

Intent

**Curriculum Statement:**  
 The Science curriculum will engage and enthuse students in the wonders of their world and allow them to fulfil their natural curiosity through investigative experiences. Progressive learning opportunities will develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.

Planning and delivery will develop understanding of the nature, processes and methods of science. Through different types of enquiries, the curriculum will help them to answer scientific questions about the world around them.

We will allow students to be equipped with the scientific skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that knowledge should be gained through this.

Students will gain an understanding of how science works to ensure they are prepared to effectively evaluate any information given to them in the future. The science curriculum will challenge students to question “Why?”

Implementation

| Year 7 - Content |  | Assessments   |  | Literacy/Numeracy Focus   | CEIAG  | Personal Development  |
|------------------|--|---|--|---|--|---|
|                  |  | Topics  | Assessment type  |   |  |   |
| Term 1           | <ul style="list-style-type: none"> <li>Skills</li> <li>7G: The particle model</li> <li>7A: Cells, tissues, organs and systems</li> </ul> | <ul style="list-style-type: none"> <li>Safety in the lab</li> <li>Using a Bunsen burner</li> <li>Planning a practical</li> <li>Variables</li> <li>Drawing graphs</li> <li>Analysing data</li> <li>Solids, liquids and gases</li> <li>Particles</li> <li>Brownian motion</li> <li>Diffusion</li> <li>Air pressure</li> <li>Life processes</li> <li>Organs</li> <li>Tissues</li> <li>Microscopes</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p><b>Literacy: Use of subject-specific keyword.</b></p> <p><b>Extended writing – answering long-answer questions. Writing up scientific investigations.</b></p> <p>Numeracy: Reading and plotting line graphs.</p> | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops numeracy and problem-solving skills.</li> <li>Develops planning and organisational skills.</li> </ul> |

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|                   | <ul style="list-style-type: none"> <li>• 7I: Energy</li> </ul>   | <ul style="list-style-type: none"> <li>• Cells</li> <li>• Organ systems</li> <li>• Core practical - microscopes</li> <li>• Energy from food</li> <li>• Energy transfers and stores</li> <li>• Fuels</li> <li>• Other energy resources</li> <li>• Using resources</li> </ul>  |  | <p>Numeracy: Using ratios to compare experimental results.</p>                                      |  |  |
| <p>Term<br/>2</p> | <ul style="list-style-type: none"> <li>• 7E: Separating mixtures</li> <li>• 7B: Sexual reproduction in animals</li> <li>• 7J: Electricity</li> </ul> | <ul style="list-style-type: none"> <li>• Mixtures and separation</li> <li>• Solutions</li> <li>• Evaporation</li> <li>• Chromatography</li> <li>• Distillation</li> <li>• Core practical – evaporation and chromatography</li> <li>• Animal sexual reproduction</li> <li>• Reproductive organs</li> <li>• Becoming pregnant</li> <li>• Gestation and birth</li> <li>• Growing up</li> <li>• Switches and current</li> <li>• Models for circuits</li> <li>• Series and parallel circuits</li> <li>• Changing the current</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> <li>• <b>Summative assessment</b> that will include the science learnt in modules covered last term.</li> </ul> | <p>Numeracy: Understand numbers, size and scale and the quantitative relationship between units</p> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops written and verbal communication <b>skills</b>.</li> <li>• Develops planning and organisational skills.</li> </ul> |

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|        |  | <ul style="list-style-type: none"> <li>Using electricity</li> <li>Core practical – I, V and R</li> </ul>   |   |  |  |  |
| Term 3 | <ul style="list-style-type: none"> <li>7H: Atoms, elements and molecules</li> <li>7C: Muscles and bones</li> <li>7K: Forces</li> </ul> | <ul style="list-style-type: none"> <li>The air we breathe</li> <li>Earth's elements</li> <li>Metals and non-metals</li> <li>Making compounds</li> <li>Chemical reactions</li> <li>Muscles and breathing</li> <li>Muscles and blood</li> <li>The skeleton</li> <li>Muscles and moving</li> <li>Drugs</li> <li>Different forces</li> <li>Springs</li> <li>Friction</li> <li>Pressure</li> <li>Balanced and unbalanced</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul>  | <p>Numeracy: The use of symbols when communicating science</p> <p>Numeracy: Converting between metres and nanometres</p> <p>Numeracy: Presenting data graphically.</p> | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops analytical thinking <b>skills</b>.</li> <li>Develops skills of analysis and presentation.</li> </ul> |
| Term 4 | <ul style="list-style-type: none"> <li>7F: Acids and Alkalis</li> </ul>  | <ul style="list-style-type: none"> <li>Hazards</li> <li>Indicators</li> <li>Acidity and alkalinity</li> <li>Neutralisation</li> <li>Neutralisation in everyday life</li> <li>Core practical – Indigestion tablets</li> </ul>   | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> <li><b>Summative assessment</b> that will</li> </ul> | <p>Numeracy: The use of: tables; line graphs; scatter graphs; pie charts; and bar charts.</p>  | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> </ul>   | <ul style="list-style-type: none"> <li>Develops maths knowledge.</li> <li>Develops analytical thinking <b>skills</b>.</li> <li>Develops numeracy and problem-solving skills.</li> </ul>                                      |

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|               | <ul style="list-style-type: none"> <li>• 7L: Sound</li> </ul>  | <ul style="list-style-type: none"> <li>• Making sounds</li> <li>• Moving sounds</li> <li>• Detecting sounds</li> <li>• Using sounds</li> <li>• Comparing waves</li> </ul>  | <p>include the science learnt in modules covered last term.</p>  | <p>Numeracy: Present data in scatter graphs.</p> <p>Draw lines of best fit on scatter graphs.</p> | <ul style="list-style-type: none"> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul>   |  |
| <p>Term 5</p> | <ul style="list-style-type: none"> <li>• 7D: Ecosystems</li> <li>• 8H: Rocks</li> <li>• 8L: Earth and space</li> </ul> | <ul style="list-style-type: none"> <li>• Variation</li> <li>• Adaptations</li> <li>• Effects of the environment</li> <li>• Effects on the environment</li> <li>• Transfers in food chains</li> <li>• Core practical - variation</li> <li>• Rocks and their uses</li> <li>• Igneous and metamorphic</li> <li>• Weathering and erosion</li> <li>• Sedimentary rocks</li> <li>• Materials in the Earth</li> <li>• Gathering the evidence</li> <li>• Seasons</li> <li>• Magnetic Earth</li> <li>• Gravity in space</li> <li>• Beyond the solar system</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p>Numeracy: Present data in bar charts.</p>  | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops written and verbal communication <b>skills</b>.</li> <li>• Develops analytical thinking <b>skills</b>.</li> <li>• Develops skills of analysis and presentation.</li> <li>• Develops planning and organisational skills.</li> <li>• Develops numeracy and problem-solving skills.</li> <li>• Develops skills of analysis and presentation.</li> </ul> |

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| Term 6 | <p>Review and assessment</p> <p>Feedback</p> |  | <ul style="list-style-type: none"> <li>• <b>Summative assessment</b> that will include the science learnt in modules covered last term.</li> </ul> | <p>Numeracy: Drawing line graphs and scatter graphs, and using these to draw conclusions.</p> | <ul style="list-style-type: none"> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication <b>skills</b>.</li> <li>• Develops analytical thinking <b>skills</b>.</li> <li>• Develops skills of analysis and presentation.</li> <li>• Develops planning and organisational skills.</li> <li>• Develops numeracy and problem-solving skills.</li> <li>• Develops skills of analysis and presentation.</li> </ul> |
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| Year 8 - Content |   | Assessments  |  | Literacy/numeracy focus   | CEIAG   | Personal Development   |
|------------------|---|--|--|---|---|--|
|                  |   | Topics   | Assessment type  |   |   |  |
| Term 1           | <ul style="list-style-type: none"> <li>• 8B: Plant Reproduction</li> <li>• 8G: Metals and their uses</li> <li>• 8K: Energy transfers</li> </ul> | <ul style="list-style-type: none"> <li>• Classification and Biodiversity</li> <li>• Types of Reproduction</li> <li>• Pollination</li> <li>• Fertilisation and Dispersal</li> <li>• Metal properties</li> <li>• Corrosion</li> <li>• Metals and water</li> <li>• Metals and acid</li> <li>• Pure metals and alloys</li> <li>• Temperature changes</li> <li>• Transferring energy</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p><b>Literacy: Use of subject-specific keyword.</b></p> <p><b>Extended writing – answering long-answer questions. Writing up scientific investigations.</b></p> <p>Numeracy: Drawing line graphs and scatter graphs, and using these to draw conclusions.</p> <p>Numeracy: Choosing and using a suitable level of accuracy for measurements</p> <p>Plot graphs</p> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this term and an essential</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication <b>skills</b>.</li> <li>• Develops numeracy and problem-solving skills.</li> </ul> |

