The Acorns School

Overview plans for academic year 2024-2025

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.	**Unit 4 – Chemistry in Our World**	Student investigate substances using indicators Students use an acid and a base to complete a	**Practical – Acid or Alkali** **Practical – Making Salts**	**Formative Assessment – Acids and Alkalis Concluding** **AFL 6 mark Question – Making Salts**	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

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

	compounds. How it was formed and where it is found. How it is separated into fractions by 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.		distillation technique. Students investigate the effects of acid rain Students complete a series of	**Practical – Acid Rain** **Practical – Potable Water**		fraction, distillation, oilfield, fractional distillation, global warming, green house gas, sterilising,	
Spring Term 1	Understand that life on Earth is dependent on photosynthesis to fix carbon dioxide and produce the organic molecules used	**Unit 2 Environment, Evolution and Inheritance**	Testing a leaf for starch	**Practical – Photosynthesis**		Algae, producer, organism, photosynthesis, radiation, chlorophyll, adaptations, habitat, ecosystem, food chain, food web, consumer, Carbon	

	as the fuels for respiration and life processes. Understand that living organisms interact with one another and their environment in many different ways. 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.		Students investigate the effect of light intensity on photosynthesis	**Practical – Rate of photosynthesis**	**Formative Assessment – Growth** **Checkpoint and Vocab Builder** **Checkpoint and Vocab Builder**	cycle, decay, environment, microorganism, competition, territory, nutrients, abiotic, biotic, extinct, acid rain, deforestation, herbicide, pesticide, pollution, sewage, toxic, evolution, fossils, selective breeding, asexual reproduction, sexual reproduction, gene, characteristics, clone, variety, chromosomes, DNA, plasmid.	
Spring Term 2	Understand that life on Earth has					Algae, producer, organism,	

	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 engineering to modify organisms		Student investigate variation	**Practical - Variation**	**End of Topic Assessment**	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, pollution, sewage, toxic, evolution, fossils, selective breeding, asexual reproduction, sexual reproduction, gene, characteristics, clone, variety, chromosomes, DNA, plasmid.	
Summer Term 1	Understand that electricity is used in domestic and industrial situations to supply energy. Electric current is	**Unit 6 Electricity, Magnetism and Waves**				Component, electrical circuit, current flow, electric charge, resistance, voltage, cell, resistance, power fuels, fossil fuels,	

	a flow of electrical charge and measured in amps. Understand series and parallel circuits To measure and calculate resistance To know how and why to wire a plug		To safely set up series and parallel circuits and measure current and potential difference To measure and calculate resistance in a circuit To safely wire a plug	**Practical – Circuits** **Practical – Resistance** **Practical – Wiring a Plug**	**Formative Assessment – Circuits Modelling** **Formative Assessment – Resistance Evaluating**	electricity, power station hydroelectric, magnetic field, relay, electromagnet, compression force, longitudinal, oscillation, rarefaction, transverse, amplitude, wavelength, frequency, spectrum, radar, reflection, satellite	
Summer Term 2	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		Investigate the magnetic field of a magnet Construct an electromagnet and investigate how to alter the strength	**Practical – Magnets** **Practical – making an electromagnet**	**AFL 6 mark – Electromagnets** **Formative Assessment – Electromagnets Vocabulary**	Component, electrical circuit, current flow, electric charge, resistance, voltage, cell, resistance, power fuels, fossil fuels, electricity, power station hydroelectric, magnetic field, relay, electromagnet,	

	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				**Checkpoint and Vocab Builder** **End of Topic Assessment**	compression force, longitudinal, oscillation, rarefaction, transverse, amplitude, wavelength, frequency, spectrum, radar, reflection, satellite	

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)

Seneca Learning Free Homework & Revision for A Level, GCSE, KS3 & KS2 (senecalearning.com)

BBC Bitesize KS3 Science - BBC Bitesize