

## **Science Curriculum Mapping 2022-2023**

GCSE Specification: AQA 8464 Combined Science Trilogy, AQA 8461 Biology, AQA 8462 Chemistry, AQA 8463 Physics, AQA KS3 Science.

<p><b><u>Subject Specific Skills:</u></b> Development of Scientific Thinking Experimental Skills &amp; Strategies Analysis &amp; Evaluation Scientific Vocabulary, Quantities, Units, Symbols &amp; Extended writing</p> <p>Investigation Planning Conclusion writing Evaluation writing Application of mathematical formulae Evaluating Impact Ethical Considerations Data Analysis Scientific modelling Use of practical equipment</p>	<p><b><u>Wider Key Skills:</u></b> Self-discipline Self-confidence Self-motivation Collaborative Skills</p>	<p><b><u>Enquiry processes:</u></b> Analyse: - Analyse patterns - Discuss limitations - Draw conclusions - Present data</p> <p>Communicate: - Communicate ideas - Construct explanations - Critique claims - justify opinions</p> <p>Enquire - Collect data - Devise questions - Plan variables - Test hypotheses</p> <p>Solve - Estimate risks - Examine consequences - Review theories - Interrogate sources</p>
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<b>Year 7 Topics</b>	<b>Matter, Organisms, Forces, Electromagnetism, Ecosystems, Reactions, Energy, Waves, Genes, Earth.*</b>
Key Content/ Knowledge in Y7	<p><i>Particle model and separating mixtures</i></p> <p><i>Cells and movement</i></p> <p><i>Speed and gravity</i></p> <p><i>Voltage, resistance and current</i></p> <p><i>Interdependence</i></p> <p><i>Plant reproduction</i></p> <p><i>Acids and alkalis, metals and non- metals.</i></p> <p><i>Costs and transfer</i></p> <p><i>light and sound</i></p> <p><i>Human reproduction</i></p> <p><i>Variation.</i></p> <p><i>Earth structure and universe</i></p>
<b>Year 8 Topics</b>	<b>Matter, Organisms, Forces, Electromagnetism, Ecosystems, Reactions, Energy, Waves, Genes, Earth.*</b>
Key Content/ Knowledge in Y8	<p><i>Periodic table and Elements.</i></p> <p><i>Breathing and Digestion.</i></p> <p><i>Contact forces and pressure</i></p> <p><i>Electromagnets and Magnetism</i></p> <p><i>Respiration and photosynthesis</i></p> <p><i>Work, heating and cooling</i></p> <p><i>Wave effects and properties</i></p> <p><i>Evolution and Inheritance</i></p> <p><i>Climate and Earth resources.</i></p>
Key Skills Developed	The following key skills are taught and developed throughout the Key Stage 3 AQA Science Curriculum (Y7 and Y8): Extended Writing, Graph Drawing, Planning Investigations, Conclusion Writing, Evaluation Writing, Scientific Modelling, Balancing Symbol Equations, Data Analysis, and Literacy/Language for learning in Science/Enquiry processes.
Assessment	Assessment at Key Stage 3 uses a wide range of processes which includes the following: End of topic summative tests, formative assessment within lessons, homework as a key assessment for learning tool, key concepts lesson at the beginning of a topic. Students also carry out practicals, draw tables, graphs, diagrams, complete extended writing tasks and whiteboard quizzes.

\*Please note topic order may vary due to rotations.

<b>Year Group: 9</b>	Topic order may vary due to rotations.
Subject: <b>Biology topics</b>	<b>B1, B2, B3, B4, B5, B6, B7</b>
<i>Key Content Knowledge</i>	<p><i>Cell structure and transport.</i></p> <p><i>Cell division.</i></p> <p><i>Organisation and the Digestive system.</i></p> <p><i>Organising animal and plants.</i></p> <p><i>Communicable diseases.</i></p> <p><i>Preventing and treating disease.</i></p> <p><i>Non-communicable disease.</i></p>
Subject: <b>Chemistry</b>	<b>C1, C2, C3, C4</b>
<i>Key Content Knowledge</i>	<p><i>Atomic structure, separating mixtures.</i></p> <p><i>Periodic table.</i></p> <p><i>Structure and bonding.</i></p> <p><i>Chemical calculations.</i></p>
Subject: <b>Physics</b>	<b>P1, P2, P3, P4, P5</b>
<i>Key Content Knowledge</i>	<p><i>Conservation and dissipation of energy.</i></p> <p><i>Energy transfer by heating.</i></p> <p><i>Energy resources.</i></p> <p><i>Electric circuits.</i></p> <p><i>Electricity in the home</i></p>
Key Skills Developed	Throughout the course students learn the key skills linked to The Development of Scientific Thinking, Experimental Skills and Strategies, Analysis and Evaluation, Scientific Vocabulary, Quantities, Units, Symbols and Nomenclature
Assessment	End of topic summative tests, formative assessment within lessons, homework as a key assessment for learning tool, key concepts lesson at the beginning of a topic. Students also carry out practicals, draw tables, graphs, diagrams, complete extended writing tasks and whiteboard quizzes.

Please note: Triple content missed in Year 9 is taught in Year 10 for students who have selected Triple Science as an option.

