SUBJECT: SCIENCE YEAR 8 OVERVIEW

	Autumn 1		Autumn 2	Spring 1	Spring 2	Summer 1		Summer 2
Topic (s)	**8A Photosynthesis**	**8B Atoms, elements and compounds**	**8C Electricity and Magnetism**	**8G The Earth and atmosphere**	**8F Waves**	**8D Ecosystems**	**8H Space**	**8I Scientific enquiry**
Topic Objectives	Recognise plants as living organisms made of organs and organ systems. Understand photosynthesis and its importance as basis of the food chain (RRS).	Understand the difference between elements, compounds and mixtures. Carry out and describe simple chemical reactions.	Understand how electrical circuits transfer energy. Recall the effect of magnets on each other and magnetic materials.	To gain understanding of the composition and structure of the Earth and the processes in the rock cycle. To understand the importance of recycling and evaluate the impact of human activity on the environment. (RRS)	To know that light and sound travel as waves. Understand how we see colour and how we hear sounds.	Understand the interdependence between organisms in an ecosystem. Evaluate impact of human activity on the natural environment (RRS).	To understand the place of the Earth in the Solar system and the Universe. To discuss the ethical implications of space exploration (RRS).	Plan lines of enquiry, making predictions and collecting evidence to test them.
Acquired Knowledge / Skills	Name main plant organs; link their functions to the adaptations of their specialised cells. Recall what plants need for photosynthesis and express this as a word equation.	Use particle model to represent elements, compounds and mixtures. Write word equations for simple chemical reactions. Start writing simple chemical formula	Build complete circuits and represent them using diagrams, using standard symbols. Measure current and voltage in a circuit. Describe the magnetic field around a bar magnet	Name the layers of the Earth. Name some examples of igneous, sedimentary and metamorphic rocks and describe the processes that make them. Recall the composition of the atmosphere and make links between human activities and the changes to the atmosphere.	Describe white light as a spectrum; explain how objects appear coloured in different colours of light. Use diagrams to show reflection of light off plane mirrors and refraction of light when passing through a glass block. Describe how sound is made and heard. Link the pitch and loudness of a sound to frequency and amplitude of the wave.	Draw food chains and food webs. Describe the effect of changes in conditions on population numbers in an ecosystem. Describe the effect of human activity on the environment, including effect on biodiversity.	Name planets in the solar system, in order. Describe how planets are held in orbit around the Sun by gravity. Describe how the Earth's rotation on it's axis causes day and night. Explain how solar and lunar eclipses happen. Explain how seasons are caused by the Earth's tilt as it orbits the Sun.	Identify independent, dependent and control variables. Make and record observations and measurements, taking steps to obtain reliable results. Identify anomalous results. Draw conclusions and explain them using scientific knowledge and understanding.
Practical skill	Testing leaves for starch. Observe rate of photosynthesis by monitoring gas produced over time.	Recording observations from chemical reactions.	Build electrical circuits. Plot magnetic field using a bar magnet and compass	Use of models to represent processes. Interpretation of data and evaluation of its validity.	Use of ray boxes to investigate reflection and refraction.	Sampling populations using quadrats.	Use models to represent events.	
Target Vocabulary	Photosynthesis Glucose Carbondioxide Oxygen Chloroplast Light intensity Stomata Root hair cell Deforestation	Atom Molecule Element Compound Mixture Melting point Chemical reaction Physical change Formula Equation	Conductor Circuit Current Voltage Resistance Energy Power Magnetic Pole	Core Mantel Crust Sedimentary Igneous Metamorphic Weathering Recycling Renewable Fossil	Source Receptor Reflection Refraction Frequency Amplitude Wavelength Transverse Longitudinal Vibration	Population Community Diversity Producer Consumer Food web Food chain Predator Prey Quadrat	Solar system Planet Mpon Star Eclipse Season Rotate Orbit Telescope Galaxy	Plan Evaluate Independent variable Dependent variable Control variable Reliability Accuracy Validity
Assessment	8A Key assessed task: how does a plant grow (writing scientifically)	8B Key assessed task: Investigating candles (planning)	8C Key assessed task: Length of wire and resistance (planning)	8G Key assessed task:	8F Key assessed task: Reflection and refraction (writing scientifically)	8D Key assessed task: Acid rain and growth of seeds (planning).	8H Key assessed task:	
		End of term 1 test		**Baseline test B-1st go**	End of term 2 test			End of term 3 test

Note: due to restrictions regarding practical resources, different classes will cover the topics for each term in different order. All classes will have covered the same content by the end of each term.