



# Curriculum Overview |

## What will my child learn in Science

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Year 7</b>	<p><b><u>Particle model</u></b> What are the building blocks of matter? <b>Changing state of steric acid (Evidencing)</b></p> <p><b><u>Separation techniques</u></b> <i>How do scientists carry out investigations?</i> <b>Filtration (Planning)</b></p> <p><b><u>Cells and organisation</u></b> <i>What are the building blocks of all matter?</i> <b>Cheek &amp; onion cells (Evaluating models/calculating)</b></p>	<p><b><u>Atoms, elements and the periodic table</u></b> What are the building blocks of the universe? <b>Conservation of Mass (Calculating)</b> <b>Model of the atom over time (Scientific development)</b></p> <p><b><u>Forces</u></b> <i>What forces act in the universe?</i> <b>Spring Extension (Concluding)</b></p> <p><b><u>Nutrition and digestion</u></b> <i>How does our body use food?</i> <b>Enzyme Activity (Concluding/ Analysing)</b></p>	<p><b><u>Energy Stores and transfers</u></b> <i>How do energy changes occur?</i> <b>Heating curve for water (Analysing/concluding)</b></p>	<p><b><u>Microbes and disease</u></b> <i>What causes diseases?</i> <b>Handwashing investigation (Planning)</b> <b>Ethics immunisation and vaccines (Scientific development)-</b></p> <p><b><u>Reproduction</u></b> <i>How human babies are made?</i> <b>Use of contraception (scientific development)</b></p>	<p><b><u>Acids and alkalis</u></b> <i>How do reactions, and acids and alkalis affect us?</i> <b>CaO &amp; HCl neutralisation (Planning)</b></p> <p><b><u>Magnetism</u></b> <i>How do invisible forces act?</i> <b>Effecting the Strength Electromagnets (Conclusions)</b></p> <p><b><u>Electrical circuits</u></b> <i>How do electrical devices work?</i> <b>Resistance of a wire (Evaluating)</b></p>	<p><b><u>Physical and chemical changes</u></b> <b>Diffusion (Evidencing)</b></p>

<p><b>Year 8</b></p>	<p><b><u>Types of chemical reaction</u></b>  <i>How are compounds formed?</i>  <i>How are reactions useful?</i>  <b>Investigating Exo and Endo reactions</b>  <b>(Calculating, concluding)</b>  <b>particles</b></p> <p><b><u>Forces and motion</u></b>  <i>How do forces act to produce movement?</i>  <b>Helicopter Investigation</b>  <b>(Planning)</b>  <b>forces</b></p>	<p><b><u>Cellular respiration and gas exchange</u></b>  <i>How do organisms get energy?</i>  <b>Investigating anaerobic respiration (Evaluating)</b>  <b>Cells</b></p> <p><b><u>Waves</u></b>  <i>How do we use waves for communication?</i>  <b>Refraction in a Perspex block</b>  <b>(Evidencing)</b>  <b>Energy</b></p>	<p><b><u>Evolution</u></b>  <i>How do organisms evolve?</i>  <b>Bird Beak Investigation (Analysing/ Concluding)</b>  <b>Development of theory of evolution (Scientific Development)</b>  <b>Responding to change</b></p> <p><b><u>Metals and reactivity</u></b>  <i>How are metals useful?</i>  <b>Displacement &amp; Reactivity</b>  <b>(Evidencing)</b>  <b>Particles/Bonding</b></p>	<p><b><u>Earth and atmosphere</u></b>  <i>How can we conserve the earth and atmosphere?</i>  <b>Carbon Dioxide &amp; Global Warming (Analysing &amp; scientific development)</b>  <b>Responding to change/Particles</b></p>	<p><b><u>Photosynthesis</u></b>  <i>Why are plants so important for life on earth?</i>  <b>Limiting Factors in Elodea (Planning, Evaluating)</b>  <b>Cells/Energy/Responding to change</b></p>	<p><b><u>Relationships in ecosystems</u></b>  <i>How do organisms depend on each other?</i>  <b>Quadrat Sampling (Calculating)</b>  <b>Ethical implications of pesticides (Scientific development)</b>  <b>Responding to change/Energy</b></p>
<p><b>Year 9</b></p>	<p><b><u>How science works.</u></b>  <i>Biology investigations.</i>  <i>Chemistry investigations.</i>  <i>Physics investigations</i></p>	<p><b><u>Key concepts chemistry:</u></b>          Atomic structure and periodic table</p> <p><b><u>States of Matter and Mixtures</u></b>  <b>Investigating inks</b>          Evaluating          Calculating</p>	<p><b><u>Key concepts biology</u></b>  <b>Microscopes</b> Planning  <b>Enzymes and pH graphs</b>          Analysing/Concluding  <b>Osmosis</b> Concluding          Cells, responding to change</p> <p><b><u>Cells and control</u></b>          Evidencing <i>e.g. ruler drop reaction times</i>          Cells</p>	<p><b><u>Genetics</u></b>          Planning <b>DNA extraction</b>          Scientific development  <i>e.g. ethics of human genome project or pedigree analysis</i>          Cells</p> <p><b><u>Key concepts chemistry:</u></b>          Bonding (excluding calculations involving masses)</p>	<p><b><u>Forces</u></b>  <b>CP Relationship mass, force, acceleration</b>          Planning, Concluding &amp; Calculating          Force</p> <p><b><u>Energy</u></b>          Calculating <i>e.g. Calculating efficiency of appliance</i>          Scientific development  <i>e.g methods of electricity generation</i>          Energy</p>	<p><b><u>Waves</u></b>  <b>CP Measuring wave properties</b> Evaluating          Energy</p>



