; Diffusion in Chemistry unit; calculating area and volume of cubes in Math's; Year 8: Unicellular organisms – Aerobic and anaerobic respiration; word equations in chemistry units Year 9: B1b plant cell structure 			
Lesson Number	AQA Spec	Title	Content	Homework / Assessment
1		Drawing graphs in Science (skills lesson)	<ul style="list-style-type: none"> Calculate mean in a results table Identify anomalies in a results table and treat them appropriately Draw and label X and Y axis correctly on a graph Choosing appropriate scales Plotting points accurately Drawing a line of best fit (or smooth curve) 	
2	4.4.2.1	Aerobic Respiration	<ul style="list-style-type: none"> Identify the reasons why organisms need energy Write the word and balanced symbol equation for aerobic respiration Describe what aerobic respiration is (exothermic reaction) 	
3	4.4.2.1 4.4.2.2	Anaerobic respiration & exercise	<ul style="list-style-type: none"> Describe the situations when aerobic and anaerobic respiration take place Write the word equation for anaerobic respiration Compare and anaerobic respiration Describe anaerobic respiration in Yeast cells and how it is used in food production (fermentation process) including equation. Explain the body's response to exercise in terms of heart rate, breathing rate and volume Describe what muscle fatigue is <i>Explain in detail what oxygen debt is (Higher tier only)</i> 	

4	4.1.3.1	Diffusion	<ul style="list-style-type: none"> Describe and explain how molecules move by diffusion Explain the different factors that can affect rate of diffusion <i>Use concentration gradients to explain the direction of diffusion (higher tier only)</i> 	
5	4.1.3.2	Osmosis	<ul style="list-style-type: none"> Describe what osmosis is Identify factors that affect the rate of osmosis Explain how root hair cells are adapted for efficient osmosis. Explain what a partially permeable membrane is Explain the effects of osmosis on plant and animal cells (turgid, flaccid, plasmolysis) 	
6	4.1.3.2	<p><i>Required practical 1: Investigate the effect of a range of concentrations of salt solutions on the mass of plant tissue (potato)</i></p>	<p><u>Working scientifically skills</u></p> <ul style="list-style-type: none"> Use scientific ideas to develop a hypothesis. Plan an experiment to test a hypothesis Understand Variables (independent, dependent and control variables) Make and record observations accurately <p><u>Math's skills:</u></p> <ul style="list-style-type: none"> Drawing a graph and line of best fit Calculate mean, calculate change in mass, calculate percentage change in mass, interpret a graph Draw conclusions from data 	Skills Assessment: 15 marks

7	4.1.3.3	Active transport	<ul style="list-style-type: none"> Describe what active transport is Explain how active transport is different from diffusion and osmosis. Explain why active transport is important (e.g. in plants and small intestines) Compare the 3 methods of transport – diffusion, osmosis and active transport 	Assessment: 25 mark multiple choice quiz
8	4.1.3.1	Surface area to Volume ratio (Math's skills)	<ul style="list-style-type: none"> Math's skills: calculate surface area and volume of a cube Math's skills: calculate and compare surface area to volume ratio of a cube Describe the need for transport systems and exchange surfaces in multicellular organisms (in relation to SA:V) Describe how the effectiveness of an exchange surface can be increased. 	
END OF UNIT TEST				
Where we will use these ideas again		<ul style="list-style-type: none"> Year 9: B2 Photosynthesis – diffusion of gases in the leaf; how active transport is used to move plant minerals; Year 10: B3 Organisation– how diffusion and active transport are used to move nutrients into blood from the small intestines; what happens to red blood cells when placed in high concentrations of water; metabolism and exercise; how SA:V is important for effective function of RBC's, lungs, alveoli and small intestines. Year 10: B4 Infection and response– aerobic and anaerobic respiration links to microbiology required practical for triple students; Year 11: B5 Homeostasis - how diffusion, osmosis and active transport are involved in kidney dialysis for triple students; Year 11: B8 Ecology – carbon cycle; 		