

Year 7 detailed long-term plan

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Chemistry: Matter The particle model States of matter Diffusion Pressure Pure substances and mixtures Separation techniques Atoms, elements and compounds Chemical formulae Polymers The periodic table	Chemistry: Matter Physical changes and chemical reactions Acids and alkalis Indicators and pH Strong and weak acids. Neutralisation. Solutions Solubility Biology: Organisms Levels of organisation The skeleton Movement Observing cells Plant and animal cells Specialised cells and unicellular organisms Osmosis and diffusion	Biology: Genes Variation in species Adapting to change Continuous and discontinuous variation Adolescence and puberty Reproduction in mammals The digestive and circulatory systems Biology: Ecosystems Food webs and chains Plant distribution and competition Plant reproduction and pollination	Biology: Genes Fossils The fossil record Physics: Forces Introduction to forces Balanced and unbalanced forces Motion Speed distance and time The force of gravity Friction Turning forces Pressure in liquids and gases	Physics: Energy Why do our bodies need energy? Energy requirements Energy in the home Renewable and non-renewable energy resources Power Energy transfers and dissipation Work done Thermal energy Physics: Waves Sound waves Light waves Shadows and reflection	Physics: Waves Coloured light How we observe coloured objects Physics: Heating and cooling Temperature Thermometers Heat dissipation Conductors and insulators Topic: Material science Ceramics Polymers and plastics Composites

Year 8 detailed long-term plan

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Chemistry: Earth The structure of the Earth Sedimentary, Igneous and metamorphic rocks The rock cycle Ceramics The night sky, solar system and the moon Day, night and seasons Global warming The carbon cycle Climate change Extracting natural resources Recycling	Chemistry: Reactions Chemical reactions of metals Atoms arrangement in chemical reactions Combustion Thermal decomposition Conservation of mass Exothermic and endothermic reactions Energy levels in reactions Conservation of mass	Biology: Organisms Gas exchange The gas exchange system Breathing Drugs Alcohol and smoking Food groups Testing for food groups Unhealthy diets The digestive system Enzymes Biology: Ecosystems Aerobic respiration Anaerobic respiration Fermentation Photosynthesis Adaptations of leaves Investigating photosynthesis Transpiration	Biology: Genes Natural selection Charles Darwin's theory development Extinction Preserving biodiversity Inheritance of genes DNA Genetics Genetic modification Physics: Waves Sound waves and speed Loudness and amplitude Frequency and pitch The ear and hearing	Physics: Waves Light waves Reflection Refraction The structure of the eye Lenses Coloured light Energy in waves Properties of waves	Current Charge and electric fields Potential difference and resistance Series and parallel circuits Magnetism Electromagnetism Using electromagnets

Year 9 detailed long-term plan

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Chemistry: Matter Changing states of matter Melting and freezing Boiling and evaporation Diffusion Gas pressure Inside particles Solutions and solubility Filtration Distillation Chromatography Elements, compounds and mixtures Word and symbol equations Chemical formulae The periodic table trends and properties of group 1, 7 and 0	Chemistry: Reactions Atomic arrangement in chemical reactions Combustion Which fuel? Thermal decomposition Conservation of mass Endothermic and exothermic reactions Energy level diagrams and particle arrangement Bond energy	Biology: Genes Variation in species Continuous and discontinuous variation investigations Adaptations of plants and animals Adolescence and puberty Reproductive systems Fertilisation, implantation and development of the fetus The menstrual cycle	Biology: Organisms Levels of organisation The structure and function of the skeleton Movement Muscles, ligaments and cartilage Microscopy Plant and animal cells Specialised cells Diffusion and osmosis Unicellular organisms Biology: Disease Communicable disease Lines of defence Pathogens White blood cells Vaccines	Physics: Energy Energy requirements Energy in the home-generating electricity Renewable or non-renewable? Power of appliances Energy stores and transfers Energy dissipation and calculations Calculating work done Thermal energy transfers Energy transfers in solids and fluids Infrared radiation Insulators Forces	Physics: Waves Longitudinal waves Wave features and calculations The Ear's adaptations Luminous objects Reflection and lenses Eclipses Energy in waves Radiation Chemistry: Bonding Structure of the atom inc. electronic structure History of the atom Atoms into ions Ionic bonding Giant ionic structures Covalent bonding Structure of simple molecules Practical – identifying ionic and covalent compounds Giant covalent structures Fullerenes and graphene Bonding in metals Giant metallic structures

