

# Year 10 Science Curriculum Plan 2024-2025

	Recap and Quantitative Chemistry	Cell structure and transport	Recap and Atomic Structure	
Cycle 1	<ol style="list-style-type: none"> <li>Subatomic particles, electronic structures</li> <li>Ions, dot and cross diagrams</li> <li>Ionic bonding and properties</li> <li>Covalent properties</li> <li>Reactivity of group 1/7</li> <li>Relative atomic mass calculations</li> <li>Conservation of mass and decrease in products</li> <li>Balancing equations</li> <li>Uncertainty mean and range</li> <li>Relative formula mass and percentage of mass within a compound</li> <li>Mole introduction (Avogadro and Mr)</li> <li>Moles in equations- reacting masses</li> <li>Moles in equations- Limiting reactants and theoretical yields</li> <li>Concentration calculations</li> </ol>	<ol style="list-style-type: none"> <li>REVIEW</li> <li>Lungs and gas exchange</li> <li>Blood</li> <li>Blood vessels</li> <li>Structure of the heart</li> <li>Heart dissection</li> <li>Coronary Heart disease</li> <li>Aerobic respiration</li> <li>Response to moderate exercise- changes observed</li> <li>Response to intense exercise – oxygen debt/ lactic acid/ recovery rates</li> <li>Anaerobic respiration in plants and yeast</li> <li>Metabolism</li> </ol>	<ol style="list-style-type: none"> <li>Recap particle model, density theory and calculation</li> <li>Density RP</li> <li>Density RP 2</li> <li>Changes of state</li> <li>Internal energy</li> <li>SHC</li> <li>SHC practical</li> <li>Latent Heat</li> <li>Pressure in gases (temperature)</li> <li>Atomic structure including size, and ions</li> <li>Isotopes and early atomic models</li> <li>Later atomic models, Rutherford's experiment</li> <li>Electron energy levels inc. flame tests practical</li> <li>Radioactive decay- properties of alpha/ beta/ gamma/ neutron</li> <li>Balanced nuclear decay equations</li> </ol>	End of cycle 1 assessment
Cycle 2	<b>Chemical changes Reactions and Electrolysis</b> <ol style="list-style-type: none"> <li>Reactions of metals and water and acids and the reactivity series</li> <li>Displacement reactions</li> <li>Extraction using carbon.</li> <li>Metals and oxygen- OIL RIG</li> <li>Acids and alkalis- pH scale Strong and weak acids</li> <li>Neutralisation</li> <li>Reactions of acids with metals and naming salts</li> <li>Naming salts</li> <li>RP8- Making a soluble salt CuSO<sub>4</sub></li> <li>Review of ions and ionic properties</li> <li>Electrolysis of molten</li> <li>Extraction of aluminium oxide</li> <li>Electrolysis of aqueous solutions- Rules</li> <li>Half equations</li> <li>RP9- Electrolysis with inert electrodes</li> </ol>	<b>Cell division and disease</b> <ol style="list-style-type: none"> <li>Plant tissues and organs</li> <li>Plant transport systems incl xylem and Phloem</li> <li>Transpiration and Stomatal density</li> <li>Factors affecting transpiration</li> <li>Photosynthesis Reaction</li> <li>Limiting factors</li> <li>Required Practical- Pondweed</li> <li>Follow up lesson (incl inverse square law)</li> <li>Uses of glucose</li> <li>Testing a leaf for starch</li> </ol>	<b>Radioactivity and Forces</b> <ol style="list-style-type: none"> <li>Nuclear decay equations 2</li> <li>Half-life</li> <li>Half-life graphs</li> <li>Irradiation vs contamination and uses</li> <li>Names of forces, contact vs non contact</li> <li>Scalars/vectors. Distance vs displacement.</li> <li>Weight and mass inc. reference to COM</li> <li>Free body diagrams/ resultant forces</li> <li>Scale diagrams for 2D</li> <li>Resolving vectors</li> <li>Speed vs velocity</li> <li>Distance time graphs</li> <li>Acceleration</li> <li>Velocity time graphs</li> <li>More on motion graphs</li> </ol>	End of cycle 2 assessment
Cycle 3	<b>Chemical changes- Energy changes and Crude oil</b> <ol style="list-style-type: none"> <li>Exo/Endothermic</li> <li>Energy diagrams</li> <li>Displacement reactions- temperature change.</li> <li>RP10- Temperature change of Neutralisation</li> <li>Graphs and analysis of RP10</li> <li>Bond energy calculations</li> <li><b>PAPER 1 is finished</b></li> <li>Crude oil formation</li> <li>Alkanes, alkenes and bromine water test theory</li> <li>Properties of hydrocarbons</li> <li>Fractional distillation</li> <li>Application of fractional distillation</li> <li>Cracking and bromine water test.</li> <li>Exam questions to review</li> </ol>	<b>Homeostasis and Response Hormones</b> <ol style="list-style-type: none"> <li>Homeostasis</li> <li>Organisation of the nervous system</li> <li>Synapses and Reflex arc</li> <li>Reaction times Required Practical</li> <li>Endocrine system</li> <li>Blood glucose</li> <li>Diabetes</li> <li>Negative feedback/thyroxine/adrenaline</li> <li>Human reproduction</li> <li>Menstrual cycle</li> <li>Artificial control of fertility</li> <li>Infertility treatments</li> </ol>	<b>Forces in Balance</b> <ol style="list-style-type: none"> <li>Newton's 1<sup>st</sup> Law and inertia</li> <li>Newton's 2<sup>nd</sup> Law</li> <li>Newton's 2<sup>nd</sup> Law RP</li> <li>Newton's 3<sup>rd</sup> Law</li> <li>Equation of motions</li> <li>Terminal velocity (cupcake cases)</li> <li>Acceleration due to gravity with equation of motion calculation e.g. Ruler drop</li> <li>Stopping distances</li> <li>Braking distance practical</li> <li>Braking and energy</li> <li>Momentum 1</li> <li>Momentum 2</li> <li>Hooke's Law</li> <li>Hooke's Law RP</li> <li>Elastic Potential energy</li> </ol>	End of cycle 3 assessment