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|        |  | <ul style="list-style-type: none"> <li>Controlling transfers</li> <li>Power and efficiency</li> <li>Paying for energy</li> </ul>   |  |   | aspect of all science modules.   |  |
| Term 2 | <ul style="list-style-type: none"> <li>8D: Unicellular organisms</li> <li>8J: Light</li> <li>8F: The periodic table</li> </ul> | <ul style="list-style-type: none"> <li>Unicellular or multicellular</li> <li>Microscopic fungi</li> <li>Bacteria</li> <li>Protoctists</li> <li>Decomposers and carbon</li> <li>Light on the move</li> <li>Reflection</li> <li>Refraction</li> <li>Cameras and eyes</li> <li>Colour</li> <li>Dalton's atomic model</li> <li>Chemical properties</li> <li>Mendeleev's table</li> <li>Physical trends</li> <li>Chemical trends</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> <li><b>Summative assessment</b> that will include the science learnt in modules covered last term.</li> </ul> | <p>Numeracy: Measuring angles.</p> <p>Numeracy: Identify the ranges of readings in data. Explain why data with a small range is of good quality. Calculate means and explain their use. Identify anomalous results in data.</p> <p>Numeracy: Calculating means.</p> | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops maths knowledge.</li> <li>Develops analytical thinking <b>skills</b>.</li> </ul>   |
| Term 3 | <ul style="list-style-type: none"> <li>8E: Combustion</li> <li>8A: Food and Nutrition</li> </ul>                               | <ul style="list-style-type: none"> <li>Burning fuels</li> <li>Oxidation</li> <li>Fire safety</li> <li>Air pollution</li> <li>Global warming</li> <li>Nutrients</li> <li>Uses of Nutrients and balanced diets</li> <li>Digestion</li> <li>Absorption</li> <li>Changing state</li> </ul>   | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul>   | <p>Numeracy: Choosing and using a suitable level of accuracy for measurements</p> <p>Plot graphs</p>  | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>Good communication skills are an essential ingredient of a successful</li> </ul>  | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops maths knowledge.</li> <li>Develops written and verbal communication <b>skills</b>.</li> <li>Develops analytical thinking <b>skills</b>.</li> </ul> |

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|        | <ul style="list-style-type: none"> <li>8I: Fluids</li> </ul>  | <ul style="list-style-type: none"> <li>Pressure in fluids</li> <li>Floating and sinking</li> <li>Drag</li> </ul>   |  |  | <p>career in science or elsewhere and this skill is embedded into the science lessons.</p> <ul style="list-style-type: none"> <li>Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul>   |  |
| Term 4 | <ul style="list-style-type: none"> <li>8C: Breathing and respiration</li> <li>9F: Reactivity</li> </ul>     | <ul style="list-style-type: none"> <li>Aerobic respiration</li> <li>Gas exchange system</li> <li>Getting oxygen</li> <li>Comparing gas exchange</li> <li>Anaerobic respiration</li> <li>Types of Explosion</li> <li>Reactivity</li> <li>Energy and Reactions</li> <li>Displacement</li> <li>Extracting Metals</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> <li><b>Summative assessment</b> that will include the science learnt in modules covered last term.</li> </ul> | <p>Numeracy: Use a variety of charts and graphs to present and analyse data.</p> <p>Numeracy: Apply mathematical concepts and calculate results.</p>   | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops maths knowledge.</li> <li>Develops written and verbal communication <b>skills</b>.</li> <li>Develops analytical thinking <b>skills</b>.</li> </ul> |
| Term 5 | <ul style="list-style-type: none"> <li>9I: Forces</li> <li>9J: force fields and electromagnetism</li> </ul> | <ul style="list-style-type: none"> <li>Forces and movement</li> <li>Energy for movement</li> <li>Speed</li> <li>Turning forces</li> <li>More machines</li> <li>Force fields</li> <li>Static electricity</li> <li>Current Electricity</li> <li>Electromagnets</li> </ul>  | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul>   | <p>Numeracy: Present data in scatter graphs. Draw lines of best fit on scatter graphs.</p> <p>Numeracy: Substitute into formulae.</p> <p>Numeracy: Present data in bar charts or scatter graphs.</p> | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>Good communication skills are an essential ingredient of a successful career in</li> </ul>  | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops maths knowledge.</li> <li>Develops written and verbal communication <b>skills</b>.</li> <li>Develops analytical thinking <b>skills</b>.</li> </ul> |

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|                  | <ul style="list-style-type: none"> <li>9B: Plant growth</li> </ul>  | <ul style="list-style-type: none"> <li>Resistance</li> <li>Reactions in plants</li> <li>Plant adaptations</li> <li>Plant products</li> <li>Growing crops</li> <li>Farming problems</li> </ul>  |  | Identify when to use a bar chart or scatter graph.  | science or elsewhere and this skill is embedded into the science lessons. <ul style="list-style-type: none"> <li>Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul>  |  |
| Term 6           | Assessment and feedback   | <ul style="list-style-type: none"> <li>Environment variation</li> <li>Inherited variation</li> <li>DNA</li> <li>Genes &amp; Extinction</li> <li>Natural Selection</li> </ul>   | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> <li><b>Summative assessment</b> that will include the science learnt in modules covered last term.</li> </ul> | Numeracy: Explain what probability is. Calculate probabilities and present them as fractions, decimals and percentages Calculate experimental probabilities | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops maths knowledge.</li> <li>Develops written and verbal communication <b>skills</b>.</li> <li>Develops analytical thinking <b>skills</b>.</li> </ul> |
| Year 9 - Content |   | Assessments  |  | Literacy/numeracy focus   | CEAIG  | Personal development   |
|                  |   | Topics   | Assessment type  |   |  |  |
| Term 1           | <ul style="list-style-type: none"> <li>CB5: Health and disease and the development of medicine</li> </ul> | <ul style="list-style-type: none"> <li>Health and Disease</li> <li>Non-Communicable Disease</li> <li>Cardiovascular Disease</li> <li>Pathogens</li> <li>Spreading Pathogens</li> <li>Physical and Chemical Barriers</li> <li>The Immune System</li> <li>Antibiotics</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul>   | <b>Literacy: Use of subject-specific keyword.</b><br><br><b>Extended writing – answering long-answer questions. Writing up scientific investigations.</b>   | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> </ul>   | <ul style="list-style-type: none"> <li>Develops analytical thinking <b>skills</b>.</li> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops maths knowledge. Develops written and verbal communication <b>skills</b>.</li> </ul>          |



