

Year 7

<i>7.1 Particles</i>	<i>7.2 Energy</i>	<i>7.3 Cells & Being Alive</i>	<i>7.4 Chemical Reactions</i>	<i>7.5 Forces</i>
Particle Model States of Matter State Changes Boiling and Melting Points Boiling and Melting Freezing and Condensing Heating and Cooling Evaporating Dissolving Solutions & solubility Filtration Distillation Chromatography	Energy and particles The Joule Conduction Conductors vs. insulators Density Convection Radiation Energy stores Energy in Food Transfer Pathways Conserving Energy & Dissipation Efficiency of Resources Sankey Diagrams Energy and Power Renewable & Finite resources Case Study: Chernobyl	MRS GREN Cells: unicellular & multicellular The 6 kingdoms Specialised cells Stem cells Tissues Organs and dissection Units for cells Microscopes Calculating magnification Photosynthesis 1 st Organisms on Earth Plants, glucose, and starch Respiration	Elements and Symbols Compounds Mixtures Physical and chemical changes Particle model vs. molecular model Writing word equations Metal Reactions Burning Decomposition pH scale Neutralisation Displacement Using chemical equations Balancing equations	Pushes and pulls Doing work Newtons Laws Contact vs non-contact forces Reaction pairs Force diagrams Measuring forces Balanced/ unbalanced forces Resultant forces Acceleration/ deceleration Speed Distance-time graphs

Year 8

<i>8.1 The Human Body</i>	<i>8.2 Atoms, Elements & Materials</i>	<i>8.3 Electricity & Magnetism</i>	<i>8.4 The Living World</i>	<i>8.5 Waves (Light & Sound)</i>	<i>8.6 Earth & Space</i>
Levels of organisation Body systems The respiratory system Gas exchange The digestive system Enzymes and digestion Healthy, balanced diets The skeletal and muscular systems The circulatory system The reproductive system The nervous/ endocrine systems	The Periodic Table History of the Periodic Table Atomic Structure History of the Atom Metals & non-metals Groups and Periods Electrons and reactivity Reactivity series Carbon Displacement Obtaining materials Ores The pH scale Oxide acidity Polymers, composites, and ceramics	Current electricity Generating electricity Circuit Symbols Series and parallel circuits Current Voltage Resistance Conductors and insulators Static electricity Permanent Magnets Electromagnets Uses of electromagnets	DNA, chromosomes and mutations Types of Variation Measuring Variation Orders of animals Adaptations of animals Animal diets and teeth Organisation in plants Plant reproduction and pollination Germination Adaptations of plants Habitats & ecosystems Food chains & webs Bioaccumulation Disruptions to habitats Extinction	Longitudinal waves Sound waves Speed of sound Structure of the Ear Human auditory range Transverse waves EM spectrum Light waves Colour of light The eye Speed of light Reflection Refraction Waves and Earth Superposition Rainbows Ultrasound & Life Seismic Waves Energy and waves	Light on Earth Lightyears Seasons on Earth Day and night Gravity The Big Bang Evidence for the Big Bang Stars, planets, solar systems and galaxies The Milky Way Nuclear Fusion/ Star formation Types of star Star life cycles Our Sun The Earth's atmosphere Effects on the atmosphere Carbon cycle

Year 9 – Part 1

Units from Y9 onwards will begin with a pre-requisite knowledge assessment to check that foundational knowledge is secure.

<i>9.1 Unhealthy Lifestyles & Non-Infectious Disease</i>	<i>9.2 Atomic Structure & Energetics</i>	<i>9.3 Pressure & Machines</i>	<i>9.4 Cell Biology & Microscopes</i>	<i>9.5 Electricity</i>	<i>9.6 Bonding</i>
Non-communicable disease Infectious disease Alcohol Smoking Drugs Carcinogens Diet Heart Disease Treating heart disease Type 2 Diabetes Arthritis Cancers Cholesterol	Atoms, elements and compounds Word and symbol equations Conservation of mass Rearranging atoms Energy changes for physical changes Endothermic and exothermic reactions Energy profiles	Pressure in gases Gas pressure and temperature <i>Gas pressure and volume (triple only)</i> Atmospheric Pressure Pressure in liquids <i>Upthrust (triple)</i> Pressure in solids Calculating pressure Levers & forces Work done Moments Gears Biomechanics	Using microscopes Preparing slides Microscope structure Light and electron microscopes Animal vs plant cells Orders of magnitude Ribosomes Proteins Cell membranes and diffusion Mitochondria	Alternating current Direct current National Grid Fuses & Plugs Comparing power ratings Comparing energy transferred Domestic fuel bills	Electron configuration Metals & non-metals The Periodic Table & groups <i>Transition elements (triple)</i> Ions Ionic bonding Ionic compounds Properties of ionic compounds Metallic bonding & alloys Diatomic/monoatomic Structures & reactivity Covalent bonding Simple covalent structures Giant covalent structures Carbon allotropes <i>Nanoparticles (triple only)</i>

Year 9 – Part 2

<i>9.7 Human Organisation</i>	<i>9.8 Quantitative Chemistry & Analysis</i>	<i>9.9 Particle Physics</i>	<i>9.10 Transport</i>	<i>9.11 Chemical Changes & analysis</i>
Chemistry of Food Catalysts and enzymes Factors affecting enzymes Digestive system and enzymes Metabolism and the liver Efficient digestion The blood Red blood cells and white blood cells Blood vessels The Heart Medicine and the Heart	Relative atomic mass Relative formula mass Isotopes and abundance Balancing equations Expressing concentrations Avogadro's constant (H) Moles (H) Balanced equations to masses (H) Masses to balanced equations (H) <i>Atom economy (triple only)</i> <i>Yield of chemical reactions (triple only)</i> <i>Volume of gases (triple only)</i> Pure substances & mixtures Formulations Analysing chromatography	States of Matter Internal Energy Specific Heat Capacity Density Changes of State Specific Latent Heat Conduction Insulators	Diffusion Breathing and gas exchange Response to exercise Diffusion in fish Surface area: volume ratio Diffusion and surface area Osmosis Osmosis in cells Active transport Active transport in cells	Reactivity series and displacement Extracting metals Metal Oxides Oxidation and reduction (H) Ionic Equations (H) <i>Testing for ions (triple only)</i> <i>Instrumental analysis (triple only)</i> Electrolysis Half equations (H) Testing for gases pH and strong and weak acids (H) Neutralisation reactions and pH <i>Titrations (triple only)</i> Making salts

