

## Fourth Form Chemistry (Triple - in addition to Combined) 2023/24

Michaelmas	Lent	Summer
<p><b><u>Quantitative Chemistry</u></b></p> <ul style="list-style-type: none"> <li>Using concentrations of solutions of solutions in mol/dm<sup>3</sup> (HT)</li> <li>Use of amount of substance in relation to volume of gases (HT)</li> </ul> <p><b><u>Chemical changes</u></b></p> <ul style="list-style-type: none"> <li>Titration</li> </ul>	<p><b><u>Energy Changes</u></b></p> <p><u>Chemical cells and fuel cells</u></p> <ul style="list-style-type: none"> <li>Cells and batteries</li> <li>Fuel cells</li> </ul> <p><b><u>Organic Chemistry</u></b></p> <p><u>Reactions of alkenes and alcohols</u></p> <ul style="list-style-type: none"> <li>Structure and formula of alkenes</li> <li>Reactions of alkenes</li> <li>Alcohols</li> <li>Carboxylic acids</li> </ul>	<p><b><u>Organic Chemistry (continued)</u></b></p> <p><u>Synthetic and naturally occurring polymers</u></p> <ul style="list-style-type: none"> <li>Addition polymerisation</li> <li>Condensation polymerisation (HT)</li> <li>Amino Acids (HT)</li> <li>DNA and other naturally occurring polymers (HT)</li> </ul>

Fourth Form Biology (Triple - in addition to Combined)2023/24

Michaelmas	Lent	Summer
<p><b><u>Cell Biology</u></b></p> <ul style="list-style-type: none"> <li>• Culturing microorganisms</li> </ul> <p><b><u>Infection and response</u></b></p> <p><u>Monoclonal antibodies</u></p> <ul style="list-style-type: none"> <li>• Producing monoclonal antibodies</li> <li>• Uses of monoclonal antibodies</li> </ul> <p><u>Plant diseases</u></p> <ul style="list-style-type: none"> <li>• Detection and identification of plant diseases</li> <li>• Plant defence responses</li> </ul>	<p><b><u>Homeostasis and response</u></b></p> <p><u>Human Nervous System</u></p> <ul style="list-style-type: none"> <li>• The Brain</li> <li>• The Eye</li> <li>• Control of body temperature</li> </ul> <p><u>Hormonal coordination</u></p> <ul style="list-style-type: none"> <li>• Maintaining water and nitrogen balance in the body</li> </ul> <p><u>Plant hormones</u></p> <ul style="list-style-type: none"> <li>• Coordination and control</li> <li>• Use of plant hormones (HT)</li> </ul>	<p><b><u>Inheritance and variation and evolution</u></b></p> <p><u>Reproduction</u></p> <ul style="list-style-type: none"> <li>• Advantages of sexual and asexual reproduction</li> <li>• DNA structure</li> </ul> <p><u>Variation and evolution</u></p> <ul style="list-style-type: none"> <li>• Cloning</li> </ul> <p><u>Development of understanding of genetics and evolution</u></p> <ul style="list-style-type: none"> <li>• Theory of evolution</li> <li>• Speciation</li> <li>• Understanding of genetics</li> </ul>

Fourth Form Physics (Triple - in addition to Combined) 2023/24

Michaelmas	Lent	Summer
<p><b><u>Electricity</u></b></p> <p><u>Static electricity</u></p> <ul style="list-style-type: none"> <li>• Static charge</li> <li>• Electric fields</li> </ul> <p><b><u>Particle model of matter</u></b></p> <p><u>Particle model and pressure</u></p> <ul style="list-style-type: none"> <li>• Pressure in gases</li> <li>• Increasing pressure of a gas (HT)</li> </ul>	<p><b><u>Atomic Structure</u></b></p> <p><u>Hazards and uses of radioactive emissions and background radiation</u></p> <ul style="list-style-type: none"> <li>• Background radiation</li> <li>• Different half-lives of radioactive isotopes</li> <li>• Uses of nuclear radiation</li> </ul> <p><u>Nuclear fission and fusion</u></p> <ul style="list-style-type: none"> <li>• Nuclear fission</li> <li>• Nuclear fusion</li> </ul> <p><b><u>Forces</u></b></p> <p><u>Moments, levers and gears</u></p> <ul style="list-style-type: none"> <li>• Moments, levers and gears</li> </ul> <p><u>Pressure and pressure differences in fluids</u></p> <ul style="list-style-type: none"> <li>• Pressure in a fluid 1</li> <li>• Pressure in a fluid 2 (HT)</li> <li>• Atmospheric pressure</li> </ul> <p><u>Momentum</u></p> <ul style="list-style-type: none"> <li>• Changes in momentum</li> </ul>	<p><b><u>Waves</u></b></p> <p><u>Waves in air, fluids and solids</u></p> <ul style="list-style-type: none"> <li>• Reflection of waves</li> <li>• Sound waves (HT)</li> <li>• Waves for detection and exploration (HT only)</li> </ul> <p><u>Electromagnetic waves</u></p> <ul style="list-style-type: none"> <li>• Lenses</li> <li>• Visible light</li> </ul> <p><u>Black body radiation</u></p> <ul style="list-style-type: none"> <li>• Emission and absorption of infrared radiation</li> <li>• Perfect black bodies and radiation</li> </ul>