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|               | <ul style="list-style-type: none"> <li>• CP4: Waves</li> <li>• CP3: Conservation of Energy</li> </ul>   | <ul style="list-style-type: none"> <li>• Describing waves</li> <li>• Wave speeds</li> <li>• Core Practical – Investigating waves</li> <li>• Refraction</li> <li>• Energy stores and transfers</li> <li>• Energy efficiency Keeping warm</li> <li>• Stored energies</li> <li>• Non-renewable resources</li> <li>• Renewable resources</li> </ul>                                   |   | <p>Numeracy: Make order of magnitude calculations</p> <p>Numeracy: Recognise and use expressions in decimal form</p> <p>Recognise and use expressions in standard form</p> <p>Make estimates of the results of simple calculations</p> <p>Use an appropriate number of significant figures</p> <p>Use a scatter diagram to identify a correlation between two variables</p> <p>Understand and use the symbols: =, &lt;, &lt;&lt;, &gt;&gt;, &gt;, α, ~</p> <p>Substitute numerical values into algebraic equations using appropriate units for physical quantities</p> <p>Solve simple algebraic equations</p> | <ul style="list-style-type: none"> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul>  |   |
| <p>Term 2</p> | <ul style="list-style-type: none"> <li>• CP5: Light and the Electromagnetic Spectrum</li> <li>• CC3-4: Atomic structure and the periodic table</li> </ul> | <ul style="list-style-type: none"> <li>• Electromagnetic waves</li> <li>• Core Practical – Investigating Refraction</li> <li>• The electromagnetic spectrum</li> <li>• Using the long wavelengths</li> <li>• Using the short wavelengths</li> <li>• EM radiation dangers</li> <li>• Structure of the atom</li> <li>• Atomic Number and Mass Number</li> <li>• Isotopes</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> <li>• <b>Summative assessment</b> that will include the science learnt in modules</li> </ul> | <p>Numeracy: Recognise and use expressions in decimal form</p> <p>Use ratios, fractions and percentages</p> <p>Construct and interpret frequency tables and diagrams, bar charts and histograms</p> <p>Understand simple probability</p> <p>Translate information between graphical and numeric form</p>   | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops analytical thinking <b>skills</b>.</li> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops maths knowledge. Develops written and verbal communication <b>skills</b>.</li> </ul> |

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|               | <ul style="list-style-type: none"> <li>• CB1a: Key Concepts in Biology</li> </ul>  | <ul style="list-style-type: none"> <li>• Elements in the Periodic Table</li> <li>• Atomic number and the Periodic Table</li> <li>• Electron Configurations</li> <li>• Microscopes</li> <li>• Plant and animal cells</li> <li>• Core Practical Using Microscopes</li> <li>• Specialised cells</li> <li>• Inside bacteria</li> </ul>                         | <p>covered last term.</p>  | <p>Numeracy: Visualise and represent 2D and 3D forms including two-dimensional representations of 3D objects</p> <p>Numeracy: Construct and interpret frequency tables and diagrams, bar charts and histograms</p> | <ul style="list-style-type: none"> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> <li>•</li> </ul>  |   |
| <p>Term 3</p> | <ul style="list-style-type: none"> <li>• CC1/2: States of Matter / Methods of purifying and separating substances</li> <li>• CC13: Groups in the Periodic table</li> </ul> | <ul style="list-style-type: none"> <li>• States of matter</li> <li>• Mixtures</li> <li>• Filtration and crystallisation</li> <li>• Paper chromatography</li> <li>• Distillation</li> <li>• Core Practical – Investigating Inks</li> <li>• Drinking water</li> <li>• Group 1</li> <li>• Group 7</li> <li>• Halogen Reactivity</li> <li>• Group 0</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> <li>• <b>Summative assessment</b> that will include the science learnt in modules covered last term.</li> </ul> | <p>Numeracy: Use a scatter diagram to identify a correlation between two variables</p> <p>Numeracy: Recognise and use expressions in decimal form. Use ratios, fractions and percentages</p>                       | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> <li>•</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of analysis and presentation</li> <li>• Develops planning and organisational skills</li> <li>• Develops numeracy and problem-solving skills</li> </ul> |
| <p>Term 4</p> | <ul style="list-style-type: none"> <li>• CB2: Cells and control</li> </ul>   | <ul style="list-style-type: none"> <li>• Mitosis</li> <li>• Growth in animals</li> <li>• Growth in plants</li> <li>• Stem cells</li> <li>• The nervous system</li> <li>• Neurotransmission speeds</li> </ul>   | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key</li> </ul>   | <p>Numeracy: Use ratios, fractions and percentages</p> <p>Translate information between graphical and numeric form</p>   | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate</li> </ul>   | <ul style="list-style-type: none"> <li>• Develops analytical thinking <b>skills</b>.</li> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops maths knowledge.</li> </ul>  |

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|                   | <ul style="list-style-type: none"> <li>• CC14: Rate of reaction</li> <li>• CC16/17 Fuels and atmosphere science</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Core Practical Part 1</b> - Rates of Reaction</li> <li>• <b>Core Practical Part 2</b> - Factors Affecting Reaction Rates</li> <li>• Core Practical Evaluation- Investigating Reaction Rates</li> <li>• Hydrocarbons in crude oil and natural gas</li> <li>• Fractional Distillation of Crude Oil</li> <li>• The alkane homologous series</li> <li>• Complete and incomplete combustion</li> <li>• Combustible fuels and pollution</li> <li>• Breaking down hydrocarbons</li> <li>• The early atmosphere</li> <li>• The changing atmosphere</li> <li>• The atmosphere today</li> <li>• Climate change</li> </ul> | <p>knowledge understanding</p>   | <p>Numeracy: Make estimates of the results of simple calculations. Construct and interpret frequency tables and diagrams, bar charts and histograms</p> | <p>observations and record the results.</p> <ul style="list-style-type: none"> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> <li>•</li> </ul> | <p>Develops written and verbal communication <b>skills</b>.</p>  |
| <p>Term<br/>5</p> | <ul style="list-style-type: none"> <li>• CP1/2: Motion</li> </ul>  | <ul style="list-style-type: none"> <li>• Vectors and scalars</li> <li>• Distance/time graphs</li> <li>• Acceleration</li> <li>• Velocity/time graphs</li> <li>• Resultant forces</li> <li>• Newton's first law</li> <li>• Mass and weight</li> <li>• Newton's second law</li> </ul>   | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p>Numeracy: Recognise and use expressions in decimal form<br/>Use ratios, fractions and percentages</p>  | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> </ul>  | <ul style="list-style-type: none"> <li>• Develops skills of analysis and presentation</li> <li>• Develops planning and organisational skills<br/>Develops numeracy and problem-solving skills</li> </ul> |

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|               | <ul style="list-style-type: none"> <li>• CB1b: Key concepts in Biology - Part 2 - Enzymes and Transporting Substances</li> </ul> | <ul style="list-style-type: none"> <li>• Core Practical – Investigating acceleration</li> <li>• Newton’s third law</li> <li>• Momentum</li> <li>• Stopping distances</li> <li>• Crash hazards</li> </ul> <ul style="list-style-type: none"> <li>• Enzymes and Nutrition</li> <li>• Enzyme Action</li> <li>• Enzymes as Biological Catalysts</li> <li>• <b>CORE PRACTICAL</b><br/>Investigating the Effect of pH on Enzymes</li> <li>• Measuring Energy in Food</li> <li>• Transporting Substances in and Out of Cells</li> <li>• <b>CORE PRACTICAL</b><br/>Investigating Osmosis in Potatoes</li> </ul> <ul style="list-style-type: none"> <li>• Revision of key content from the modules studied during year 9 to prepare for the end of year assessment at the beginning of term6</li> </ul> |  | <p>Numeracy: Recognise and use expressions in decimal form Make estimates of the results of simple calculations</p> <p>Use an appropriate number of significant figures</p> <p>Find arithmetic means.</p> <p>Construct and interpret frequency tables and diagrams, bar charts and histograms. Understand the terms mean, mode and median</p> <p>Substitute numerical values into algebraic equations using appropriate units for physical quantities</p> <p>Solve simple algebraic equations</p> <p>Translate information between graphical and numeric form</p> <p>Understand that <math>y = mx + c</math> represents a linear relationship</p> <p>Plot two variables from experimental or other data</p> <p>Determine the slope and intercept of a linear graph</p> <p>Draw and use the slope of a tangent to a curve as a measure of rate of change</p> | <ul style="list-style-type: none"> <li>• Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul>   |   |
| <p>Term 6</p> | <ul style="list-style-type: none"> <li>• Assessment and Feedback</li> </ul>  | <ul style="list-style-type: none"> <li>• End of year assessment to check knowledge and understanding of the science covered during year 9</li> </ul>   | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key</li> </ul> |   | <ul style="list-style-type: none"> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Problem solving is a skill that is developed during this</li> </ul> | <ul style="list-style-type: none"> <li>• Develops analytical thinking <b>skills</b>.</li> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops maths knowledge. Develops written and verbal communication <b>skills</b>.</li> </ul> |