# Curriculum Overview |

## What will my child learn in Combined Science?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Year 10</b>	<p><u>Key concepts. Cells and control.</u> Microscopic calculations Types of cell Bacteria Enzyme Action Transport including osmosis <b>CP microscopes Planning</b> <b>CP Enzymes and pH</b> Analysing/Concluding <b>CP Osmosis Concluding</b></p> <p><u>Key concepts. States of matter, separating substances.</u> Properties of Ionic and Covalent compounds Molecular compounds Allotropes of carbon Properties of metals Bonding models <b>CP investigating inks</b> Evaluating Evaluating- e.g <i>Bonding models</i> Scientific development - e.g. bonding models evaluation and e.g. history of the atom revisit</p>	<p><u>Key concepts. Forces</u> Vectors and scalars Resultant forces Newton's laws Momentum Stopping distances</p> <p><b>CP Relationship mass, force, acceleration</b> Planning, Concluding &amp; Calculating</p> <p><u>Energy</u> Stored energies Calculating e.g. <i>Calculating efficiency of appliance</i> Scientific development <i>e.g methods of electricity generation</i></p>	<p><u>Genetics and natural selection.</u> The structure of DNA Variants and phenotypes Alleles and inheritance <b>Planning DNA extraction</b> Scientific development <i>e.g. ethics of human genome project or pedigree analysis</i></p> <p><u>Acids and alkalis</u> Preparation of a sulfate Reactions with carbonates Factors effecting rates of reaction <b>CP Preparing Copper sulfate planning</b> <b>CP Neutralisation</b> Evidencing</p>	<p><u>Waves and the electromagnetic spectrum</u> Wave speeds <b>Core prac- Investigating waves</b> And refraction EM dangers Using long/short wavelengths</p> <p><u>Health and disease</u> Non-communicable diseases Pathogens and The Immune Response Drugs <i>Analysing e.g trends in diseases over time</i> Scientific development <i>e.g ethics around clinical testing</i></p>	<p><u>Chemistry calculations.</u> <b>Calculating</b> <i>e.g. heating Mg ribbon empirical formula</i></p> <p><u>Radioactivity</u> <b>Evaluating e.g. Modelling half-life investigation</b> Scientific development <i>e.g. Development of the Bohr model</i></p> <p><u>Plant structures and their functions.</u> <b>CP light intensity &amp; photosynthesis</b> Evaluating</p>	<p><u>Ecosystems</u> <b>CP Quadrats and belt transects</b> Planning &amp; calculating</p> <p><u>Rates of reactions, groups in the periodic table.</u> Data Analysis &amp; Evidencing- e.g <i>Halogen displacement</i></p> <p><b>CP Investigating reaction rates -</b> Planning, writing methods, evidencing, evaluation, calculating-</p> <p>Forces and their effects.</p>

