



Overview plans for academic year 2023-2024

Subject: KS3 Year 2

Year group/cohort: 7-9

	Knowledge and Understanding	Knowledge and Understanding	Skills	Skills	Assessment	Subject specific literacy	Cross curricular links
	Components (Key concepts)	Composite (Bigger picture)	Components (Key concepts)	Composite (Bigger picture)	What is being assessed, how, and when?	Key Vocabulary	Including Personal Development and SMSC
Autumn Term 1	Understand acids, alkalis and bases. Acids are neutralised by alkalis and bases to produce salts and water.	<u>Unit 4 – Chemistry in Our World</u>	Student investigate substances using indicators Students use an acid and a base to complete a neutralisation reaction	<u>Practical – Acid or Alkali</u> <u>Practical – Making Salts</u>	<u>Formative Assessment – Acids and Alkalis Concluding</u> <u>AFL 6 mark Question – Making Salts</u> <u>Checkpoint and Vocab Builder</u>	Acid, alkali, bases, pH, neutralise, oxidation, combustion, neutralisation, catalyst, evaporation, atmosphere, fossil fuels, photosynthesis, fraction, distillation, oilfield, fractional distillation, global warming, green house gas, sterilising,	Opportunity for students interested in hair and beauty industry

	<p>Understand how to test for gases such as hydrogen, oxygen and carbon dioxide.</p> <p>Understand when substances react and energy can be transferred to the surroundings or taken in from the surroundings.</p> <p>Understand how the rate of chemical reaction can be increased.</p>		<p>Students learn the tests for oxygen, hydrogen and carbon dioxide</p> <p>Students investigate whether reactions are endothermic or exothermic</p> <p>Students complete a series of reactions looking at the factors that affect rates of reaction</p>	<p><u>Practical – testing for hydrogen, oxygen, carbon dioxide</u></p> <p><u>Practical – Endothermic or Exothermic?</u></p> <p><u>Practical – Rates of Reaction</u></p>	<p><u>Checkpoint and Vocab Builder</u></p> <p><u>Formative Assessment – Rates of Reaction</u></p> <p><u>End of Topic Assessment</u></p>		
Autumn Term 2	<p>Understand the formation of the Earth's atmosphere and how it's changed over billions of years.</p> <p>Understand crude oil is a mixture of compounds. How it was formed and where it is found.</p> <p>How it is separated into fractions by</p>		<p>Students model Earth structure with ferreo roche</p> <p>Students complete a simple distillation technique.</p>	<p><u>Practical – Earth Structure</u></p> <p><u>Practical – Distillation</u></p>		<p>Acid, alkali, bases, pH, neutralise, oxidation, combustion, neutralisation, catalyst, evaporation, atmosphere, fossil fuels, photosynthesis, fraction, distillation, oilfield, fractional distillation, global warming, green</p>	

	<p>fractional distillation. Understand the problems caused to the environment by human activity. Understand how water is treated to be used for drinking and how waste water is treated.</p>		<p>Students investigate the effects of acid rain</p> <p>Students complete a series of</p>	<p><u>Practical – Acid Rain</u></p> <p><u>Practical – Potable Water</u></p>		<p>house gas, sterilising,</p>	
Spring Term 1	<p>Understand that life on Earth is dependent on photosynthesis to fix carbon dioxide and produce the organic molecules used as the fuels for respiration and life processes. Understand that living organisms interact with one another and their environment in many different ways.</p>	<u>Unit 2 Environment, Evolution and Inheritance</u>	<p>Testing a leaf for starch</p> <p>Students investigate the effect of light intensity on photosynthesis</p>	<p><u>Practical – Photosynthesis</u></p> <p><u>Practical – Rate of photosynthesis</u></p>	<p><u>Formative Assessment – Growth</u></p> <p><u>Checkpoint and Vocab Builder</u></p>	<p>Algae, producer, organism, photosynthesis, radiation, chlorophyll, adaptations, habitat, ecosystem, food chain, food web, consumer, Carbon cycle, decay, environment, microorganism, competition, territory, nutrients, abiotic, biotic, extinct, acid rain, deforestation, herbicide, pesticide,</p>	