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|  |  |  | <p>knowledge understanding</p> <ul style="list-style-type: none"> <li>• <b>Summative assessment</b> that will include the science learnt in modules covered during year 9.</li> <li>• Feedback from the assessments will identify the science that students have not grasped yet and the students will work on activities to help them secure the concepts before moving on to the modules studied in year 10.</li> </ul> | <p>Numeracy: Recognise and use expressions in decimal form<br/>Recognise and use expressions in standard form</p> | <p>term and an essential aspect of all science modules.</p> |  |
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| Year 10 - Content |  | Assessments   |  | Literacy/numeracy focus   | CEIAG  | Personal Development   |
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|                   |  | Topics  | Assessment type  |   |  |  |
| Term 1            | <ul style="list-style-type: none"> <li>• CC5-7: Ionic bonding, covalent bonding, different types of substance</li> </ul> | <ul style="list-style-type: none"> <li>• Ionic bonding</li> <li>• Ionic lattices</li> <li>• Properties of Ionic compounds</li> <li>• Covalent Bonds</li> <li>• Molecular compounds</li> <li>• Allotropes of carbon</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to</li> </ul> | <p><b>Literacy: Use of subject-specific keyword.</b></p> <p><b>Extended writing – answering long-answer questions.</b></p> <p><b>Writing up</b></p> | <ul style="list-style-type: none"> <li>• Studying science means that the students are well placed to succeed in any job where data handling or research skills are important. These jobs would not necessarily have</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication <b>skills</b>.</li> <li>• Develops analytical thinking <b>skills</b>.</li> </ul> |



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|  | <ul style="list-style-type: none"> <li>• CB6: Plant structures and their functions</li> </ul> <p>CP2: Forces and Motion</p> <ul style="list-style-type: none"> <li>• CC14: Rate of reaction</li> </ul> <ul style="list-style-type: none"> <li>• Review and assessment</li> </ul> | <ul style="list-style-type: none"> <li>• Properties of metals</li> <li>• Bonding Models</li> </ul><br><ul style="list-style-type: none"> <li>• Photosynthesis</li> <li>• Factors that affect photosynthesis</li> <li>• <b>Core practical</b> – light intensity and photosynthesis</li> <li>• Absorbing water and mineral ions</li> <li>• Transpiration and translocation</li> </ul><br><ul style="list-style-type: none"> <li>• Resultant forces</li> <li>• Newton’s first law</li> <li>• Mass and weight</li> <li>• Newton’s second law</li> <li>• Core Practical – Investigating acceleration</li> <li>• Newton’s third law</li> <li>• Momentum</li> <li>• Stopping distances</li> <li>• Crash hazards</li> </ul><br><ul style="list-style-type: none"> <li>• <b>Core Practical Part 1</b> -Rates of Reaction</li> <li>• <b>Core Practical Part 2</b> -Factors Affecting Reaction Rates</li> <li>• Core Practical Evaluation- Investigating Reaction Rates</li> </ul> | <p>check key knowledge understanding</p> <ul style="list-style-type: none"> <li>• <b>Summative assessment</b> that will include the science learnt in modules covered during year 9.</li> </ul> | <p><b>scientific investigations.</b></p> <p>Numeracy:<br/>Recognise and use expressions in decimal form<br/>Recognise and use expressions in standard form</p> <p>Numeracy:<br/>Recognise and use expressions in decimal form Use an appropriate number of significant figures</p> <p>Numeracy:<br/>Recognise and use expressions in decimal form Use an appropriate number of significant figures</p> <p>Numeracy:<br/>Substitute numerical values into algebraic equations using appropriate units for physical quantities<br/>Solve simple algebraic equations</p> | <p>to be restricted to science-based employers.</p> |  |
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| Term<br>2 | <ul style="list-style-type: none"> <li>• CB3: Genetics</li> <br/> <li>• CP12/13: The particle model</li> <br/> <li>• SC9: Calculations involving masses (triple)</li> <br/> <li>• SP7: Space (triple)</li> </ul> | <ul style="list-style-type: none"> <li>• Meiosis</li> <li>• DNA</li> <li>• Alleles</li> <li>• Inheritance</li> <li>• Gene mutation</li> <li>• Variation</li> <br/> <li>• Particles and density</li> <li>• <b>Core practical – investigating density</b></li> <li>• Energy and changes of state</li> <li>• Energy calculations</li> <li>• <b>Core practical – investigating water</b></li> <br/> <li>• <b>Masses and empirical formula</b></li> <li>• <b>Conservation of mass</b></li> <li>• <b>Moles</b></li> <br/> <li>• <b>Solar system</b></li> <li>• <b>Gravity and orbits</b></li> <li>• <b>Life cycle of stars</b></li> <li>• <b>Red shift</b></li> <li>• <b>Origins of the universe</b></li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p>Numeracy:<br/>Construct and interpret frequency tables and diagrams, bar charts and histograms<br/>Understand simple probability</p><br><p>Numeracy: Make estimates of the results of simple calculations.<br/>Construct and interpret frequency tables and diagrams, bar charts and histograms</p><br><p>Numeracy:<br/>Recognise and use expressions in standard form<br/>Use ratios, fractions and percentages<br/>Understand and use the symbols: =, &lt;, &lt;&lt;, &gt;&gt;, &gt;, α, ~<br/>Change the subject of an equation<br/>Substitute numerical values into algebraic equations using appropriate units</p> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops planning and organisational skills</li> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> </ul> |
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|        |   |   |   | for physical quantities   |  |  |
| Term 3 | <ul style="list-style-type: none"> <li>CC16/17: Fuels / Earth and Atmospheric science</li> <li>CB4: Natural Selection and Genetic Modification</li> </ul> | <ul style="list-style-type: none"> <li>Hydrocarbons in crude oil and natural gas</li> <li>Fractional Distillation of Crude Oil</li> <li>The alkane homologous series</li> <li>Complete and incomplete combustion</li> <li>Combustible fuels and pollution</li> <li>Breaking down hydrocarbons</li> <li>The early atmosphere</li> <li>The changing atmosphere</li> <li>The atmosphere today</li> <li>Climate change</li> <li>Evidence for human evolution</li> <li>Darwin's theory</li> <li><b>Development of Darwin's theory (triple)</b></li> <li>Classification</li> <li>Breeds and varieties</li> <li><b>Tissue culture (triple)</b></li> <li>Genes in agriculture and medicine</li> <li><b>GM and agriculture (triple)</b></li> </ul> | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> <li><b>Summative assessment</b> that will include the science learnt in modules covered during year 9 and 10 to date.</li> </ul> | <p>Numeracy: Use an appropriate number of significant figures<br/>Use a scatter diagram to identify a correlation between two variables</p> <p>Numeracy: Change the subject of an equation<br/>Substitute numerical values into algebraic equations using appropriate units for physical quantities</p> | <ul style="list-style-type: none"> <li>Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>Data analysis is a work – related skill that is developed this term</li> </ul> | <ul style="list-style-type: none"> <li>Develops numeracy and problem-solving skills</li> <li>Develops skills of analysis and presentation</li> </ul> |



