

Key Stage 3

	Year 7	Year 8	Year 9
Autumn 1	<p>Cells –</p> <ul style="list-style-type: none"> Observing and interpreting cells using a microscope. The functions of cells. <p>Reproduction –</p> <ul style="list-style-type: none"> Reproduction in mammals. Reproductive systems. The menstrual cycle. Fertilisation, gestation and birth. <p>Acids and Alkalis –</p> <ul style="list-style-type: none"> The pH scale for measuring acidity and alkalinity. Reactions of metals/alkalis with acids. 	<p>Food and Digestion –</p> <ul style="list-style-type: none"> Content of a healthy human diet. Calculations of energy requirements in a healthy daily diet. The consequences of imbalances in the diet. <p>Respiration –</p> <ul style="list-style-type: none"> Aerobic and anaerobic respiration in living organisms. The structure and functions of the gas exchange system in humans. 	<p>Gravity and Space –</p> <ul style="list-style-type: none"> Gravity force, gravitational field strength on Earth. The light year as a unit of astronomical distance. <p>Reactions of Metals and Metal Compounds –</p> <ul style="list-style-type: none"> The varying chemical and physical properties of different elements. The Periodic Table: periods and groups; metals and non-metals.
Autumn 2	<p>Simple Chemical Reactions –</p> <ul style="list-style-type: none"> Understanding chemical reactions as the rearrangement of atoms. Chemical and Physical changes. Representing chemical reactions using equations. <p>The Solar System and Beyond -</p> <ul style="list-style-type: none"> Our Sun as a star, other stars in our galaxy. The planets in our solar system. The seasons and the Earth's tilt, day length at different times of year, in different hemispheres. 	<p>Atoms and Elements –</p> <ul style="list-style-type: none"> A simple atomic model. Chemical symbols and formulae for elements and compounds. Conservation of mass. The Periodic Table: periods and groups; metals and non-metals. <p>Compounds and Mixtures –</p> <ul style="list-style-type: none"> Differences between atoms, elements and compounds. Thermal decomposition reactions. 	<p>Patterns of Reactivity –</p> <ul style="list-style-type: none"> The order of metals and carbon in the reactivity series. How patterns in reactivity can be predicted. <p>Energy and Electricity</p> <ul style="list-style-type: none"> Comparing power ratings of appliances in watts (W, kW). Comparing amounts of energy transferred Domestic fuel bills, fuel use and costs. <p>Inheritance and Selection –</p> <ul style="list-style-type: none"> Inherited and Environmental variation. Natural selection. Selective breeding. Extinction.

Spring 1	<p><i>The Particle Model of Solids, Liquids and Gases –</i></p> <ul style="list-style-type: none"> • The properties of different states of matter in terms of the particle model. • Changes of state in terms of the particle model. <p><i>Energy Resources –</i></p> <ul style="list-style-type: none"> • Introduction to fuels. • Renewable and non-renewable energy resources. • Basic energy transfers. 	<p><i>Heating and Cooling</i></p> <ul style="list-style-type: none"> • Heating and thermal equilibrium. • Conduction, convection and radiation. • Changes with temperature in motion and spacing of particles. <p><i>Magnets and Electromagnets</i></p> <ul style="list-style-type: none"> • Magnetic poles, attraction and repulsion. • Earth’s magnetism, compass and navigation. • The magnetic effect of a current. 	<p><i>Environmental Chemistry –</i></p> <ul style="list-style-type: none"> • The composition of the atmosphere. • The production of carbon dioxide by human activity and the impact on climate change. • Diffusion in terms of the particle model. <p><i>Speeding Up –</i></p> <ul style="list-style-type: none"> • Speed and the quantitative relationship between average speed, distance and time • Distance-time graphs.
Spring 2	<p><i>Electrical Circuits –</i></p> <ul style="list-style-type: none"> • Electric current in series and parallel circuits. • Measuring potential difference and resistance. <p><i>Variation and Classification –</i></p> <ul style="list-style-type: none"> • Using keys to classify animals into a taxonomic rank. • Classification of some plants. 	<p><i>Rocks and Weathering</i></p> <ul style="list-style-type: none"> • Understanding igneous, sedimentary and metamorphic rocks. • The composition of the Earth. <p><i>The Rock Cycle</i></p> <ul style="list-style-type: none"> • The rock cycle, and the formation of igneous, sedimentary and metamorphic rocks. 	<p><i>Fit and Healthy –</i></p> <ul style="list-style-type: none"> • The structure and functions of the human skeleton. • The function of muscles and examples of antagonistic muscles. • The effects of recreational drugs on behaviour, health and life processes.

Summer 1	<p>Solutions –</p> <ul style="list-style-type: none"> • Introduction to mixtures, including dissolving. • Simple techniques for separating mixtures. <p>Environment and Feeding Relationships –</p> <ul style="list-style-type: none"> • Food chains. • Food webs. • Darwin’s theory of Natural Selection. 	<p>Sound and Hearing –</p> <ul style="list-style-type: none"> • Frequencies of sound waves, measured in hertz (Hz); echoes, reflection and absorption of sound. • The nature of sound waves. • How sound can travel. <p>Microbes and Disease –</p> <ul style="list-style-type: none"> • The structural adaptations of some unicellular organisms. • The importance of bacteria in the human digestive system. 	<p>Plants and Photosynthesis</p> <ul style="list-style-type: none"> • The role of leaf stomata in gas exchange in plants. • The reactants in, and products of, photosynthesis, and a word summary for Photosynthesis. <p>Plants for Food –</p> <ul style="list-style-type: none"> • The functions of water in plants. • Recognise that plants need minerals salts for growth. • Relate that plants need nitrates to make protein.
Summer 2	<p>Forces and their Effects –</p> <ul style="list-style-type: none"> • Introduction to forces as pushes or pulls. • Using force arrows in diagrams. • Balanced and unbalanced forces. 	<p>Light –</p> <ul style="list-style-type: none"> • The similarities and differences between light waves and waves in matter. • Light waves travelling through a vacuum; speed of light. 	<p>Using Chemistry</p> <ul style="list-style-type: none"> • Energy changes on changes of state. • Exothermic and endothermic chemical reactions. • The carbon cycle. • The identification of pure substances. <p>Pressure and Moments</p> <ul style="list-style-type: none"> • Atmospheric pressure, decreases with increase of height as weight of air above decreases with height. • Pressure in liquids.