

SCIENCE – YEAR 8 CURRICULUM OVERVIEW 2020 / 2021

TOPIC TITLE	TOPIC OVERVIEW	KNOWLEDGE & SKILLS	ASSESSMENT	WIDER LINKS
Year 8 - Term 1 Health	Health In this first Biology topic, students will explore: <ul style="list-style-type: none"> • What nutrients does the human body require. • What is the structure and function of the digestive system? • How can lifestyle choices affect our body? 	Health <ul style="list-style-type: none"> • Food groups and nutrient tests and importance • Structure and function of the digestive system • Enzyme mode of action • Dietary needs including malnutrition. • Effects of drugs, smoking and exercise on the body 	Health Weekly homework which includes research and exam style questions Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic.	Health KS3 Year 7 - Structure and Function of body systems. Year 8 - Ecosystem processes. KS4 B1 Cell structure and transport. B2 Cell Division. B3 Organisation and the digestive system. B4 Organising animals and plants. B5 Communicable diseases. B7 Non-communicable diseases. B9 Respiration”
Periodic Table	Health In this first Chemistry topic, students will explore: <ul style="list-style-type: none"> • What is the structure of the periodic table and how are elements arranged and grouped? • What are the main groups in the Periodic Table? • How do groups of elements show trends in properties? 	The Periodic Table <ul style="list-style-type: none"> • Writing equations for reactions. • The structure of the Periodic Table • The key properties of the alkali metals, halogens and noble gases. 	The Periodic Table Weekly homework which includes research and exam style questions Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic.	The Periodic Table KS3 Year 7 - Atoms, elements and compounds. Reactions. Acids and Alkalis. Year 8 - Separating mixtures. Reactions of metals and acids KS4 C1 Atomic structure. C2 Periodic table. C3 Structure and bonding. C5 Chemical changes. C6 Electrolysis. C9 Crude oil for fuels. C12 Chemical analysis”
Electricity & Magnetism	Electricity & Magnetism <ul style="list-style-type: none"> • What is static charge and how are they generated? 	Electricity & Magnetism <ul style="list-style-type: none"> • What causes static changes? • Definitions of V, I and R. 	Electricity & Magnetism Weekly homework which includes research and exam style questions	Electricity and Magnetism KS3 Year 7 - Forces Year 8 – Energy

	<ul style="list-style-type: none"> • What is the nature of current, potential difference and resistance? • How do series and parallel circuits differ? • How do magnets and electromagnets work? 	<ul style="list-style-type: none"> • Differences between series and parallel in terms of current and p.d. behaviour. • What magnetic fields look like. • How we can change the power of an electromagnet? 	Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic.	KS4 P1 Conservation and dissipation of energy. P3 Energy resources. P4 Electric circuits. P5 Electricity in the home. P15 Electromagnetism.
Separating Mixtures	Separating Mixtures <ul style="list-style-type: none"> • The nature of mixtures. • What are solutions and what is solubility? • How can we use evaporation to separate solutions? • How can we use Filtration to separate solids from liquids? • What is Chromatography used for? 	Separating Mixtures <ul style="list-style-type: none"> • What is a mixture? • What is a solution? • What techniques are best for separating certain mixtures? 	Seperating Mixtures Weekly homework which includes research and exam style questions Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic.	Separating Mixtures KS3 Year 7 - Atoms elements & compounds. Particles and their behaviour. Year 8 KS4 C2 The periodic table. C3 Structure and bonding. P6 molecules and matter. C9 Crude oil and fuels.
At the end of Term 1, students will sit an 'end of term' exam, based on the topics covered so far. This is to begin to prepare students for the linear exam based, terminal assessment they will encounter at GCSE.				
Year 8 - Term 2 Energy	Energy In this physics topic students will explore: <ul style="list-style-type: none"> • How we get energy form food. • The law of conservation of energy • How is energy transferred as heat? • Sources of energy. • Work and power. 	Energy <ul style="list-style-type: none"> • What is the difference between heat and temperature? Explain conduction, convection and radiation. • Explain how heat transfers can be prevented using insulation. • The calculations for work and Power • Calculate the power in kWh of an appliance. • Understand efficiency and how it can be improved. 	Energy Weekly homework which includes research and exam style questions Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic.	Energy KS3 Year 7 – Forces. Reactions. Year 8 - Electricity and magnetism. KS4 P1 Conservation and dissipation of energy. P2 Energy transfers by heating. P3 Energy resources. P4 Electric circuits. P5 Electricity in the home. P6 Molecules and matter. P14 Light. P15 Electromagnetism.