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|                   |  | <ul style="list-style-type: none"> <li>• <b>Fertilisers and biological control (triple)</b></li> </ul>   |  |  |  |   |
| <p>Term<br/>4</p> | <ul style="list-style-type: none"> <li>• CP6: Radioactivity</li> <li>• <b>Qualitative analysis (triple)</b></li> <li>• CC15: Energy Changes in chemical reactions</li> <li>• <b>SP6: Radiation (Triple)</b></li> </ul> | <ul style="list-style-type: none"> <li>• Atomic models</li> <li>• Inside atoms</li> <li>• Electrons and orbits</li> <li>• Background radiation</li> <li>• Types of radiation</li> <li>• Half-life</li> <li>• Dangers of radioactivity</li> <li>• <b>Flame tests</b></li> <li>• <b>Tests for positive and negative ions</b></li> <li>• <b>Core practical – Identifying ions</b></li> <li>• <b>Choosing materials</b></li> <li>• <b>Composite materials</b></li> <li>• <b>Nanoparticles</b></li> <li>• Catalysts and Activation Energy</li> <li>• Exothermic and Endothermic Reactions</li> <li>• Energy Changes in Reactions</li> <li>• <b>Atomic models</b></li> <li>• <b>Inside atoms</b></li> <li>• <b>Electrons and orbits</b></li> <li>• <b>Background radiation</b></li> <li>• <b>Types of radiation</b></li> <li>• <b>Radioactive decay</b></li> <li>• <b>Half-life</b></li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p>Numeracy:<br/>Construct and interpret frequency tables and diagrams, bar charts and histograms Use a scatter diagram to identify a correlation between two variables.<br/>Translate information between graphical and numeric form</p> <p>Understand that <math>y = mx + c</math> represents a linear relationship. Plot two variables from experimental or other data. Determine the slope and intercept of a linear graph</p> <p>Numeracy:<br/>Recognise and use expressions in decimal form Use an appropriate number of significant figures</p> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>• Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>• The physics covered this term lies at the heart of almost all new technologies.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops planning and organisational skills</li> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> <li>• Develops skills of observation and measurement.</li> </ul> |

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|                   |  | <ul style="list-style-type: none"> <li>• <b>Dangers of radioactivity</b></li> <li>• <b>Radioactivity in medicine</b></li> <li>• <b>Nuclear energy</b></li> <li>• <b>Nuclear fission and fusion</b></li> </ul>   |  |  |  |   |
| <p>Term<br/>5</p> | <ul style="list-style-type: none"> <li>• CC9: Calculations involving Masses</li> <li>• CB8: Exchange and transport in animals</li> <li>• <b>SC22-24 (triple): Hydrocarbons, alcohols and polymers</b></li> </ul> | <ul style="list-style-type: none"> <li>• Masses and empirical formula</li> <li>• Conservation of mass</li> <li>• Moles</li> <li>• Efficient transport and exchange</li> <li>• The circulatory system</li> <li>• The heart</li> <li>• Cellular respiration</li> <li>• <b>Core practical – Respiration rates</b></li> <li>• <b>Alkanes and alkenes</b></li> <li>• <b>Reactions of alkanes and alkenes</b></li> <li>• <b>Ethanol production</b></li> <li>• <b>Alcohols</b></li> <li>• <b>Core practical – Combustion of alcohols</b></li> <li>• <b>Carboxylic acids</b></li> <li>• <b>Addition polymerisation</b></li> <li>• <b>Polymer properties and uses</b></li> <li>• <b>Condensation polymers</b></li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p>Numeracy: Use ratios, fractions and percentages</p> <p>Numeracy: Visualise and represent 2D and 3D forms including two-dimensional representations of 3D objects. Recognise and use expressions in decimal form Use ratios, fractions and percentages Construct and interpret</p> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>• Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>• Studying science means that the students are well placed to succeed in any job where data handling or research skills are important. These jobs would not necessarily have to be restricted to science-based employers.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops planning and organisational skills</li> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> <li>• Develops skills of observation and measurement.</li> </ul> |

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|               | <ul style="list-style-type: none"> <li>CP9 Electricity and Circuits</li> </ul>   | <ul style="list-style-type: none"> <li><b>Problems with polymers</b></li> <li>Electric circuits</li> <li>Current and potential difference</li> <li>Current charge and energy</li> <li>Resistance</li> <li>More about resistance</li> <li>Core practical – Investigating resistance</li> <li>Transferring energy</li> <li>Power</li> <li>Transferring energy by electricity</li> <li>Electrical safety</li> </ul> |   | <p>frequency tables and diagrams, bar charts and histograms</p>   |   |   |
| <p>Term 6</p> | <ul style="list-style-type: none"> <li>Review and preparation for the end of year assessment (Paper 1 biology and physics, paper 2 chemistry)</li> <li>Feedback and closing the gap activities following the end of year assessment</li> <li>CP7/8 Energy: Forces doing work / Forces and their effects</li> </ul> | <ul style="list-style-type: none"> <li>Review of year 9 and 10 content to build knowledge.</li> <li>Past paper questions to practise exam technique.</li> <li>Targeted activities to develop skills knowledge and understanding identified from the summative assessment</li> <li>Work and power</li> <li>Objects affecting each other</li> <li>Vector diagrams</li> </ul>                                       | <p>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding <b>Summative assessment</b> that will consist of the GCSE past papers that cover the science learnt in modules covered during year 9 and 10. (Biology and Physics paper 1, Chemistry paper 2)</p> | <p>Numeracy: Recognise and use expressions in decimal form Recognise and use expressions in standard form Make estimates of the results of simple calculations Use an appropriate number of significant figures Understand and use the symbols: =, &lt;, &lt;&lt;, &gt;&gt;, &gt;, α, ~ Substitute numerical values into algebraic equations using appropriate units for physical</p> | <ul style="list-style-type: none"> <li>Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>Studying science means that the students are well placed to succeed in any job where data handling or research skills are important. These jobs would not necessarily have to be restricted to science-based employers.</li> <li>The physics covered this term lies at the heart of almost all new technologies.</li> </ul> | <ul style="list-style-type: none"> <li>Develops planning and organisational skills</li> <li>Develops numeracy and problem-solving skills</li> <li>Develops skills of analysis and presentation</li> <li>Develops team working</li> <li>Develops skills of observation and measurement.</li> </ul> |

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|  |  |  |  | <p>quantities. Solve simple algebraic equations</p> <p>Numeracy:<br/>Recognise and use expressions in decimal form.<br/>Recognise and use expressions in standard form</p> |  |  |
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| Year 11 - Content |  | Assessments  |  | Literacy/numeracy focus  | CEIAG  | Personal Development  |
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|                   |  | Topics   | Assessment type  |  |  |   |
| Term 1            | <ul style="list-style-type: none"> <li>CP10/11: Magnetism</li> <li>CP9 Electricity and Circuits</li> </ul> | <ul style="list-style-type: none"> <li>Magnets and magnetic fields</li> <li>Electromagnetism</li> <li>Transformers</li> <li>Transformers and energy</li> <li>Electric circuits</li> <li>Current and potential difference</li> <li>Current charge and energy</li> <li>Resistance</li> <li>More about resistance</li> <li>Core practical – Investigating resistance</li> <li>Transferring energy</li> <li>Power</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p>Numeracy:<br/>Recognise and use expressions in decimal form<br/>Use ratios, fractions and percentages</p> <p>Numeracy: Make estimates of the results of simple calculations.<br/>Construct and interpret frequency tables and diagrams, bar charts and histograms</p> | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and measurement.</li> <li>Develops numeracy and problem-solving skills</li> </ul> |



