

KS3 Science Curriculum Map

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Intro to KS3 Particles Cells	Energy Element and compounds	Reproduction Waves	Chemical reactions Inheritance	Forces Acid reactions	Classification and Evolution Electricity
Year 7	<p>Introduction to KS3 Science</p> <ul style="list-style-type: none"> - Scientific enquiry and investigation - Scientific skills - Working scientifically <p>The Particulate nature of matter (1)</p> <ul style="list-style-type: none"> - The properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure - Changes of state in terms of the particle model <p>Cells</p> <ul style="list-style-type: none"> - cells as the fundamental unit of living organisms, including how to observe, interpret and record cell 	<p>Energy</p> <ul style="list-style-type: none"> - Energy stores - Energy transfers - Energy in food - Energy resources - Energy costs and efficiency - Power <p>Elements, Compounds and Mixtures</p> <ul style="list-style-type: none"> - a simple atomic model - differences between atoms, elements and compounds - Chemical symbols and formulae for elements and compounds - Conservation of mass, changes of state and chemical reactions - simple techniques for separating mixtures: filtration, evaporation, 	<p>Reproduction</p> <ul style="list-style-type: none"> - Human reproductive system - fertilisation and implantation - foetal development and Birth - The menstrual cycle - Flowering plants - Fertilisation and germination - Seed dispersal - <p>Waves</p> <ul style="list-style-type: none"> - Waves - Anatomy of a wave - Light - Pinhole camera - Reflection - Refraction - Lenses - Colour 	<p>Chemical Reactions</p> <ul style="list-style-type: none"> - Chemical reactions as the rearrangement of atoms - Representing chemical reactions using formulae and using equations - Combustion, thermal decomposition, oxidation and displacement reactions <p>Inheritance</p> <ul style="list-style-type: none"> - Competition and Inheritance - Adapting to change - Variation - Continuous and discontinuous investigation - Modes of Inheritance - Natural selection - Extinction 	<p>Forces</p> <ul style="list-style-type: none"> - Speed - Distance-time graphs - Weight and mass - Gravity - Frictional forces - Contact and non-contact forces - Resultant force - <p>Acid Reactions</p> <ul style="list-style-type: none"> - Defining acids and alkalis in terms of neutralisation reactions - The pH scale for measuring acidity/alkalinity; and indicators - Reactions of acids with metals to produce a salt plus hydrogen - Reactions of acids with alkalis to produce a salt plus water 	<p>Evolution</p> <ul style="list-style-type: none"> - Classification - Vertebrates and invertebrates - Medel and Inheritance - Darwin's theory of evolution - The discovery of DNA <p>Electricity</p> <ul style="list-style-type: none"> - Models - Drawing circuits - Potential difference - Current - Resistance - Circuit challenges

	<p>structure using a light microscope</p> <ul style="list-style-type: none">- the functions of the cells wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts- the similarities and differences between plant and animal cells- the role of diffusion in the movement of materials in and between cells- the structural adaptations of some unicellular organisms- the hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms.	<p>distillation and chromatography</p>			<p>- What catalysts do</p>	
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Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Organisms	The Particulate Nature of Matter (2) and Solubility	Energy and Forces	Metal Reactions and Fuels	Waves and fields	Ecosystems
Year 8	Organisms <ul style="list-style-type: none"> - Breathing - Gas exchange - Respiration - Exercise and Breathing - Smoking - Asthma - Drugs - Balanced diet - Digestive system - Enzymes - The model gut - The skeleton - Muscles 	The Particulate Nature of Matter (2) <ul style="list-style-type: none"> - changes of state in terms of the particle model - diffusion in terms of the particle model - energy changes on changes of state (qualitative) Solubility <ul style="list-style-type: none"> - The concept of a pure substance - The identification of pure substances - Mixtures including dissolving 	Energy <ul style="list-style-type: none"> - Energy and temperature - Conduction - Convection - Radiation - Insulation - Cooling curves - Work - Simple machines Forces <ul style="list-style-type: none"> - Moments - Stretching and Hooke's Law - Pressure - Pressure in fluids - Sinking and floating - Atmospheric pressure 	Metal Reactions <ul style="list-style-type: none"> - the properties of metals and non-metals - the order of metals and carbon in the reactivity series - the use of carbon in obtaining metals from metal oxides - how patterns in reactions can be predicted with reference to the Periodic Table Fuels <ul style="list-style-type: none"> - Crude oil and hydrocarbons - Combustion of compounds - Heating and cooling - Cooling curves - Exothermic and endothermic reactions 	Waves <ul style="list-style-type: none"> - Waves - Speed of sound - Volume and pitch - Echoes - Hearing - The EM spectrum Fields <ul style="list-style-type: none"> - Magnets and magnetic materials - Magnetic fields - Electromagnets - Using electromagnets - Static electricity 	Ecosystems <ul style="list-style-type: none"> - plants and photosynthesis - testing leaves for starch - transport in plants - factors affecting the rate of transpiration - plant adaptation - plant growth and minerals - food chains and food webs - pyramids of number and biomass - bioaccumulation - competition and adaptation - aerobic respiration - anaerobic respiration - anaerobic respiration in yeast

				<ul style="list-style-type: none">- Exo and endothermic practical- Exo and endothermic reaction profiles		
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Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Cells Atomic structure	Acid reactions Models	Electric circuits Periodic table	Rates of reaction Motion	Forces	Ecology
Year 9	Cells <ul style="list-style-type: none"> - Plant and animal cells - Prokaryotes and eukaryotes - Specialised plant cells - Specialised animal cells - Microscopes & magnification - Required practical 1 – using a microscope - Diffusion - Osmosis - Required practical 2 – Osmosis - Active transport Atomic structure <ul style="list-style-type: none"> - Word equations - Conservation of mass - Interpreting chemical formulae - Balancing equations - Atomic model 	Acid reactions 2 <ul style="list-style-type: none"> - Reactions of acids with metals - Testing for gases - The pH scale and neutralisation - Salt production - Soluble salts - Soluble salts practical Models <ul style="list-style-type: none"> - Energy stores - Energy transfers - Conservation of energy - Atomic structure 	Electric circuits <ul style="list-style-type: none"> - Circuit diagrams - Current - Potential difference - Resistance - Resistors in series practical - Equivalent resistance in series - Resistors in parallel - More on circuits Periodic table <ul style="list-style-type: none"> - Elements and the periodic table - Development of the periodic table - Metals and Non-Metals - Group 1 – Alkali metals - Group 7 – Halogens - Group 0 – Noble gases 	Rates of reaction <ul style="list-style-type: none"> - Temperature and rate of reaction - Calculating the rate of reaction - Rates and surface area - Rates and concentration - Catalysts Motion <ul style="list-style-type: none"> - Speed - Typical speeds - Measuring speeds - Scalars and vectors - Distance-time graphs - Interpreting distance-time graphs - Drawing distance-time graphs 	Forces <ul style="list-style-type: none"> - Types of forces - Weight vs mass - Resultant force - Newton’s first law - Newton’s second law - Newton’s third law - Top speed and terminal velocity 	Ecology <ul style="list-style-type: none"> - The importance of communities - Distribution and abundance - Adaptations - Competition - Feeding relationships - Materials cycling - Carbon cycle - Decay - Human population explosion - Water pollution - Air pollution - Deforestation - Global warming - Maintaining biodiversity

	<ul style="list-style-type: none">- Relative atomic mass- Isotopes- Electronic structure					
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Ambition

We have the highest expectations for academic excellence and personal development and work hard to achieve them.