Chemistry Triple: *Transition elements (C2\*)*, *Nanoparticles (C3\*)*.

Biology Triple: *Bacterial growth, Plant diseases and responses (B5\*)*, *Monoclonal antibodies (B7\*)*.

Physics Triple: *Infrared radiation (P2\*)*, *Electrical charges and fields (P4\*)*



<p>Topic: <b>Chemistry</b></p> <p><i>Key Content Knowledge</i></p>	<p><b>Combined Science</b>  <b>C5, C6, C7, C8, C9, C12</b>  <i>Chemical changes</i>  <i>Electrolysis</i>  <i>Energy changes</i>  <i>Rates and equilibrium</i>  <i>Crude oil and fuels</i>  <i>Chemical analysis</i></p>
	<p><b>Triple Chemistry</b>  <b>C5, C6, C7, C8, C9, C10, C11, C12</b>  <i>Chemical changes</i>  <i>Electrolysis</i>  <i>Energy changes</i>  <i>Rates and equilibrium</i>  <i>Crude oil and fuels</i>  <i>Organic reactions</i>  <i>Polymers</i>  <i>Chemical analysis</i></p>
<p>Topic: <b>Physics</b></p> <p><i>Key Content Knowledge</i></p>	<p><b>Combined Science</b>  <b>P5, P6, P7, P8, P9, P10</b>  <i>Electricity in the home</i>  <i>Molecules and matter</i>  <i>Radioactivity</i>  <i>Forces in balance</i>  <i>Motion</i>  <i>Forces and motion</i></p>
	<p><b>Triple Physics</b>  <b>P5, P6, P7, P8, P9, P10, P11</b>  <i>Electricity in the home</i>  <i>Molecules and matter</i>  <i>Radioactivity</i>  <i>Forces in balance</i>  <i>Motion</i></p>

	<p style="text-align: center;"><i>Forces and motion</i> <i>Forces and pressure</i></p>
Key Skills Developed	Throughout the course students learn the key skills linked to The Development of Scientific Thinking, Experimental Skills and Strategies, Analysis and Evaluation, Scientific Vocabulary, Quantities, Units, Symbols and Nomenclature
Assessment	End of topic summative tests, formative assessment within lessons, homework as a key assessment for learning tool, key concepts lesson at the beginning of a topic. Students also carry out practicals, draw tables, graphs, diagrams, complete extended writing tasks and whiteboard quizzes.
Year Group: 11	Topic order may vary due to rotations.
<p>Topic: <b>Biology</b></p> <p>Key Content Knowledge</p>	<p style="text-align: center;"><b><i>Combined Science</i></b> <b>B13, B14, B15, B16, B17, B18</b> <i>Reproduction</i> <i>Variation and evolution</i> <i>Genetics and evolution</i> <i>Adaptations, interdependence and competition</i> <i>Organising an ecosystem</i> <i>Biodiversity and ecosystems</i></p>
	<p style="text-align: center;"><b><i>Single Biology</i></b> <b>B15, B16, B17 B18</b> <i>Genetics and evolution</i> <i>Adaptations, interdependence and competition</i> <i>Organising an ecosystem</i> <i>Biodiversity and ecosystems</i></p>
	<p style="text-align: center;"><b><i>Triple Biology</i></b> <b>B13, B14, B15, B16, B17, B18</b> <i>Reproduction</i> <i>Variation and evolution</i> <i>Genetics and evolution</i> <i>Adaptations, interdependence and competition</i> <i>Organising an ecosystem</i> <i>Biodiversity and ecosystems</i></p>
Topic: <b>Chemistry</b>	<p style="text-align: center;"><b><i>Combined Science</i></b> <b>C12, C13, C14</b></p>

<p>Key Content Knowledge</p>	<p><i>Chemical analysis</i> <i>The Earth's atmosphere</i> <i>The Earth's resources</i></p>
	<p><b>Triple Chemistry</b> <b>C10, C11, C12, C13, C14, C15</b> <i>Organic reactions</i> <i>Polymers</i> <i>Chemical analysis</i> <i>The Earth's atmosphere</i> <i>The Earth's resources</i> <i>Using our resources</i></p>
<p>Topic: <b>Physics</b></p> <p>Key Content Knowledge</p>	<p><b>Combined Science</b> <b>P12, P13, P15</b> <i>Waves properties</i> <i>Electromagnetic waves</i> <i>Electromagnetism</i></p>
	<p><b>Triple Physics</b> <b>P12, P13, P14, P15, P16</b> <i>Waves properties</i> <i>Electromagnetic waves</i> <i>Light</i> <i>Electromagnetism</i> <i>Space</i></p>
<p>Key Skills Developed</p>	<p>Throughout the course students learn the key skills linked to The Development of Scientific Thinking, Experimental Skills and Strategies, Analysis and Evaluation, Scientific Vocabulary, Quantities, Units, Symbols and Nomenclature</p>
<p>Assessment</p>	<p>End of topic summative tests, formative assessment within lessons, homework as a key assessment for learning tool, key concepts lesson at the beginning of a topic. Students also carry out practicals, draw tables, graphs, diagrams, complete extended writing tasks and whiteboard quizzes.</p>