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|  | <ul style="list-style-type: none"><li>• CB9: Ecosystems and material cycles</li><li>• CC8: Acids and neutralisation</li></ul> | <ul style="list-style-type: none"><li>• Transferring energy by electricity</li><li>• Electrical safety</li><li>• Ecosystems</li><li>• Abiotic factors and communities</li><li>• Core practical- Quadrats and transects</li><li>• Biotic factors and communities</li><li>• Parasitism and mutualism</li><li>• Biodiversity and humans</li><li>• Preserving biodiversity</li><li>• The water cycle</li><li>• The nitrogen cycle</li><li>• Acids, alkalis and indicators</li><li>• Looking at acids</li><li>• Bases and salts</li><li>• CORE PRACTICAL: Preparing copper sulfate</li><li>• Balancing equations</li><li>• CORE PRACTICAL: Investigating neutralisation</li><li>• Alkalis and neutralisation</li><li>• Reactions of acids with metals</li></ul> |  | Numeracy:<br>Construct and interpret frequency tables |  |  |  |
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|        |  | <ul style="list-style-type: none"> <li>Reactions of acids and carbonates</li> <li>Solubility</li> </ul>   |  | and diagrams, bar charts and histograms  |  |   |
| Term 2 | <ul style="list-style-type: none"> <li>CC10: Electrolytic Processes</li> <li>CC11: Obtaining and Using Metals</li> <li>CC12: Reversible reactions and equilibria</li> </ul> <p>• Feedback and closing the gap activities following PPE1</p> <ul style="list-style-type: none"> <li>CB8: Exchange and transport in animals</li> </ul> | <ul style="list-style-type: none"> <li>Electrolysis</li> <li><b>Core practical</b> – Electrolysis of copper sulphate solution</li> <li>Products from electrolysis</li> <li>Reactivity</li> <li>Ores</li> <li>Oxidation and reduction</li> <li>Life cycle assessment and recycling D</li> <li>Dynamic equilibrium</li> </ul> <p>• Targeted activities to develop skills knowledge and understanding identified from the summative assessment</p> <ul style="list-style-type: none"> <li>Efficient transport and exchange</li> <li>The circulatory system</li> <li>The heart</li> <li>Cellular respiration</li> </ul> | <ul style="list-style-type: none"> <li><b>Summative assessment</b> that will consist of the GCSE past papers from the previous year</li> <li>On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p>Numeracy: Translate information between graphical and numeric form</p> <p>Numeracy: Make estimates of the results of simple calculations Use an appropriate number of significant figures Find arithmetic means Construct and interpret frequency tables and diagrams, bar charts and histograms Change the subject of an equation Plot two</p> | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and work as a team to make accurate observations and record the results.</li> <li>Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and measurement.</li> <li>Develops maths knowledge</li> </ul> |



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|               |  | <ul style="list-style-type: none"> <li>• <b>Core practical – Respiration rates</b></li> </ul>  |  | <p>variables from experimental or other data. Draw and use the slope of a tangent to a curve as a measure of rate of change</p> |  |  |
| <p>Term 3</p> | <ul style="list-style-type: none"> <li>• CB7: Animal coordination, control and homeostasis</li> <li>• Review and preparation for GCSE exams</li> </ul> | <ul style="list-style-type: none"> <li>• Hormones</li> <li>• Hormonal control of metabolic rate</li> <li>• The menstrual cycle</li> <li>• Hormones and the menstrual cycle</li> <li>• Control of blood glucose</li> <li>• Type 2 diabetes</li> <li>• Review of years 9-11 content on a topic rota to build knowledge.</li> <li>• Past paper questions to practise exam technique</li> <li>• Targeted activities to develop skills knowledge and understanding</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <p>Numeracy: Recognise and use expressions in decimal form. Recognise and use expressions in standard form</p>                  | <ul style="list-style-type: none"> <li>• Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> |  |

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| <p>Term 4</p> | <ul style="list-style-type: none"> <li>• PPE2</li> <li>• Review and preparation for GCSE exams</li> </ul> | <ul style="list-style-type: none"> <li>• GCSE paper 2</li> <li>• Review of years 9-11 content on a topic rota to build knowledge.</li> <li>• Past paper questions to practise exam technique</li> <li>• Targeted activities to develop skills knowledge and understanding</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Summative assessment</b> that will consist of the GCSE past papers from the previous year</li> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <ul style="list-style-type: none"> <li>•</li> </ul> | <ul style="list-style-type: none"> <li>• Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> |  |
| <p>Term 5</p> | <ul style="list-style-type: none"> <li>• Review and preparation for GCSE exams</li> </ul>                 | <ul style="list-style-type: none"> <li>• Review of years 9-11 content on a topic rota to build knowledge.</li> <li>• Past paper questions to practise exam technique</li> <li>• Targeted activities to develop skills knowledge and understanding</li> </ul>                         | <ul style="list-style-type: none"> <li>• On-going in class <b>formative assessment</b> using quizzes and regular progress checks to check key knowledge understanding</li> </ul>   | <ul style="list-style-type: none"> <li>•</li> </ul> | <ul style="list-style-type: none"> <li>• Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> |  |



| Year 12 - Content |  | Assessments  |   | CEIAG   | Personal Development  |
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|                   |  | Topics   | Assessment type   |   |   |
| Term 1            | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>Development of practical skills in Biology</li> </ul> | <ul style="list-style-type: none"> <li>Planning investigations</li> <li>Implementing investigations</li> <li>Qualitative and quantitative data</li> <li>Graphs</li> <li>Evaluation</li> </ul>  | <ul style="list-style-type: none"> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> </ul> | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>Problem solving is a skill that is developed during this term and an essential aspect of all science modules.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops planning and observational skills</li> <li>Develops maths knowledge.</li> <li>Develops written and verbal communication skills.</li> <li>Develops analytical thinking skills</li> </ul> |
|                   | <ul style="list-style-type: none"> <li>Cell structures</li> <li>Biological molecules</li> <li>Enzymes</li> </ul>   | <ul style="list-style-type: none"> <li>Microscopes</li> <li>Slides and photomicrographs</li> <li>Measuring objects with a light microscope</li> <li>Ultrastructure of eukaryotic cells</li> <li>How organelles work together</li> <li>Prokaryotic cells</li> <li>Molecular bonding</li> <li>Properties of water</li> <li>Carbohydrates: sugars, energy stores and structures</li> <li>Lipids: triglycerides, phospholipids and cholesterol</li> <li>Proteins – amino acids, structure and bonding, fibrous and globular proteins</li> <li>Enzymes as catalysts</li> <li>Cofactors</li> <li>Mechanics of enzyme action</li> </ul> | <ul style="list-style-type: none"> <li>Summative assessment that will include the science learnt in modules covered last term.</li> </ul>                               |   |   |



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|  | <p><b>Chemistry</b></p> <ul style="list-style-type: none"> <li>Foundations in chemistry</li> </ul>                        | <ul style="list-style-type: none"> <li>Effects of temperature of enzyme activity</li> <li>Atomic structure and isotopes</li> <li>Relative mass</li> <li>Formulae and equations</li> <li>Amount of substance and the mole</li> <li>Determination of formulae</li> <li>Moles and volumes</li> <li>Reacting quantities</li> <li>Electron Configurations</li> <li>Ionic Bonding and structure</li> <li>Covalent bonding</li> <li>Shapes of molecules</li> <li>Electronegativity and polarity</li> <li>Hydrogen bonding</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine.</li> </ul>   | <ul style="list-style-type: none"> <li>Develops planning and organisational skills</li> <li>Develops numeracy and problem-solving skills</li> <li>Develops skills of analysis and presentation</li> <li>Develops team working</li> <li>Develops skills of observation and measurement.</li> </ul> |
|  | <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>Foundations of physics</li> <li>Forces and motion</li> </ul> | <ul style="list-style-type: none"> <li>Quantities</li> <li>Derived units</li> <li>Scalar and vector quantities</li> <li>Adding vectors</li> <li>Resolving vectors</li> <li>Distance and speed</li> </ul>  | <ul style="list-style-type: none"> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>Summative assessment that will include the Physics learnt in modules</li> </ul>  | <ul style="list-style-type: none"> <li>A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don't go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren't</li> </ul> | <ul style="list-style-type: none"> <li>Develops planning and observational skills</li> <li>Develops maths knowledge.</li> <li>Develops analytical thinking skills</li> <li>Develops skills of observation and measurement.</li> </ul>   |