<p><b>Year 11</b></p>	<p><u>Electricity and circuits.</u>  <b>CP investigating resistance</b>          Planning</p> <p><u>Magnetism and the motor effect.</u></p> <p>Concluding –e.g. making a motor</p>	<p><u>Fuels and earth science</u>          Concluding          Scientific development  <i>e.g. ethics of using fossil fuels and their effect on the environment, changing ideas around global warming over time.</i></p> <p>Analysing- e.g.Changes in the atmosphere over time.</p> <p><u>Exchange and transport</u>  <b>CP investigate the rate of respiration in living organisms -</b>          Planning &amp; concluding</p>	<p><u>Particle model.</u>  <u>Forces and matter.</u>  <b>Density</b> Planning  <b>CP Specific heat capacity/ investigating water</b>          Evaluating</p> <p><b>CP Hookes law/investigating springs</b>          -          Analysing</p>	<p><u>Reteach</u></p> <p>Review of core practical          Key concepts and past papers</p>	<p><u>Reteach</u></p>	<p><u>Reteach</u></p>
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# Curriculum Overview |

## What will my child learn in Triple Science Biology?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Year 10</b>	<b>Key concepts in Biology</b> Microscopic calculations Types of cell Bacteria Enzyme Action Calorimetry Transport including osmosis <b>CP microscopes Planning</b> <b>CP Enzymes and pH graphs</b> Analysing/Concluding <b>CP Osmosis Concluding</b>	<b>Cells and control</b> Mitosis The nervous system Neurotransmission The eye The brain Brain scanning <b>Evidencing e.g. ruler drop reaction times</b> Cells	<b>Genetics</b> Meiosis DNA extraction Mutation and variation DNA transcription And translation Sex-linked disorders <b>Planning DNA extraction</b> <b>Scientific development e.g. ethics of human genome project or pedigree analysis</b>	<b>Natural selection and Genetic modification</b> Evidence for human evolution Darwin's theory <b>Scientific development e.g. ethics of genetic engineering and selective breeding</b>  <b>Start Health and Disease</b>	<b>Health, disease and Development of medicines</b> Non-communicable diseases Pathogens and The Immune Response Drugs Plant diseases Monoclonal antibodies <b>CP antibiotics - analysing</b> <b>Analysing- e.g. trends in diseases over time</b> <b>Scientific development e.g. ethics around clinical testing</b>	<b>Plant structures and Functions</b>  Absorbing water and mineral ions Transpiration and translocation Plant hormones  <b>CP light intensity &amp; photosynthesis</b> Evaluating
<b>Year 11</b>	<b>Animal coordination, Control and Homeostasis</b> Hormones Metabolic rate The menstrual cycle Glucose control and diabetes Thermoregulation Osmoregulation The kidney <b>Analysing e.g. graphs of menstrual cycle/ blood glucose concentration</b> <b>Evaluation- e.g. uses of contraception</b>	<b>Exchange and transport In Animals</b> Efficient exchange Heart and circulatory system Mocks and Revision Cellular respiration <b>CP investigate the rate of respiration in living organisms -</b> <b>Planning &amp; concluding</b>	<b>Ecosystems and materials Cycles</b> Biotic and Abiotic factors <b>Core prac- Quadrats and Transects</b> Parasitism and mutualism Preserving biodiversity Carbon and nitrogen cycles Trophic levels Food security Indicator species <b>CP Quadrats and belt transects</b> <b>Planning &amp; calculating</b>	<b>Review of learning</b>  <b>Review of core practical Key concepts and past papers</b>	<u>Reteach</u>	<u>Reteach</u>



