

Year 7 Science - The Aims of Our Curriculum

1. Enable children to retain and apply this essential knowledge. 2. Inspire children to become life-long learners. 3. Create a culture of high aspiration through challenging content and therefore pride in achievement. 4. Promote the spiritual, moral, social and cultural development of children, including fundamental British values of democracy, the rule of law, individual liberty, mutual respect and tolerance for those with different faiths and beliefs and for those without faith. 5. Provide opportunities for developing self-confidence, self-awareness, independence, creativity, respect and resilience in children. 6. Promote knowledge and understanding of how children can keep themselves safe and healthy. 7. Develop children's numeracy, literacy and oracy, including the sustained expansion of their vocabulary. 8. Promote reading as a life skill and enable our children to become life-long readers.

Year 7	Areas	Term 1	Term 2	Term 3
	Content	<p><u>Physics – Electricity</u></p> <ul style="list-style-type: none"> • Use recognised circuit symbols to construct simple circuit diagrams • Be able to explain that electric current is measured in amperes • Explain how current flows in series and parallel circuits • Compare resistance between conductors and insulators • Calculate resistance using information on voltage and current • Explain that static electricity is the separation of positive or negative charges when objects are rubbed together <p><u>Biology – Cells and organisation</u></p> <ul style="list-style-type: none"> • Know cells are the fundamental unit of living organisms • Learn how to observe cells and record cells structure using a light microscope • The functions of the cell wall, cell membrane, cytoplasm, nucleus, 	<p><u>Chemistry – The particle model</u></p> <ul style="list-style-type: none"> • The properties of the different states of matter in terms of the particle model, including gas pressure • Changes in state in terms of the particle model <p><u>Chemistry – Pure and impure substances</u></p> <ul style="list-style-type: none"> • A simple (Dalton) atomic model • Explain the difference between atoms, elements and compounds • Conservation of mass during changes of state and chemical reactions • Mixtures including dissolving • Diffusion in terms of the particle model • Simple techniques for separating mixtures such as filtration, evaporation, distillation and chromatography <p><u>Physics – Energy and energy changes or transfers</u></p> <ul style="list-style-type: none"> • Compare energy values in different foods or fuels (kJ) 	<p><u>Chemistry - reactions continued</u></p> <ul style="list-style-type: none"> • Reactions of acids with metals to produce a salt plus hydrogen <ul style="list-style-type: none"> • Reactions of acids with alkalis to produce a salt plus water • Begin to represent chemical reactions using word and symbol equations <p><u>Biology - Genetics and evolution</u></p> <ul style="list-style-type: none"> • Heredity as the process by which genetic information is transmitted from one generation to the next • Variation between individuals within a species, including reactions times assessed practical • 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

		<p>vacuole, mitochondria and chloroplasts</p> <ul style="list-style-type: none"> The similarities and differences between animal and plant cells including structural adaptations The hierarchical organisation of multicellular organisms <p><u>Physics - Forces</u></p> <ul style="list-style-type: none"> The quantitative relationship between speed, distance and time Be able to represent of journey on a distance-time graph Understanding relative motion such as trains and cars passing one another Opposing forces and equilibrium <p><u>Biology – Relationships in an ecosystem</u></p> <ul style="list-style-type: none"> The interdependence of organisms in an ecosystem Food chains and webs The importance of plant reproduction Bioaccumulation of toxic materials 	<ul style="list-style-type: none"> Compare power ratings of appliances (W, kW) Comparing amounts of energy transferred (J, kJ, kW hour) <p><u>Chemistry – Chemical reactions</u></p> <ul style="list-style-type: none"> The pH scale for measuring acidity/alkalinity and indicators Defining acids and alkalis in terms of neutralisation reactions <ul style="list-style-type: none"> Understanding what is meant by strength and concentration 	<ul style="list-style-type: none"> Reproduction in plants, including flower structure, wind and insect fertilisation <p><u>Physics - waves</u></p> <ul style="list-style-type: none"> Model waves as either longitudinal or transverse and understand waves can be reflected and add or cancel (superposition) Identify frequency, amplitude and wavelength Understand sound needs a medium to travel Measure the speed of sound in air and compare this to water and solids Identify the similarities and differences between light waves and sound waves Examine reflection and refraction An introduction to the electromagnetic spectrum
	Literacy link	<ul style="list-style-type: none"> Key vocabulary Command words (e.g. describe and explain) Average speed assessed practical write up. 	<ul style="list-style-type: none"> Key vocabulary Neutralisation assessed practical write up. 	<ul style="list-style-type: none"> Key vocabulary Reactions times assessed practical write up. Command words (eg. Predict, explain, describe, evaluate)
	Assessment	<ul style="list-style-type: none"> Electricity assessment. Cells assessment 	<ul style="list-style-type: none"> Ecology assessment (from work at end of previous term) 	<ul style="list-style-type: none"> Chemical reactions assessment. Genetics and evolution assessment

		<ul style="list-style-type: none"> • Forces assessment. • Average speed required practical • End of term linear assessment. 	<ul style="list-style-type: none"> • Energy assessment • Neutralisation assessed practical. 	<ul style="list-style-type: none"> • Reaction times assessed practical. • Waves assessment
	Cross curricular links	<ul style="list-style-type: none"> • DT (constructing electrical circuits) • Maths (rearranging equations) 	<ul style="list-style-type: none"> • Maths (taking measurements and using appropriate units) • Art (constructing models) 	<ul style="list-style-type: none"> • Maths (recording data and constructing graphs) • RE comparing the theory of evolution to creationism