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|               | <ul style="list-style-type: none"> <li>• Forces in action</li> </ul>  | <ul style="list-style-type: none"> <li>• Displacement and velocity</li> <li>• Acceleration</li> <li>• Velocity-time graphs</li> <li>• Equations of motion</li> <li>• Stopping distances</li> <li>• PAG1: Investigating motion</li> <li>• Uncertainty, precision, accuracy</li> <li>• Projectile motion</li> <li>• Force, mass, weight</li> <li>• Centre of mass</li> <li>• Freebody diagrams</li> <li>• Triangle of forces</li> <li>• Drag and velocity</li> </ul>   | <p>covered throughout the two years – both AS and A2 content.</p>  | <p>obvious to others. Physics won't give you all the answers, but it will teach you how to ask the right questions.</p>  |   |
| <p>Term 2</p> | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>• Biological molecules (continued)</li> <li>• Enzymes (continued)</li> </ul> | <ul style="list-style-type: none"> <li>• Inorganic ions</li> <li>• Practical biochemistry – qualitative and quantitative tests for biological molecules</li> <li>• <b>PAG – Qualitative tests for biological molecules</b></li> <li>• Chromatography</li> <li>• <b>PAG – Chromatography</b></li> <li>• Effects of pH on enzyme activity</li> <li>• Effects of substrate concentration on enzyme activity</li> <li>• Effects of enzyme concentration on enzyme activity</li> <li>• Enzyme inhibitors</li> </ul> | <ul style="list-style-type: none"> <li>• Formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Biology learnt in modules covered in the previous term</li> </ul> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication skills.</li> <li>• Develops analytical thinking skills</li> </ul> |

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|  | <ul style="list-style-type: none"> <li>Nucleic acids</li> <li>Cell cycle</li> <li>Biological membranes</li> </ul> <p><b><u>Chemistry</u></b></p> <ul style="list-style-type: none"> <li>Foundations in chemistry</li> <li>The periodic table and energy</li> </ul> | <ul style="list-style-type: none"> <li>PAG – effect of enzyme activity</li> <li>DNA</li> <li>DNA replication</li> <li>DNA coding for polypeptides</li> <li>Cell cycle regulation</li> <li>Mitosis</li> <li>Meiosis</li> <li>Diversity in animal cells</li> <li>Cells diversity in plants</li> <li>Animal tissues</li> <li>Plant tissues and organs</li> <li>Stem cells and their uses</li> <li>Structure of membranes</li> <li>Diffusion across membranes</li> <li>Acids, bases, and neutralisation</li> <li>Acid-base titrations</li> <li>Redox</li> <li>The Periodic Table</li> <li>Ionisation Energies</li> <li>Periodic Trends in bonding and structure</li> <li>Trends in group 2</li> <li>Redox</li> <li>The Halogens</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine.</li> </ul> | <ul style="list-style-type: none"> <li>Develops numeracy and problem-solving skills</li> <li>Develops skills of analysis and presentation</li> <li>Develops team working</li> <li>Develops skills of observation and measurement.</li> <li>Develops planning and organisational skills</li> </ul> |
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|  | <ul style="list-style-type: none"> <li>• Basic concepts of organic chemistry</li> <li>• Alkanes</li> </ul> <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>• Forces in action (continued)</li> <li>• Materials</li> <li>• Work, energy and power</li> <li>• Laws of motion and momentum</li> </ul> | <ul style="list-style-type: none"> <li>• Nomenclature of organic compounds</li> <li>• Isomerism</li> <li>• Introduction to reaction mechanisms</li> <li>• Properties of the alkanes</li> <li>• Chemical reactions of the alkanes</li> <li>• Moments and equilibrium</li> <li>• Couples and torques</li> <li>• Density and pressure</li> <li>• Head of pressure, buoyancy</li> <li>• Springs and Hooke's law</li> <li>• Elastic potential energy of springs</li> <li>• Conservation of energy</li> <li>• Kinetic energy and gravitational potential energy</li> <li>• Power and efficiency</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Physics learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don't go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren't obvious to others. Physics won't give you all the answers, but it will teach you how to ask the right questions.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops analytical thinking skills</li> <li>• Develops skills of observation and measurement.</li> </ul> |
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|           |   | <ul style="list-style-type: none"> <li>• Newton’s first and third laws</li> <li>• Linear momentum</li> <li>• Newton’s second law</li> </ul>  |  |  |   |
| Term<br>3 | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>• Biological membranes (continued)</li> <li>• Exchange surfaces and breathing</li> <li>• Communicable disease</li> </ul> <p><b>Chemistry</b></p> <ul style="list-style-type: none"> <li>• Alkenes</li> </ul> | <ul style="list-style-type: none"> <li>• Osmosis</li> <li>• PAG – osmosis in potatoes</li> <li>• Active transport across membranes</li> <li>• Factors affecting membrane structure and permeability</li> <li>• Exchange surfaces</li> <li>• Mammalian gas exchange system</li> <li>• Tissues in the gas exchange system</li> <li>• Measuring lung volumes</li> <li>• Gas exchange in other organisms</li> <li>• Organisms that cause disease</li> <li>• Transmission of pathogens</li> <li>• Plant defences against pathogens</li> <li>• Primary defences against disease</li> <li>• Secondary non-specific defences</li> <li>• Specific immune response</li> <li>• Antibodies</li> <li>• The properties of the alkenes</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Biology learnt in modules covered throughout the year</li> <li>• On-going in class formative assessment using quizzes and regular progress</li> </ul> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Studying chemistry opens doors to a range of sectors</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication skills.</li> <li>• Develops analytical thinking skills</li> <li>• Develops numeracy and problem-solving skills</li> </ul> |

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|  | <ul style="list-style-type: none"> <li>Alcohols</li> <li>The periodic table and energy</li> </ul> <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>Materials (continued)</li> <li>Laws of motion and momentum (continued)</li> <li>Electricity</li> <li>Waves 1</li> </ul> | <ul style="list-style-type: none"> <li>Stereoisomerism</li> <li>Reactions of the alkenes</li> <li>Electrophilic addition in alkenes</li> <li>Polymerisation in alkenes</li> <li>Properties of alcohols</li> <li>Reactions of alcohols</li> <li>Qualitative analysis <b>including practical endorsement</b></li> <li>Enthalpy and Hess Law <b>including practical endorsement</b></li> <li>Deformation of materials</li> <li>Stress, strain, young's modulus</li> <li>PAG 2: Investigating properties of materials</li> <li>Impulse</li> <li>Collisions in two dimensions</li> <li>Current and charge</li> <li>Moving charges</li> <li>Kirchoff's laws</li> <li>Mean drift velocity</li> <li>Circuit symbols</li> <li>Potential difference and emf</li> <li>Progressive waves</li> </ul> | <p>checks to check key knowledge understanding</p> <ul style="list-style-type: none"> <li>Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>Summative assessment that will include the Physics learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <p>and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine</p> <ul style="list-style-type: none"> <li>A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don't go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren't obvious to others. Physics won't give you all the answers, but it will teach you how to ask the right questions.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of analysis and presentation</li> <li>Develops team working</li> <li>Develops skills of observation and measurement.</li> <li>Develops planning and organisational skills</li> <li>Develops planning and observational skills</li> <li>Develops maths knowledge.</li> <li>Develops analytical thinking skills</li> <li>Develops skills of observation and measurement.</li> </ul> |
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|           |  | <ul style="list-style-type: none"> <li>• Wave properties</li> <li>• Reflection and refraction</li> <li>• Diffraction and polarisation</li> <li>• Intensity</li> </ul>  |  |  |   |
| Term<br>4 | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>• Communicable disease (continued)</li> <li>• Transport in animals</li> <li>• Biodiversity</li> </ul> <p><b>Chemistry</b></p> <ul style="list-style-type: none"> <li>• Haloalkanes</li> </ul> | <ul style="list-style-type: none"> <li>• Vaccination</li> <li>• Development of drugs</li> <li>• Transport in animals</li> <li>• Blood vessels</li> <li>• Exchange at capillaries</li> <li>• Structure of the heart</li> <li>• Cardiac cycle</li> <li>• Transport of oxygen</li> <li>• Transporting carbon dioxide</li> <li>• Biodiversity</li> <li>• Sampling plants and animals</li> <li>• <b>PAG – calculating biodiversity</b></li> <li>• Calculating biodiversity</li> <li>• Factors affecting biodiversity</li> <li>• Maintaining biodiversity</li> <li>• Conservation in situ and ex situ</li> <li>• Protection of species and habitats</li> <li>• The chemistry of the haloalkanes</li> <li>• Organohalogen compounds in the environment</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Biology learnt in modules covered throughout the year</li> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key</li> </ul> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist,</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication skills.</li> <li>• Develops analytical thinking skills</li> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> <li>• Develops skills of observation and measurement.</li> </ul> |



