



Applied Science Plan for 21/22

Year 12		
Term	Topic	Inquiry Question
Autumn	Unit 2 - Learning Aim A	<i>How can we check the calibration of equipment to ensure validity of practical outcomes?</i>
	Unit 2 - Learning Aim A	<i>How can we use Na₂CO₃ to standardise HCl and then in turn use the HCl to standardise NaOH through titrations?</i>
	Unit 2 - Learning Aim A	<i>How can we Determine the Concentration of a Copper Sulphate Solution using Colourimetry?</i>
	Unit 2 - Learning Aim C	<i>What are the principles underlying the use of paper chromatography and TLC? How can we justify which is most suitable?</i>
	Unit 2 - Learning Aim C	<i>What are the factors that influence separation in chromatography, and how can they be used to justify conclusions drawn about the identification of components in a mixture?</i>
Spring	Unit 1 - Periodicity and Properties of Elements	<ul style="list-style-type: none"> ● <i>What subatomic particles are found in atoms and how are they arranged?</i> ● <i>How and why do atoms of elements combine together?</i> ● <i>How can we calculate the quantities of substances in chemical reactions?</i> ● <i>What are the trends in the periodic table and how can they be explained?</i>
	Unit 1 - Structure and Function of Cells and Tissues	<ul style="list-style-type: none"> ● <i>What are cells made from and how can we see these using microscopes?</i> ● <i>How are cells specialised for their function?</i> ● <i>How are Epithelial, Muscular and Nervous tissues adapted for their function?</i>
	Unit 1 - Waves in Communication	<ul style="list-style-type: none"> ● <i>What are the features common to all waves, and how can they be represented graphically?</i> ● <i>What are displacement, coherence, path difference, phase difference and superposition as applied to diffraction grating?</i> ● <i>How are fibre optics used</i> ● <i>How are electromagnetic waves used in communication?</i>
Summer	Unit 2 - Learning Aim B	<i>What are the underlying principles behind the use of different types of thermometer? How can their calibration be checked to ensure validity of results?</i>
	Unit 2 - Learning Aim B	<i>How can cooling curves be constructed and interpreted to find the rate of cooling at different phases?</i>



	Unit 2 - Learning Aim D	<i>How can I appraise my own performance, in terms of the scientific skills I have developed?</i>
--	-------------------------	---

Year 13		
Term	Topic	Inquiry Question
Autumn	Unit 3	<ul style="list-style-type: none"> • <i>What makes a good investigation plan?</i> • <i>How can statistical analysis of collected data improve the validity of conclusions and aid the development of a justifiable evaluation</i>
	Unit 8 - Learning aim A	<ul style="list-style-type: none"> • <i>What are the features of the musculoskeletal system, and how do structures correspond to roles?</i> • <i>What are the disorders of the musculoskeletal system, and how are they treated?</i>
Spring	Unit 3	<ul style="list-style-type: none"> • <i>What are enzymes and how can we investigate the rate of enzyme activity using different independent variables</i> • <i>What is diffusion and how can we investigate the rate of diffusion using different independent variables</i> • <i>How can we investigate the energy content of different fuels?</i>
	Unit 8 - Learning Aim B	<ul style="list-style-type: none"> • <i>What are the features of the lymphatic system, and how do structures correspond to roles?</i> • <i>What are the disorders of the lymphatic system, and how are they treated?</i>
Summer	Unit 3	<ul style="list-style-type: none"> • <i>What are the features of series and parallel circuits and How can we use $V=IR$ to investigate their properties</i> • <i>How can we sample the distribution of a plant species and use the data to estimate a population? How can we investigate the biotic and abiotic factors that affect plant species distribution?</i>
	Unit 8 - Learning Aim C	<ul style="list-style-type: none"> • <i>What are the features of the digestive system, and how do structures correspond to roles?</i> • <i>What are the disorders of the digestive system, and how are they treated?</i>