	<p>Understand that human behaviours may have beneficial or detrimental effects on natural populations and the environment. Understand that chemicals in the environment are continually cycling through the natural world.</p>				<p><u>Checkpoint and Vocab Builder</u></p>	<p>pollution, sewage, toxic, evolution, fossils, selective breeding, asexual reproduction, sexual reproduction, gene, characteristics, clone, variety, chromosomes, DNA, plasmid.</p>	
<p>Spring Term 2</p>	<p>Understand that life on Earth has evolved over time by natural selection, which accounts for biodiversity and how organisms are related. Understand that the characteristics of living things depend on both their environment and their genome. Humans can now use genetic</p>		<p>Student investigate variation</p>	<p><u>Practical - Variation</u></p>		<p>Algae, producer, organism, photosynthesis, radiation, chlorophyll, adaptations, habitat, ecosystem, food chain, food web, consumer, Carbon cycle, decay, environment, microorganism, competition, territory, nutrients, abiotic, biotic, extinct, acid rain, deforestation, herbicide, pesticide,</p>	

	engineering to modify organisms						pollution, sewage, toxic, evolution, fossils, selective breeding, asexual reproduction, sexual reproduction, gene, characteristics, clone, variety, chromosomes, DNA, plasmid.	
Summer Term 1	<p>Understand that electricity is used in domestic and industrial situations to supply energy. Electric current is a flow of electrical charge and measured in amps. Understand series and parallel circuits</p> <p>To measure and calculate resistance</p> <p>To know how and why to wire a plug</p>	<u>Unit 6 Electricity, Magnetism and Waves</u>	<p>To safely set up series and parallel circuits and measure current and potential difference</p> <p>To measure and calculate resistance in a circuit</p> <p>To safely wire a plug</p>	<p><u>Practical – Circuits</u></p> <p><u>Practical – Resistance</u></p> <p><u>Practical – Wiring a Plug</u></p>	<p><u>Formative Assessment – Circuits Modelling</u></p> <p><u>Formative Assessment – Resistance Evaluating</u></p>		<p>Component, electrical circuit, current flow, electric charge, resistance, voltage, cell, resistance, power fuels, fossil fuels, electricity, power station hydroelectric, magnetic field, relay, electromagnet, compression force, longitudinal, oscillation, rarefaction, transverse, amplitude, wavelength, frequency, spectrum, radar, reflection, satellite</p>	

Summer Term 2	<p>Understand when a current flows through a coil of wire an electromagnet is formed, which like permanent magnets, can exert a force over a distance. Electric currents can also be used to produce electromagnetic waves, which have many uses including the transmission of information and the transfer of energy from one place to another. Understand that waves may be either transverse or longitudinal To make simple wave calculations Understand the order, uses and hazards of the electromagnetic spectrum</p>		<p>Investigate the magnetic field of a magnet</p> <p>Construct an electromagnet and investigate how to alter the strength</p>	<p><u>Practical – Magnets</u></p> <p><u>Practical – making an electromagnet</u></p>	<p><u>AFL 6 mark – Electromagnets</u></p> <p><u>Formative Assessment – Electromagnets Vocabulary</u></p> <p><u>Checkpoint and Vocab Builder</u></p> <p><u>End of Topic Assessment</u></p>	<p>Component, electrical circuit, current flow, electric charge, resistance, voltage, cell, resistance, power fuels, fossil fuels, electricity, power station hydroelectric, magnetic field, relay, electromagnet, compression force, longitudinal, oscillation, rarefaction, transverse, amplitude, wavelength, frequency, spectrum, radar, reflection, satellite</p>	

Subject Information including exam board details:

This is a mixed year group. Students access the National Curriculum and are prepared for return to mainstream.

Careers linked to this subject area:**Health Careers****Research****Construction****Earth Studies****Communications**

Enrichment Opportunities:

Science in the News : [Science News Explores | News from all fields of science for readers of any age \(snexplores.org\)](https://www.snexplores.org/)

Seneca Learning [Free Homework & Revision for A Level, GCSE, KS3 & KS2 \(senecalearning.com\)](https://www.senecalearning.com/)

BBC Bitesize [KS3 Science - BBC Bitesize](https://www.bbc.com/bitesize)