# Curriculum Overview |

## What will my child learn in Triple Science Chemistry?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	<p><b>States of matter and Atomic structure</b> Separating techniques <b>CP investigating inks</b> Evaluating</p>	<p><b>Bonding and types of Substances</b> Properties of Ionic and Covalent compounds Molecular compounds Allotropes of carbon Properties of metals Bonding models Evaluating- e.g <i>Bonding models</i> Scientific development - e.g. <i>bonding models evaluation and e.g. history of the atom revisit</i></p> <p><b>Acids and alkalis</b> Different types of Indicator Bases and salts <b>CP Preparing Copper sulfate</b> planning <b>CP Neutralisation</b> Evidencing</p>	<p><b>Periodic table and Chemical calculations</b> Masses and empirical formulae Data Analysis &amp; Evidencing- e.g <i>Halogen displacement</i></p> <p><b>Electrolysis and Metals</b> Ores, Reactivity Oxidation and Reduction Life cycle assessments Dynamic Equilibrium <b>CP Electrolysis Copper sulfate</b> - Concluding Evaluating -e.g <i>Life cycle assessments</i></p> <p><b>Quantitative analysis</b> Atom economy Percentage yield and Theoretical yield Core prac- Titration</p>	<p><b>Transition metals</b> Oxidation of metals Electroplating Alloys</p> <p><b>Chemical and fuel cells</b> Hydrogen-oxygen fuel cells Evaluating fuels</p>	<p><b>Qualitative analysis</b> Testing for ions <b>CP Identifying ions-</b> Conclusion Evaluation – e.g. <i>flame photometry vs. Flame test</i></p> <p><b>Dynamic equilibria</b> Haber process Predicting rate of Attainment</p>	<p><b>Fuels</b> Fractional distillation Alkane homologous series Complete and incomplete Combustion Pollution</p> <p><b>Earth and atmospheric Science</b> The Earth's early atmosphere Climate change Concluding Scientific development e.g. <i>ethics of using fossil fuels and their effect on the environment, changing ideas around global warming over time.</i></p> <p>Analysing- e.g. <i>Changes in the atmosphere over time.</i></p>

<p><b>Year 11</b></p>	<p><b>Groups in the periodic Table and rates of reactions</b>          Groups 1,7,0 and reactivity          Activation energy          Exothermic and endothermic  <b>CP Investigating reaction rates -</b>          Planning, writing methods, evidencing, evaluation, calculating-</p>	<p><b>Polymers and alcohols</b>          Polymerisation          Addition polymerisation          Problems with polymers          Naturally occurring polymers          Formulae of alcohols          Carboxylic acids  <b>CP- combustion of alcohols</b>          Evaluation –e.g. recycling  <i>polymers</i>          bonding</p>	<p><b>Bulk surface Properties and Nanoparticles</b>          Sizes and properties          Uses and risks</p>	<p><b>Review of learning</b>   <b>Review of core practical</b>  <b>Key concepts and past papers</b></p>	<p><u>Reteach</u></p>	<p><u>Reteach</u></p>
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## What will my child learn in Triple Science Physics?

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Year 10</b>	<b>Motion and forces</b> Acceleration Velocity/time graphs Momentum Stopping distances Calculations for breaking distances  <b>CP Relationship mass, force, acceleration</b> Planning, Concluding & Calculating	<b>Waves including Light And the EM spectrum</b> Wave speeds And refraction EM dangers Using long/short wavelengths Calculating depth from wave velocity Transmission and absorption Ultra and infrasound And their uses  <b>CP Refraction Evidencing</b> <b>CP investigating radiation - Evidencing</b>	<b>Astronomy</b> Changes in the solar System Steady state and big bang Red shift and other evidence Evolution of stars Telescopes	<b>Radioactivity</b> Types of radiation Half-life and decay Dangers of radioactivity Medical uses of radioactivity Nuclear power Fission and fusion Evaluating <i>e.g. Modelling half-life investigation</i> Scientific development <i>e.g. Development of the Bohr model</i>	<b>Forces and matter</b> Elastic and inelastic distortion Pressure in fluids Pascals Depth and density <b>CP Hookes law/investigating springs -Analysing</b>	<b>Static Electricity</b> Common electrostatic Phenomena Uses and dangers Electric field including shape And direction
<b>Year 11</b>	<b>Electricity and Circuits</b> Transferring energy and power Electricity in the home <b>CP investigating resistance</b> Planning	<b>Magnetism and the motor effect</b> Magnets and magnetic fields Electromagnetic induction Transformers and energy Alternators and dynamos Turns ration equation Concluding <i>-e.g. making a motor</i>	<b>The Particle models</b> Density Energy and changes in state Gas temperature and pressure <b>Density Planning</b> <b>CP Specific heat capacity/ investigating water</b> Evaluating	<b>Review of learning</b>  <b>Review of core practical Key concepts and past papers</b>	<u>Reteach</u>	<u>Reteach</u>