

# Year 7 - 9 Curriculum Map

## Science

Practical Skills

Mathematical application

Literacy

Science Capital

Year/Term	Unit of Work	CORE KNOWLEDGE	KEY SKILLS
7 Autumn term Biology	Cells and tissues	Use of microscopes Structure and function of cells How cells are specialised Simple and complex organisms	Practical Skills Mathematical application Literacy Science Capital
7 Autumn term Biology	Reproduction of plants	Male and female (human) reproductive systems Puberty and the menstrual cycle Sexual intercourse and reproduction Pregnancy and birth Flowers Seed and fruit formation Seed dispersal	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment A1: Are bones alive?</b>			
7 Autumn term Chemistry	Particles	Arrangement of particles in solid, liquid and gases How particles change state Diffusion and gas pressure Introduction to Density	Practical Skills Mathematical application Literacy Science Capital
7 Autumn term Chemistry	Atoms and Elements	What is an atom? Atomic structure What is an element? Measuring the physical properties of elements	Practical Skills Mathematical application Literacy Science Capital
7 Autumn term Physics	Energy Transfers	How energy is stored? How heat transferred and what is thermal store of energy? What is work done and gravitational store of energy? Energy from fuels Energy and power	Practical Skills Mathematical application Literacy Science Capital

7 Autumn term Physics	Forces and effects	Forces and interactions Effect of forces on shape Balanced and unbalanced forces Friction forces	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment A2: All previous topics</b>			
7 Spring term Biology	Environment and adaptation	Organisms and their habitats Food chains and food webs Competition and cooperation Human effects on the environment	Practical Skills Mathematical application Literacy Science Capital
7 Spring term Biology	Variation and classification	The variety of life Variation in living things Genetic variation Environment variation	Practical Skills Mathematical application Literacy Science Capital
7 Spring term Chemistry	Acids and Alkalis	Everyday acids and alkalis Indicators and pH Dilution and safety Neutralisation	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment A3: Indigestion remedies</b>			

Year/Term	Unit of Work	CORE KNOWLEDGE	KEY SKILLS
7 Spring term Chemistry	Pure and impure substances	Pure and impure substances Dissolving and solutions Factors affecting solubility Separating mixture – distillation, evaporation, chromatography	Practical Skills Mathematical application Literacy Science Capital
7 Spring Physics	Electricity	Electric current and potential difference Series and parallel circuits Resistance Resistance calculations	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment 4: All previous topics</b>			
7 Summer Physics	Energy Resources	How do we get energy from the Sun? How do we get energy from fossil fuels? How do we get energy from moving water? More renewable resources.	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment 5: Nuclear safety</b>			
7 Summer Biology	Food and Digestion	Healthy eating – 7 food groups Food tests – starch, protein, lipids Digestion system – enzymes and absorption	Practical Skills Mathematical application Literacy Science Capital
7 Summer Chemistry	Chemical reactions	Observing chemical change Atoms and molecules in reactions – law of conservation Testing gases Writing chemical equations	Practical Skills Mathematical application Literacy Science Capital

7 Summer Chemistry	Compounds	What are compounds? Using chemical symbols to predict chemical equations Mixtures – comparison to compounds Conservation of matter	Practical Skills Mathematical application Literacy Science Capital
7 Summer Physics	Motion	Effect of forces on speed Studying the effect of motion Falling objects Streamlining.	Practical Skills Mathematical application Literacy Science Capital
<b>The end of the year assessment</b>			
8 Autumn Biology	Lungs and respiration	The breathing system Gas exchange Breathing The heart and circulatory system Aerobic respiration Anaerobic respiration and exercise Anaerobic respiration in micro-organisms.	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Lungs and gas exchange, respiration.</b>			
8 Autumn Chemistry	Periodic Table	A guided tour Developing the Periodic Table Spotting patterns Predicting properties	Practical Skills Mathematical application Literacy Science Capital
8 Autumn Chemistry	Extracting metals	The reactivity series Extracting with carbon Extracting with electricity Using metals	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Periodic table, Extracting metals.</b>			
8 Autumn Physics	Domestic and static electricity	Domestic electricity and power Paying for electricity Static electricity Effects of static electricity	Practical Skills Mathematical application Literacy Science Capital