	<ul style="list-style-type: none"> • How do we know how much energy different appliances use? 			
Adaptation and Variation	<p>Adaptation and Variation In this biology topic students will explore:</p> <ul style="list-style-type: none"> • How organisms are adapted to their environments • The concept of evolution as a way of adapting to changes in environment. • What is variation and how is it important? • What is natural selection? • What causes extinction? 	<p>Adaptation and Variation</p> <ul style="list-style-type: none"> • Different types of variation • Why evolution occurs • The causes of extinction • How evolution occurs 	<p>Adaptation and Variation Weekly homework which includes research and exam style questions</p> <p>Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic.</p>	<p>Adaptation and Variation KS3 Year 7 – Cells. Structure and Function of body systems. Reproduction. Year 8 - Ecosystem processes KS4 B1 Cell structure and transport. B2 Cell Division. B4 Organising animals and plants. B11 Hormonal control. B13 Reproduction. B14 Variation and evolution. B13 Genetics and evolution.</p>
Reactions of Metals and acids	<p>Reactions of Metals and acids</p> <ul style="list-style-type: none"> • How do metals react with acids? • How do metals react with oxygen? • Do metals react with water? • What is displacement? • How can we extract metals? 	<p>Reactions of Metals and acids</p> <ul style="list-style-type: none"> • Equations to show the key reactions of metals. • Understand the concept of displacement and the reactivity series. • Describe how reactivity affects the ability or ease of metal extraction. • Describe the importance of polymers, ceramics and composites. 	<p>Reactions of Metals and acids Weekly homework which includes research and exam style questions</p> <p>Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic</p>	<p>Reactions of Metals and acids KS3 Year 7 - Atoms, elements and compounds. Reactions. Acids and Alkalis. Year 8 - Separating mixtures. The Periodic Table. KS4 C1 Atomic structure. C2 Periodic table. C3 Structure and bonding. C5 Chemical changes. C6 Electrolysis. C12 Chemical analysis. C14 The earth's resources. C15 Using our resources.</p>

At the end of Term 2, students will sit an 'end of term' exam, based on the topics covered so far. This is to begin to prepare students for the linear exam based, terminal assessment they will encounter at GCSE.

<p>Year 8 - Term 3</p> <p>The Earth</p>	<p>Planet Earth In this chemistry topic students will explore:</p> <ul style="list-style-type: none"> • What are the different types of rock found on Earth? • What is the carbon cycle and how do humans affect it? • How can we live sustainably? 	<p>Planet Earth</p> <ul style="list-style-type: none"> • The properties of rocks • Sedimentary, igneous and metamorphic rocks and the rock cycle • The carbon cycle. • Human activities that affect the carbon cycle. • Sustainable development including plastics and global climate change. 	<p>Planet Earth Weekly homework which includes research and exam style questions Students will complete an end of topic test each half term.</p> <p>These tests contain a mixture of recall and application questions based on the current topic</p>	<p>Planet Earth KS4 C13 The earth's atmosphere. C14 The earth's resources. C15 Using our resources”</p>
<p>Motion and Pressure</p>	<p>Motion & Pressure In this Physics topic students will explore:</p> <ul style="list-style-type: none"> • How do you calculate speed? • How do you show motion on a graph? • How does pressure work in solids liquids and gasses. 	<p>Motion & Pressure</p> <ul style="list-style-type: none"> • Apply the equation to calculate speed. □ Draw and interpret distance-time graphs □ Describe acceleration. • Draw and interpret speed-time graphs. • Explain what is meant by unbalanced forces. • Explain how balanced and unbalanced forces affect motion. • Apply ideas of forces to parachutes. 	<p>Motion and Pressure Weekly homework which includes research and exam style questions</p> <p>Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic.</p>	<p>Motion & Pressure KS3 Year 7 – Forces. KS4 P8 Forces in balance. P9 Motion. P10 Forces in motion. P11 Force and pressure. P16 Space. C4 Chemical calculations. C8 Rate and equilibra.</p>
<p>Ecosystem Processes</p>	<p>Ecosystem Processes In this Biology topic students will explore:</p> <ul style="list-style-type: none"> • Where do plants get their energy from? • How do leaves work? • Are there any other ways to release energy? 	<p>Ecosystem Processes</p> <ul style="list-style-type: none"> • Describe and explain photosynthesis. • How are leaves adapted for photosynthesis? • What minerals do plants need? • What is chemosynthesis? • Anaerobic and aerobic respiration. • Food chains and webs and their importance. 	<p>Ecosystem Processes Weekly homework which includes research and exam style questions</p> <p>Students will complete an end of topic test each half term. These tests contain a mixture of recall and application questions based on the current topic.</p>	<p>Ecosystem Processes KS3 Year 7 – Cells. Structure and function of body systems Year 8 - Adptation and variation. KS4 B4 Organising animals and plants. B8 Photosynthesis. B9 Respiration. B14 Variation and evolution. B16 Adaptation and interdependence.</p>

				B17 Organisation of an ecosystem. B18 The effect of human interactions on ecosystem processes.
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At the end of Term 3, students will sit an 'end of year' exam, based on all topics covered. This is to begin to prepare students for the linear exam based, terminal assessment they will encounter at GCSE.