

# ASHTON COMMUNITY SCIENCE COLLEGE: SCIENCE CURRICULUM

| Year 9                                    |  |  |  |   |   |   |
|---|--|--|--|---|---|---|
|   | Half term 1  | Half term 2  | Half term 3  | Half term 4   | Half term 5   | Half term 6   |
| Knowledge                                 | <p><u>Biology</u><br/>Cells and Microscopes</p> <p><u>Chemistry</u><br/>Atoms, Elements, Compounds and Mixtures</p> <p><u>Physics</u><br/>Particle Model</p>   | <p><u>Biology</u><br/>Cells and Microscopes</p> <p><u>Chemistry</u><br/>Separation Techniques</p> <p><u>Physics</u><br/>Density<br/>Gas Pressure</p>   | <p><u>Biology</u><br/>Digestion and Enzymes</p> <p><u>Chemistry</u><br/>The Periodic Table and Atomic Structure</p> <p><u>Physics</u><br/>Electricity</p>  | <p><u>Biology</u><br/>Digestion and Enzymes</p> <p><u>Chemistry</u><br/>Ions and Ionic Bonding<br/>Covalent Bonding</p> <p><u>Physics</u><br/>Atomic Structure</p>  | <p><u>Biology</u><br/>Health and Disease</p> <p><u>Chemistry</u><br/>Conservation of Mass<br/>Metal Extraction</p> <p><u>Physics</u><br/>Nuclear Radiation</p>  | <p><u>Biology</u><br/>Health and Disease</p> <p><u>Chemistry</u><br/>Groups in the Periodic Table</p> <p><u>Physics</u><br/>Alternative Energy</p>  |
| Skills/<br>application<br>of<br>knowledge | <p><b>Cells and Microscopes:</b> Animal Cells, Plant Cells, Bacterial Cells, Prokaryotic vs Eukaryotic Cells, Organisation, Microscope Calculations, Using microscopes, Plant Structure.</p> <p><b>Atom Elements, Compounds and Mixtures:</b> Atoms, Elements, Compounds, Mixtures, Pure Substances, Chemical Formula, Naming Compounds, Balancing Equations.</p> <p><b>Particle Model:</b> States of Matter, Internal Energy, Changing States, Chemical and Physical Changes.</p> | <p><b>Cells and Microscopes:</b> Animal Cells, Plant Cells, Bacterial Cells, Prokaryotic vs Eukaryotic Cells, Organisation, Microscope Calculations, Using microscopes, Plant Structure.</p> <p><b>Separation Techniques:</b> Filtration, Crystallisation, Distillation, Chromatography.</p> <p><b>Density:</b> Density Calculations, Finding the Density of Regular Objects and Liquids, Finding the Density of Irregular Objects.</p> <p><b>Gas Pressure:</b> Pressure in Gases, Changing Pressure in Gases, Boyles Law.</p> | <p><b>Digestion and Enzymes:</b> Structure of the Digestive System, Enzymes, Lock and Key Theory, Food Tests.</p> <p><b>The Periodic Table and Atomic Structure:</b> History of the Periodic Table, Atomic Structure, Electron Configuration, Isotopes, History of the Atom.</p> <p><b>Electricity:</b> Circuit Components, Series Circuits, Parallel Circuits, <math>V=IR</math>, Resistance of a Wire.</p> | <p><b>Digestion and Enzymes:</b> Structure of the Digestive System, Enzymes, Lock and Key Theory, Food Tests.</p> <p><b>Ions and Ionic Bonding:</b> Forming Ions, Ionic Bonding, Ionic Formula.</p> <p><b>Covalent Bonding:</b> Covalent Bonding, Identifying Gases.</p> <p><b>Electricity:</b> <math>Q=It</math>, <math>E=QV</math>.</p> | <p><b>Health and Disease:</b> Communicable and Non-communicable disease, Vaccinations, Treating Disease, Types of Pathogens, Bacterial, Viral, Fungal, Protist Illnesses.</p> <p><b>Conservation of Mass:</b> Different Chemical Reactions, Conservation of Mass, Mass Increases During Reactions, Mass Decreases during Reactions.</p> <p><b>Metal Extraction:</b> Properties of Metals and Non-metals, Reactions with Acids, Displacement Reaction, Heating with Carbon, Electrolysis, Aluminium Oxide Extraction, Alternative Extraction Methods, Oxidation and Reduction.</p> <p><b>Nuclear Radiation:</b> Types of Radioactive Decay, Nuclear Equations, Half-Life, Dangers and Uses of Radiation, Contamination and Irradiation, Background Radiation, Nuclear Fission, Nuclear Fusion.</p> | <p><b>Health and Disease:</b> Communicable and Non-communicable disease, Vaccinations, Treating Disease, Types of Pathogens, Bacterial, Viral, Fungal, Protist Illnesses.</p> <p><b>Groups in the Periodic Table:</b> Structure of the Periodic Table, Group 1 Metals, Group 7 Elements, Group 0 Elements.</p> <p><b>Alternative Energy:</b> Non-renewable Energy Resources, Renewable Energy Resources, Energy Data.</p> |
| Links to prior learning                   | <ul style="list-style-type: none"> <li>Year 7 Cells</li> <li>Year 7 Elements and Compounds</li> <li>Year 7 Particle Model</li> <li>Year 8 Photosynthesis</li> </ul>  | <ul style="list-style-type: none"> <li>Year 7 Cells</li> <li>Year 7 Separating Mixtures</li> <li>Year 7 Particle Model</li> <li>Year 8 Photosynthesis</li> </ul>   | <ul style="list-style-type: none"> <li>Year 7 Voltage, Current and Resistance</li> <li>Year 8 Digestion</li> <li>Year 8 Atomic Structure</li> <li>Year 8 Periodic Table</li> </ul>   | <ul style="list-style-type: none"> <li>Year 7 Voltage, Current and Resistance</li> <li>Year 8 Digestion</li> <li>Year 8 Atomic Structure</li> </ul>   | <ul style="list-style-type: none"> <li>Year 9 Cell structure</li> <li>Year 7 Metals</li> <li>Year 7 Earth's Resources</li> <li>Year 8 Atomic Structure</li> <li>Year 8 Chemical Reactions</li> </ul>  | <ul style="list-style-type: none"> <li>Year 7 Energy Transfers</li> <li>Year 8 Periodic Table</li> <li>Year 9 Cell structure</li> </ul>   |
| Assessment                                | <p>Cells and Microscopes CAP 1 and CAP 2</p> <p>Atoms Elements and Compounds CAP</p>   | <p>Cells and Microscopes CAP 3</p> <p>Separation Techniques CAP</p> <p>Particle Model Exam (CAP 1 and CAP 2)</p>   | <p>Digestion and Enzymes CAP 1 and CAP 2</p> <p>Periodic Table CAP 1 and CAP 2</p> <p>Electricity CAP 1 and CAP 2</p> <p>Electricity Exam</p>  | <p>Digestion and Enzymes CAP 3 and CAP 4</p> <p>Ionic Bonding CAP</p> <p>Covalent Bonding CAP</p>   | <p>Health and Disease CAP 1</p> <p>Metal Extraction CAP</p> <p>Atomic Structure Exam (CAP 1, CAP 2 and CAP 3)</p> <p>Nuclear Fission and Fusion CAP</p>   | <p>Health and Disease CAP 2 and CAP 3</p> <p>Groups in The Periodic Table CAP</p> <p>End of Year Exams</p>  |