

Year 8	Autumn Term
Biology	<p><u>Photosynthesis and gas exchange systems.</u></p> <p>The students will investigate photosynthesis by testing a leaf for starch. They will learn how plants make carbohydrates in their leaves by photosynthesis and gain mineral nutrients and water from the soil via their roots.</p> <p>They will examine the structure of the leaf, and view stoma with microscopes to learn about gas exchange in plants.</p> <p>Students will learn the structure and functions of the gas exchange system in humans, including adaptations to function, the mechanism of breathing to move air in and out of the lungs, They will use a simple method to measure the volume of their own lungs, and learn about the impact of exercise, asthma and smoking on the human gas exchange system</p>
Physics	<p><u>Waves</u></p> <p>Students will learn to identify transverse and longitudinal waves, and label wavelength and amplitude, peak and trough/rarefaction and compression</p> <p>They will investigate how light enables us to see colours, and how coloured filters work.</p> <p>They will investigate how the amplitude and frequency of a soundwave changes the sound.</p>
Chemistry	<p><u>Acids and alkalis</u></p> <p>Students learn about the pH scale and will investigate and evaluate different pH indicators for measuring acidity/alkalinity. They will learn about neutralisation reactions and will carry out an investigation into antacid tablets. They will carry out reactions of acids with metals to produce a salt plus hydrogen and reactions of acids with alkalis to produce a salt plus water.</p>

Year 8	Spring Term
Chemistry	<p><u>Reactions</u></p> <p>Students will learn to represent chemical reactions using formulae and using equations. They will carry out practical work to investigate combustion, thermal decomposition, oxidation and displacement reactions.</p> <p>They will investigate and describe exothermic and endothermic reactions, and use their knowledge to develop a cold pack for sports injuries</p> <p>They will learn the order of metals and carbon in the reactivity series, and use this knowledge to predict the outcome of displacement reactions.</p> <p>They will investigate the acidity/alkalinity of metal and non-metal carbonates.</p>
Physics	<p><u>Energy</u></p> <p>The students will learn about the different forms of energy and how energy transfers from one form to another, taking into account the law of conservation of energy.</p> <p>They will learn about heating and thermal equilibrium, and will investigate thermal conduction, convection and radiation.</p> <p>They will investigate the energy content of foods.</p> <p>They will compare power ratings of appliances in watts (W, kW), compare amounts of energy transferred (J, kJ, kW hour) and will look at the cost of running various electrical appliances, domestic fuel bills, fuel use and costs</p>
Chemistry	<p><u>Materials, Ceramics, Polymers and Composites.</u></p> <p>Students will learn to identify and describe the properties of ceramics, composites and polymers, and how the properties of each material makes it suitable for certain uses.</p> <p>They will learn how polymers are formed from monomers, and that the monomer needs C=C double bonds. Students will make a polymer from milk, they will investigate a composite called Pykrete, and they will make glass.</p>

Year 8	Summer Term
Biology	<p><u>Reproduction, genetics and evolution.</u></p> <p>Students will learn about reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle, gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta</p> <p>They will learn about reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms.</p> <p>They will learn about heredity as the process by which genetic information is transmitted from one generation to the next. They will learn about variation, natural selection, and adaptation.</p>
Biology	<p><u>Relationships in an ecosystem.</u></p> <p>Students will learn to identify biotic and abiotic factors in an ecosystem, and to describe interdependence within an ecosystem through food chains and food webs.</p> <p>They will describe how organisms affect, and are affected by, their environment, including the accumulation of toxic materials, and the impact humans have.</p> <p>They will use quadrats to investigate ecosystems within the school grounds.</p>