

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	<b>Cells</b> In this unit pupils are introduced to cells. They will explore and develop their understanding of animal and plant cells, cell specialisation, cell division and organ systems. Students will also have the opportunity to develop microscopy skills, slide preparation and scientific drawing.	<b>Energy resources</b> An introduction to the basic concept of energy and the forms it can take. Knowledge of the different forms energy takes and of energy transfers will be applied to the context of living things, fuels as sources of energy (including fossil fuels and renewable energy resources) and the importance of the sun. The environmental impacts of different energy resources will also be considered.	<b>Forces</b> Students will explain what a force is and how it can affect a body. Contact & non-contact forces will be introduced and the basic principles / facts of friction, & balanced and unbalanced forces covered. This topic will also introduce the basic equation for calculating speed.	<b>Ecology</b> Looking at the environment, adaptations of animals (genetic and environmental) and predator prey relationships. Students will then look at food chains and webs, including the role of producers, complex food webs, animal populations & the need for food management & sustainable development. Students will then apply this to their local context.	<b>Electricity</b> Students will look at conductivity of different materials, the uses of electricity and series and parallel circuits. Students will also be introduced to models that will help explain current, voltage and resistance.	<b>The Solar system</b> Students will look at why we have day/night, seasons, the cycle of the moon, the movement of the stars and the structure of our solar system. Students will also learn about the gravitational pull between bodies, how gravity relates to mass and distance and how gravity keeps satellites (natural and artificial) in orbit.
	<b>Particles</b> An introduction to the three states of matter and the particle model. Students will be asked to apply this to a number of scientific concepts; e.g. diffusion, density pressure and dissolving / solutions.	<b>Reproduction</b> Looking at the science behind human reproduction from fertilisation through to birth and beyond. Students will learn the anatomical structure of the reproductive system and look at internal & external fertilisation, IVF & ethical issues such as abortion.	<b>Classification</b> Students will develop their classification skills by looking at variation among biological groups. Students will identify and classify animals into groups (kingdoms, phylum, family etc.). Students will apply these skills to other contexts	<b>Acids &amp; Alkalis</b> Students are introduced to acids and alkalis. They will look at indicators and misconceptions around the meanings of strong, weak, concentrated, dilute, acid etc.	<b>Chemical Reactions</b> An introduction to common chemical reactions (e.g. combustion & oxidation) and word equations . Students will learn how to identify when a chemical reaction has taken place and the difference between chemical and physical changes will be revised. The concept of the conservation of mass will be introduced	<b>Year 7 science project</b> Science fayre – Year 7 project work celebrating science innovation and invention.
ICT	Presentation – cells and particles leaflets	Research – energy resources, fossil fuels	Data – investigating forces, data logging	Data – colorimeters for acids and alkalis	Modelling and control – sensors and electrical/analogue	Presentation/multi-media – solar system presentation
Year 8	<b>8A Food and digestion</b> Exploring food groups and how they are important in a balanced diet. The structure of each of the food groups and how all components of a healthy diet are important for energy, growth or repair.	<b>8J forces, moments and pivots</b> This topic extends on the work on forces completed in yr 7. Revising concepts such as contact and non-contact forces. The topic then moves on to moments, pivots and the moments equation. The topic finishes with a brief look at magnetic forces and their application.	<b>8G Atoms and elements</b> Looking at the concept and definitions of atoms, elements and compounds. Using the particle model to explain the properties of different elements and what happens when atoms combine. Students will then look at mixtures and the purity of substances (melting and boiling points) before finally looking at real life applications of materials science.	<b>8E Methods of separation</b> This topic investigates the ways that different substances can be separated. Starting with the definitions of solute, solvent and solution. Then moving through the different separation methods from filtration, chromatography and distillation.	<b>8I Heating &amp; Cooling</b> Understanding temperature scales and the difference between temp and heat (internal energy). Looking at how heat is transferred by conduction, convection and radiation & heating and cooling curves. Linking these to how heat affects particles (particle model) in terms of expansion, convection currents and changing state.	<b>8C Microbes and disease</b> Learning that micro-organisms are living things, how they grow, how they can be used to make products and how they cause infection. Students will also learn how we have evolved to prevent and deal with infections.  Publishing – Health leaflets