8 Autumn Physics	Waves and sound	Wave basics Sound waves Sound and ultrasound Speed of sound and echoes	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Domestic and static electricity.</b>			
8 Spring Biology	Muscles and bones	The skeletal system Muscles and movement Joints and movement	Practical Skills Mathematical application Literacy Science Capital
8 Spring Biology	Inheritance and evolution	Variation Genes, chromosomes and DNA Natural and artificial selection Extinction	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Muscles and bones, Inheritance and evolution.</b>			
8 Spring Chemistry	Reactions of acids	Reactions of acids Compounds and acidity Atoms and molecules in neutralisation Making pure salt	Practical Skills Mathematical application Literacy Science Capital
8 Spring Chemistry	Describing reactions	Types of chemical reactions Energy transfer in reactions Temperature and catalysts Concentration and surface area	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Reactions of acids, describing reactions.</b>			
8 Spring Physics	Light	Travelling light Reflection and refraction Focusing light Coloured light	Practical Skills Mathematical application Literacy Science Capital
8 Summer Physics	Application of forces	Turning moments Levers Pressure Pressure in fluids Floating and sinking	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Light, application of forces</b>			

8 Summer Biology	Drugs and health	Medicines and health Legal recreational drugs Illegal drugs	Practical Skills Mathematical application Literacy Science Capital
8 Summer Biology	Microbes	Micro – organisms Defence against disease Vaccines and antibiotics	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Drugs and health, microbes</b>			
8 Summer Chemistry	Earth and atmosphere	The Earth and its atmosphere The rock cycle 1 The rock cycle 2 Human activity Recycling	Practical Skills Mathematical application Literacy Science Capital
8 Summer Physics	Heat transfer	Conduction Convection Radiation Insulation	Practical Skills Mathematical application Literacy Science Capital
<b>The end of the year exam: All of the topics</b>			

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Year 9 Autumn Physics	Heat transfer	Conduction Convection Radiation Insulation	Practical Skills Mathematical application Literacy Science Capital
Year 9 Autumn Physics	Wave effect, wave properties	Wave basics Sound waves Sound and ultrasound Speed of sound and echoes	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Waves</b>			
9 Autumn Biology	Lungs and gas exchange	The breathing system Gas exchange Breathing The heart and circulatory system	Practical Skills Mathematical application Literacy Science Capital
9 Autumn Biology	Respiration	Aerobic respiration Anaerobic respiration and exercise Anaerobic respiration in micro-organisms	Practical Skills Mathematical application Literacy Science Capital



Year 9 Autumn	Photosynthesis	The importance of plants Photosynthesis equation Structure and function of leaves Mineral and fertilisers	Practical Skills Mathematical application Literacy Science Capital
Year 9 Autumn	Energy changes	Exothermic and endothermic reactions Measuring energy changes Reaction profiles	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Respiration and photosynthesis</b>			
9 Spring Chemistry	Atoms and periodic table	Atoms, elements and compounds Writing equations Purifying techniques History of the atom Development of periodic table Metals and Non-metals Group 1,7, 0	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Periodic table</b>			
9 Spring Physics	Energy	Stores and systems Energy transfers Potential energy Specific heat capacity Power Efficiency Renewable energy	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Energy</b>			
9 Spring Biology	Cell biology	Cells and microscopes recap Differentiation and stem cells Transport in cells Exchanging surfaces and surface area calculations	Practical Skills Mathematical application Literacy Science Capital
9 Spring Biology	Organisation	Digestion Enzymes Lungs	Practical Skills Mathematical application Literacy

		Circulatory system Cardiovascular disease Plant organisation	Science Capital
<b>Assessment: Cell biology and cell organisation</b>			
9 Spring Chemistry	Structure and bonding	Ionic bonding Covalent bonding Metallic bonding States of matter and changing states	Practical Skills Mathematical application Literacy Science Capital
9 Spring Chemistry	Quantitative chemistry	Relative formula mass Conservation of mass Concentration	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Structure and bonding, quantitative chemistry</b>			

9 Summer Biology	Infection and response	Pathogens White blood cells Vaccines Antibiotic resistance Developing drugs	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Infections and response</b>			
9 Summer Physics	Electricity	Circuits Resistance $V=IR$ Series circuits	Practical Skills Mathematical application Literacy

		Parallel circuits Electricity in the home Power and electricity National grid	Science Capital
9 Summer Physics	Matter	Particle model of matter Density Internal energy changes Specific latent heat	Practical Skills Mathematical application Literacy Science Capital
<b>Assessment: Electricity, matter</b>			
9 Summer Chemistry	Chemical changes	Acids and bases Reactions of acids Reactivity series Extracting metals Electrolysis	Practical Skills Mathematical application Literacy Science Capital
<b>The end of year exams</b>			