

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Content</p> <p>Knowledge</p>	<p>Cell Biology:</p> <ul style="list-style-type: none"> Eukaryotic and Prokaryotic Cells Plant and Animal Cells Specialised Cells Transport across cells <p>Chapter B1 Knowledge: Knowing what cells look like under a light microscope and comparing what we can see under an electron microscope. Recalling the differences between plant and animal cells and learning how to organise cells into prokaryotes and eukaryotes. Learning how to calculate order of magnitude to appreciate size. Compare and contrast diffusion, osmosis and active transport.</p> <p>Required Practical:</p> <ul style="list-style-type: none"> Looking at cells under a microscope Investigating osmosis in plant cells 	<p>a) Cell differentiation and specialisation:</p> <ul style="list-style-type: none"> The Cell Cycle Cell division Cell differentiation Stem cells Therapeutic cloning <p>Chapter B2 Knowledge: Knowing the importance of cell differentiation. Describe mitosis and why it is important in cells. Evaluate the use of stem cells. Know the process of therapeutic cloning.</p> <p>b) Organisation and the Digestive System:</p> <ul style="list-style-type: none"> Tissues and organs The human digestive system The chemistry of food <p>Chapter B3 Knowledge: Outline the hierarchy in cells: cells, tissues, organs, organ systems, and organism. Recall the organs of the human digestive system. Know the basic structure of proteins, carbohydrates and lipids.</p> <p>Required Practical:</p> <ul style="list-style-type: none"> Food tests 	<p>a) Organisation and the Digestive System:</p> <ul style="list-style-type: none"> Catalysts and Enzymes Factors affecting enzymes How the digestive system works Efficient Digestion <p>Chapter B3 Knowledge: Describe the role of enzyme action. Describe how enzymes work in the digestive system. Explain how the small intestine is adapted for efficient digestion. Describe the role of bile. Explain how temperature and pH affect enzyme structure and action. Describe what happens when an enzyme becomes denatured.</p> <p>Required Practical:</p> <ul style="list-style-type: none"> The effect of temperature on the rate of reaction of amylase <p>b) Organising Animals and Plants</p> <ul style="list-style-type: none"> The blood Blood vessels <p>Chapter B4 Knowledge: Describe the components of the blood and how it</p>	<p>Organising Animals and Plants:</p> <ul style="list-style-type: none"> The heart Artificial Pacemakers and Stents Breathing and Gas Exchange Tissues and organs in plants Transport systems in plants Evaporation and transpiration Factors affecting transpiration <p>Chapter B4 Knowledge: Outline the structure of the heart. Label the atrium and ventricles. Know where the valves are found in the heart and their role. Describe how blood travels in the heart. Discuss the need for an artificial heart or a stent implant. Outline the organs found in plants. Compare the organ systems in plants to the organ systems in animals. Describe how food and water are transported through the plant. Explain the importance of evaporation and transpiration. Experiment how different factors affect transpiration.</p>	<p>Revision of Cell Biology and Cell differentiation and specialisation</p> <ul style="list-style-type: none"> To focus on recapping key knowledge and re-address common misconceptions Embed additional exam practice for each chapter Focus on key aspects of required practicals 	<p>Revision of Organisation, the digestive system, and organising animals and plants</p> <ul style="list-style-type: none"> To focus on recapping key knowledge and re-address common misconceptions Embed additional exam practice for each chapter Focus on key aspects of required practicals

			travels around the body. Describe structural differences in arteries, veins, and capillaries.	Required Practical: <ul style="list-style-type: none"> Mammalian Heart Dissection 		
Skills	<ul style="list-style-type: none"> To use a microscope to examine cells To be able to carry out calculations involving magnification, real size and image size To be able to calculate the order of magnitude and express answers in standard form 	<ul style="list-style-type: none"> Modelling cell division Evaluate the use of embryonic vs. Adult stem cells and create a well balanced argument Qualitatively test for the presence of different food molecules in a variety of foods 	<ul style="list-style-type: none"> Qualitatively test how different temperatures affect the rate of reaction in enzymes Interpret graphs showing enzyme rate of reaction Calculate the rate of reaction of an enzyme 	<ul style="list-style-type: none"> Dissect a mammalian heart and locate the atria, ventricles, heartstrings, valves, coronary arteries. Model inhalation and exhalation using a Bell Jar Make links back to B1 active transport with translocation in plants. Interpret data and graphs on factors that affect transpiration 	<ul style="list-style-type: none"> Recalling important information Exam Technique Spacing Interleaving Elaboration 	<ul style="list-style-type: none"> Recalling important information Exam Technique Spacing Interleaving Elaboration
Key Questions	<p>What are the differences between Eukaryotic and Prokaryotic Cells?</p> <p>How big are cells?</p>	<p>Why do cells divide?</p> <p>How can stem cells be used in human medicine?</p> <p>Why is the digestive system important?</p> <p>What is in our food?</p>	<p>What are enzymes?</p> <p>What factors affect how an enzyme works?</p> <p>Where are enzymes found?</p> <p>What is blood?</p> <p>How does blood travels around the body and what does it carry?</p>	<p>How does the heart pump blood around the body?</p> <p>Why might someone need a stent implant?</p> <p>How do plants get the water and food they need?</p>		
Assessment	<p>Diagnostic test on B1 ReACT tasks</p> <p>B1 End of Chapter Test</p>	<p>Diagnostic test on B2 ReACT tasks</p> <p>B2 End of Chapter Test</p>	<p>Diagnostic test on B3 ReACT tasks</p> <p>B3 End of Chapter Test</p>	<p>Diagnostic test on B4 ReACT tasks</p> <p>B4 End of Chapter Test</p>	<p>End of year test B1-B4</p>	

<p>Literacy/numeracy/ SMSC/Character</p>	<p>Key words: organelle, cell, diffusion, osmosis, active transport, microscope, membrane, specialised</p> <p>Numeracy: Calculating magnification and order of magnitude</p>	<p>Key words: division, differentiation, somatic, meristem, cloning, tissue, organ, organ system, organism, carbohydrate, lipid, protein, digestion</p>	<p>Key words: enzyme, active site, substrate, small intestine, villi, bile, denature, temperature, pH, platelets, plasma, arteries, veins, capillaries</p> <p>Numeracy: Interpreting data and graphs, calculating percentage, drawing graphs</p>	<p>Key words: atria, ventricle, valve, double circulatory system, pacemaker, stent, statins, xylem, phloem, translocation, transpiration</p> <p>Numeracy: Interpreting data and graphs, drawing graphs</p>		
<p>Enrichment opportunities and futures</p>	<p>Visiting Body World's exhibition in Leicester square- Get up close to real bodies and examine their organs and systems Investigate how enzymes are used in industry (ie. Washing detergent, foods etc) Visiting Kew Gardens- Look at the different plants Visit the Science Museum in South Kensington- They have a section that looks at organs and medicine</p>					