	<b>8F Materials and compounds</b> Introducing compounds, elements, symbols, formulae and equations to describe reactions. Students will also look at the history of the periodic table. The topic also begins to look at real life applications of different types of materials..	<b>8B health and respiration</b> The process of respiration that occurs in living cells. The purpose/function of respiration and how cells are provided with the materials needed to carry the process out. The topic also looks at anaerobic respiration.	<b>8K Sound</b> Build on knowledge of sound and hearing. Explaining how and why the ear works and why sound needs a medium to travel through. The topic also looks at the dangers of loud sounds to our hearing.	<b>8H Explaining the Earth</b> Pupils study the Earth exclusively as a topic here, from sedimentary, metamorphic and igneous rocks and how they form. The topic finishes with the rock cycle & associated events.	<b>8D Ecological relationships</b> Studying habitats in detail. Identifying organisms, population sizes and feeding relationships. Quantifying communities and looking at how a community is affected by its environment. Again – to be applied to a local context. Pupils will produce pyramids of numbers and biomass and look at the accumulation of toxins in a food	<b>8L light Extended yr 8 project</b> Building on knowledge of light. Representing light as a ray that can be reflected, refracted, diffracted and split. This links to the electromagnetic spectrum and the science of colour (appearance, absorption and transmission)

					chain/pyramid. ICT - Modelling / presenting quantifiable data on communities?	
ICT	Data	Research	Multi-media	Publishing	Modelling	
Year 9	<b>Speed, Acceleration &amp; understanding forces</b>	<b>Inheritance &amp; selection</b>	<b>Reactions of metals, non metals and their compounds &amp; Patterns of reactivity</b>	<b>Energy Transfers and the importance of electricity.</b>	<b>Extended science/ how science works</b>	<b>Extended science/ how science works</b> Preparation for the GCSE course and the specific investigative / science enquiry skills.
	Looking at Newton's laws e.g. $f=ma$ . Discovering the relationship between forces acting on an object and its movement. Looking at air and water resistance and falling.	How traits and characteristics are inherited. The applications of this knowledge in selective breeding (and genetic engineering?). Looking at environmental variation in more detail.	Exploring the chemical properties of metal and non-metal elements. Using word and symbol equations. Using these reactions to create a reactivity series for group 1 (and other) elements.	Exploring energy transfers and transformations. The uses of electricity to transfer energy. The conservation of energy and a detailed look at voltage.		
	<b>Plants, Photosynthesis &amp; plants for food</b>	<b>Fit &amp; healthy</b>	<b>Environmental and material chemistry</b>	<b>Newtonian Physics – Pressure &amp; Moments</b>		
	Linking photosynthesis with the production of Biomass. How the sugar produced in photosynthesis is used by plants. Details of photosynthesis including symbol equations, limiting factors and the structure and function of the roots, leaf & specific organelles relating to photosynthesis (chloroplasts & chlorophyll)	The structure of the respiratory, digestive and circulatory systems and how smoking, diet and drugs etc. can affect the human body. The function of the skeletal and muscular systems to be looked at too.	Looking at the chemistry in the environment, chemical weathering, soils, ores as a source of metals and minerals, water, carbon and nitrogen cycles & the effects of human activities on the atmosphere & environment. Looking at the chemistry behind materials science and the production of chemicals and new materials.	Students will look at the pressure in more detail, and then consider the applications of pressure in our lives, hydraulics, pneumatics etc. Students will also look at the uses of Moments to do work (leverage & turning effects – the principle of moments).		
ICT	Data	Research	Multi-media	Publishing		