



Science - Biology

	Year 7	Year 8	Year 9	Year 10	Year 11
Cells	Cellular nature of life. Diffusion.		Types of cells. Transport in cells.	Stem cells, chromosomes and the cell cycle.	Meiosis.
Organisms	Levels of organisation. Respiratory system. Lungs, skeleton and muscles.	Diet and the digestive system. Bacteria and enzymes. Leaves and photosynthesis. Respiration.	Enzymes and digestion. Heart and lungs. Plant tissues. Photosynthesis.	Respiration.	Homeostasis. Nervous system. Endocrine system.
Growth, development and reproduction	Reproduction in humans and plants.		Hormones used in reproduction and contraception. Sexual and asexual reproduction.		
Genetics, variation, inheritance and evolution		Adaptations and inherited characteristics. Natural selection and extinction.		Evolution, selective breeding and genetic engineering.	Genetic inheritance. Fossils, extinction and evolution.
Health and disease		Health and lifestyles. Drugs, alcohol and smoking.		Health and lifestyles. Communicable diseases. Vaccination and medical testing.	Inherited disorders. Resistant bacteria.
Ecosystems and environment		Food chains and webs. Ecosystems.	Ecosystems.		



Science - Chemistry

	Year 7	Year 8	Year 9	Year 10	Year 11
Particles and the Periodic Table	Particulate nature of matter. States of matter. Change of state.	The periodic table. Groups 0,1 and 7.	Atomic structure. The periodic table.	Groups 0,1,and 7.	
Elements, compounds, structure and bonding.	Elements, atoms and compounds. Chemical formulae.	Mixtures. Solutions. Separation techniques. Ceramics,polymers and composites.	Ionic bonds.	Covalent and metallic bonds. Bonding and structure.	
Chemical reactions	Chemical reactions. Acids and alkalis. Word equations. Conservation of mass. Making salts.	The reactions of metals. Metal displacement reactions.	Conservation of mass.	Relative formula mass. Reactivity of metals. Making salts.	Moles. Electrolysis.
Measuring changes	Exothermic and endothermic reactions.		Exothermic and endothermic reactions.	Reaction profiles. Rates of reaction.	Reversible reactions. Equilibrium.
Chemical analysis		Chromatography.	Identification of gases. Chromatography.		
Organic chemistry				Organic chemistry.	



Science - Physics

	Year 7	Year 8	Year 9	Year 10	Year 11
Forces and motion	Forces. Stretching and drag. Gravity and weight. Balanced, unbalanced.	Speed. Distance-time graphs. Pressure and moments.	Forces. Speed and velocity.	Acceleration. Newton's laws of motion. Momentum.	
Waves	Sound and ultrasound. Light. Reflection and refraction. Coloured light.	Thermal radiation.	Electromagnetic waves.		Ionising effect of electromagnetic waves.
Electricity and magnetism		Simple circuits. Current, potential difference and resistance. Magnets and electromagnets.	Magnetism. Current and potential difference. Domestic electricity.	Components in circuits. Power and resistance.	Electromagnetism and its uses.
Energy		Energy. Conservation. Temperature. Power. Work done.	Specific heat capacity and latent heat. Energy stores and transfers.		
Particles and matter		Conduction and convection. Pressure in gases.	Density. Particle model of gases.		
Atomic and nuclear physics					Atoms and isotopes. Radioactive decay. Nuclear equations.



Science - The Earth

	Year 7	Year 8	Year 9	Year 10	Year 11
The Earth	Our place in space. The solar system. The seasons. The Moon.	The rock cycle.			
The atmosphere		The atmosphere.	The composition and evolution of the Earth's atmosphere. Green house gases. Air pollution.		
Extracting resources.		Recycling and the use of resources. Energy resources.	Energy resources.	Extracting metals. Potable water. Energy distribution and the National Grid.	
Life on Earth		The carbon cycle.	Biodiversity and the affect of human interactions.		
Human impact.		Climate change.	Climate change. Air pollution.	Waste water treatment.	
Measuring human impact.				Life cycle assessments.	

Science - Skills

Year 7

Year 8

Year 9

Year 10

Year 11

Investigative skills.

The ability to ask a scientific question, to identify the variables under investigation, to design a valid experiment, to collect and analyse evidence and to draw a suitable conclusion are developed throughout the five years of the course. This is done via a wide range of practical investigations and by reviewing summaries of experiments and results collected by others.

Evaluative skills.

The skills required to find out the latest scientific evidence, to verify the reliability of the information source and to evaluate the strength of the evidence are developed. This is done through a range of examples of how scientific substantive knowledge has developed and case studies of current global environmental and land based issues.

Mathematical skills.

Building mathematical fluency : from solving single step problems to simple multistep problems, performing calculations, reordering and interpreting data, understanding number scale and units, simple probability, making estimates, recording data and using it to support conclusions.

Literacy.

Developing literacy skills via building vocabulary, reading and writing tasks, structured discussions and interpreting textual information. Where possible these are linked to the school's environment and land based focus.

Careers and society.

Using a combination of trips out of school, visiting speakers and examples of local and global companies and initiatives students career aspirations and awareness are addressed. Throughout the five years the focus is maintained on the schools ethos of environment and land based careers and wider related issues.