Year 10 detailed long-term plan

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Biology</p> <ul style="list-style-type: none"> Cell structure and transport Cell division Hierarchy of organisms The digestive systems and enzyme function Organisation in plants and animals Communicable disease 	<p>Chemistry</p> <ul style="list-style-type: none"> Atomic structure Atoms into ions The periodic table Structure and bonding in metals, non-metals and ionic substances Calculating mass, moles and molecular mass Calculating concentration Chemical changes 	<p>Physics</p> <ul style="list-style-type: none"> Conservation and dissipation of energy Energy transfers and calculations Energy transfers by heating Generating electricity – renewable and non-renewable resources Electricity in series and parallel circuits Resistance 	<p>Biology</p> <ul style="list-style-type: none"> Preventing and treating disease Non-communicable diseases Photosynthesis Aerobic respiration Anaerobic respiration The human nervous system and homeostasis 	<p>Chemistry</p> <ul style="list-style-type: none"> Electrolysis Endothermic and exothermic reactions Energy changes and bond energies Rate of reaction and equilibrium 	<p>Physics</p> <ul style="list-style-type: none"> Electricity in the home The national grid Particle model States of matter Density Radioactivity Forces Balanced forces
<p>Separate science additional content</p> <p>Biology</p> <ul style="list-style-type: none"> Bacterial growth Preventing bacterial growth Plant diseases and defences 	<p>Separate science additional content</p> <p>Chemistry</p> <ul style="list-style-type: none"> The transition elements Titration Atom economy Chemical cells, batteries and fuel cells Organic reactions 	<p>Separate science additional content</p> <p>Physics</p> <ul style="list-style-type: none"> Infrared radiation Electric charges and fields 	<p>Separate science additional content</p> <p>Biology</p> <ul style="list-style-type: none"> Homeostasis 	<p>Separate science additional content</p> <p>Chemistry</p> <ul style="list-style-type: none"> Polymers 	<p>Separate science additional content</p> <p>Physics</p> <ul style="list-style-type: none"> Gas pressure and volume Nuclear radiation in medicine Fission Fusion and nuclear issues

Year 11 detailed long-term plan

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
<p>Chemistry</p> <p>Crude oil and fuels</p> <p>Chemical analysis</p> <p>The Earth's atmosphere</p> <p>Global warming</p> <p>Combustion</p> <p>Finite resources</p> <p>Recycling</p> <p>Potable water</p>	<p>Physics</p> <p>Speed, distance and time</p> <p>Acceleration</p> <p>Momentum</p> <p>Wave properties and calculations</p> <p>Electromagnetic wave uses and dangers</p> <p>Magnetism and electromagnetism</p>	<p>Biology</p> <p>Hormonal control in humans</p> <p>Hormones and the menstrual cycle</p> <p>Reproduction</p> <p>Variation and inheritance</p> <p>Fossils</p> <p>Extinction</p> <p>Natural selection</p> <p>Selective breeding</p> <p>Genetic modification</p> <p>Cloning</p>	<p>Biology</p> <p>Adaptations</p> <p>Interdependence and competition in plants and animals</p> <p>Organisation of an ecosystem</p> <p>Distribution and abundance</p> <p>Biodiversity</p>	<p>Chemistry</p> <p>The periodic table</p> <p>Structure and bonding</p> <p>Electrolysis</p> <p>Rates of reactions</p> <p>Crude oil and fuels</p> <p>Biology</p> <p>Cell structure and transport</p> <p>The digestive system</p> <p>Enzymes</p> <p>Photosynthesis</p> <p>Respiration</p> <p>The human nervous system</p> <p>Physics</p> <p>Energy stores and transfers</p> <p>Electric circuits</p> <p>The particle model of matter</p> <p>Forces</p>
<p>Separate science additional content</p> <p>Organic reactions of alkenes, alcohols, carboxylic acids and esters.</p> <p>Polymerisation</p> <p>Using resources – ceramics, composites, ammonia, the Haber process and fertilisers</p>	<p>Separate science additional content</p> <p>Pressure</p> <p>Ultrasound</p> <p>Seismic waves</p> <p>Reflection and refraction of light</p> <p>Light and colour</p> <p>Lenses</p> <p>The generator effect</p> <p>The AC generator</p> <p>Space</p>	<p>Separate science additional content</p> <p>Cloning</p> <p>Adult cell cloning</p> <p>Ethics of genetic technologies</p> <p>The history of genetics</p> <p>Genetic theories</p> <p>Food security</p> <p>Efficient and sustainable food production</p>	<p>Separate science additional content</p> <p>Food security</p> <p>Efficient and sustainable food production</p>	<p>Separate science additional content</p>