Science Curriculum Overview - Year 8

	Unit	Details
	Fluids and Energy Transfer (Teacher 1)	This unit builds upon ideas learned in Key Stage 2 regarding the difference between a chemical and physical state & changes in state as well as building upon content learned in a previous key stage 3 topic from Y7 by developing knowledge of diffusion in further detail. This topic runs concurrently with and supports the understanding of the Y8 Periodic Table topic, specifically chemical changes. In this topic pupils will learn the law of conservation of energy and explain what happens to energy in a transfer. Pupils should be able to describe changes in state and calculate the density of different materials. To complete the unit pupils should be able to describe heat transfer using the terms conduction, convection and radiation.
	Periodic Table and Reactivity (Teacher 2)	This unit uses ideas developed in Key Stage 2 about dissolving and irreversible and reversible changes as well as Y7, rearrangement of particles in chemical reactions. Pupils will explain the difference between a physical and chemical reaction both in terms of observations and particle diagrams. They will then move onto the study of the periodic table, its founder and look in detail at some of the groups found in it. Pupils will then move onto establishing a reactivity series by looking at metals reactions with both acid and water. To complete the unit they will consider the differences and uses of ceramics, polymers and composites.
	Nutrition, Breathing and Respiration (Teacher 1)	This unit uses knowledge gained in Key Stage 2 regarding the circulatory system, diet and exercise and the transportation of nutrients and water around the body. Pupils start the topic by recalling 7 components of a healthy diet and why the human body needs each, pupils move on to describe tissues and organs in the human digestive system and the process of digestion, pupils then describe anaerobic and aerobic respiration plus the process of gas exchange.
	Light (Teacher 2)	This unit builds upon knowledge of waves from the sound topic learned previously in Y7. Pupils start the topic by making comparisons between light waves and sound waves, they then describe the difference between specular reflection and scattering using the law of reflection. Pupils use knowledge of wave speeds through different mediums and reflection to describe the use of fibre optics. Pupils then make comparisons between the human eye and cameras for how each develops an image, finally pupils use prisms to investigate lenses and the separation of white light into a spectrum.
	Electricity (Teacher 1)	Pupils begin with static electricity and describing the transfer/build up of electrons, pupils develop this knowledge further to describe how charged objects create an electric field. Pupils recall the units for current, potential difference and resistance by calculating each. Pupils then move onto circuits describing similarities and differences between series and parallel circuits before finally describing resistance in insulating and conducting components.
Summer Two	**The Environment and Combustion** (Teacher 2)	Pupils build upon knowledge of the environment, including habitats, chemical reactions and the fire triangle in previous years of Key Stage 2 and Key Stage 3. Pupils start the unit by comparing the products of combustion, thermal decomposition and oxidation reactions. Pupils move onto learning more about the environment by explaining the advantages and disadvantages of recycling and compare with other forms of disposal. Pupils then learn adaptations of plants that help with photosynthesis, pupils build on this knowledge of a carbon/oxygen exchange by explaining the role of the carbon cycle in climate change.