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|               | <ul style="list-style-type: none"> <li>Organic synthesis</li> <li>The periodic table and energy</li> </ul> <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>Quantum physics</li> <li>Circular motion</li> </ul> | <ul style="list-style-type: none"> <li>Practical techniques in organic chemistry</li> <li>Synthetic routes</li> <li><b>PAG 5</b></li> <li>Bond Enthalpies</li> <li>Reaction rates</li> <li>Catalysts</li> <li>The Boltzmann Distribution</li> <li>Dynamic equilibrium and Le Chatelier's principle</li> <li>Einstein's photoelectric equation</li> <li>Wave-particle duality</li> <li>Radians and angular velocity</li> <li>Centripetal acceleration</li> <li>Exploring centripetal forces</li> </ul> | <p>knowledge understanding</p> <ul style="list-style-type: none"> <li>Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>Summative assessment that will include the Physics learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <p>chemical engineer, teacher, nanotechnologist, biochemist, medicine</p> <ul style="list-style-type: none"> <li>A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don't go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren't obvious to others. Physics won't give you all the answers, but it will teach you how to ask the right questions.</li> </ul> | <ul style="list-style-type: none"> <li>Develops planning and organisational skills</li> <li>Develops planning and observational skills</li> <li>Develops maths knowledge.</li> <li>Develops analytical thinking skills</li> <li>Develops skills of observation and measurement.</li> </ul>                      |
| <p>Term 5</p> | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>Transport in plants</li> <li>Biological classification</li> </ul>  | <ul style="list-style-type: none"> <li>Transport in plants</li> <li>Transport tissues</li> <li>Movement of water</li> <li>Transpiration</li> <li>Adaptions of plants to water availability</li> <li>Translocation</li> <li>Biological classification</li> </ul>   | <ul style="list-style-type: none"> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>Summative assessment that will include the Biology</li> </ul>  | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> </ul>   | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops planning and observational skills</li> <li>Develops maths knowledge.</li> <li>Develops written and verbal communication skills.</li> <li>Develops analytical thinking skills</li> </ul> |

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|  | <p><b>Chemistry</b></p> <ul style="list-style-type: none"> <li>• The periodic table and energy</li> <li>• Analytical techniques</li> <li>• Preparation for assessment</li> </ul> | <ul style="list-style-type: none"> <li>• Features used in classification</li> <li>• Evidence used in classification</li> <li>• Classification and phylogeny</li> <li>• Natural selection</li> <li>• Variation</li> <li>• Applying statistical techniques</li> <li>• Adaptation</li> <li>• Evolution</li> </ul> <ul style="list-style-type: none"> <li>• The Equilibrium constant <math>K_c</math></li> <li>• Mass spectrometry</li> <li>• Infrared spectrometry</li> </ul> | <p>learnt in modules covered throughout the year – past AS exam paper.</p> <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>• Studying science means that the students are well placed to succeed in any job where data handling or research skills are important. These jobs would not necessarily have to be restricted to science-based employers.</li> <li>• Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>• Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> <li>• Develops skills of observation and measurement.</li> <li>• Develops planning and organisational skills</li> </ul> |
|  | <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>• Energy, power and resistance</li> </ul>   | <ul style="list-style-type: none"> <li>• Thermionic emission</li> <li>• Resistance</li> <li>• I-V characteristics</li> <li>• PAG 3: Investigating electrical properties</li> </ul>   | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key</li> </ul>   | <ul style="list-style-type: none"> <li>• A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don't go on to</li> </ul>   | <ul style="list-style-type: none"> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops analytical thinking skills</li> </ul>  |

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|               | <ul style="list-style-type: none"> <li>• Waves 1 (continued)</li> </ul>  | <ul style="list-style-type: none"> <li>• Diodes</li> <li>• Resistivity</li> <li>• Electromagnetic waves</li> <li>• Polarisation</li> <li>• Refractive index</li> <li>• Total internal reflection</li> <li>• Superposition</li> </ul>   | <p>knowledge understanding</p> <ul style="list-style-type: none"> <li>• Summative assessment that will include the Physics learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul>  | <p>become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren't obvious to others. Physics won't give you all the answers, but it will teach you how to ask the right questions.</p>   | <ul style="list-style-type: none"> <li>• Develops skills of observation and measurement.</li> </ul>   |
| <p>Term 6</p> | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>• Communication and homeostasis</li> <li>• Excretion</li> <li>• Neuronal communication</li> <li>• Hormonal communication</li> </ul> | <ul style="list-style-type: none"> <li>• The need for communication systems</li> <li>• Homeostasis</li> <li>• Temperature control in endotherms and ectotherms</li> <li>• Excretion</li> <li>• Structure and function of the liver</li> <li>• Kidney structure and function</li> <li>• Osmoregulation</li> <li>• Kidney failure</li> <li>• Sensory receptors</li> <li>• Structure and function of neurones</li> <li>• Action potentials</li> <li>• Nerve impulse transmission</li> <li>• Synapses</li> <li>• Endocrine communication</li> <li>• Adrenal glands</li> <li>• The pancreas and release of insulin</li> <li>• Regulating blood glucose</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Biology learnt in modules covered throughout the year – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication skills.</li> <li>• Develops analytical thinking skills</li> </ul> |



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|  | <p><b><u>Chemistry</u></b></p> <ul style="list-style-type: none"> <li>• Transition elements</li> <li>• Qualitative analysis</li> </ul> <p><b><u>Physics</u></b></p> <ul style="list-style-type: none"> <li>• Energy, power and resistance (continued)</li> <li>• Quantum physics (continued)</li> <li>• Waves 2</li> </ul> | <ul style="list-style-type: none"> <li>• Diabetes</li> <li>• D-block elements</li> <li>• The formation and shapes of complex ions</li> <li>• Stereoisomerism in complex ions</li> <li>• Ligand substitution and precipitation</li> <li>• Redox and qualitative analysis</li> <li>• LDRs and thermistors</li> <li>• PAG 4: Investigating electrical circuits</li> <li>• Electrical energy and power</li> <li>• Paying for electricity</li> <li>• The quantum model</li> <li>• Photoelectric effect</li> <li>• PAG 6: Investigating quantum effects</li> <li>• Interference</li> <li>• Young’s double slit experiment</li> <li>• Stationary waves</li> <li>• Harmonics</li> <li>• Stationary waves in air columns</li> <li>• PAG 5: Investigating waves</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Physics learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine.</li> <li>• A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don’t go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren’t obvious to others. Physics won’t give you all the answers, but it will teach you how to ask the right questions.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> <li>• Develops skills of observation and measurement.</li> <li>• Develops planning and organisational skills</li> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops analytical thinking skills</li> <li>• Develops skills of observation and measurement.</li> </ul> |
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|  | <ul style="list-style-type: none"> <li>Oscillations</li> </ul> | <ul style="list-style-type: none"> <li>PAG 10: Investigating SHM</li> <li>Oscillations and SHM</li> <li>Analysing SHM</li> <li>SHM and energy</li> <li>Damping and resonance</li> </ul> |  |  |  |
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| Year 13 - Content |  | Assessments   |  | CEIAG  | Personal Development  |
|-------------------|--|---|--|--|---|
|                   |  | Topics  | Assessment type  |  |   |
| Term 1            | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>Plant and animal responses</li> </ul> | <ul style="list-style-type: none"> <li>Plant responses to environment</li> <li>Controlling plant growth</li> <li>Tropisms</li> <li>Uses of plant hormones</li> <li>Mammalian nervous system</li> <li>The brain</li> <li>Reflex actions</li> <li>Coordinating response</li> <li>Controlling heart rate</li> <li>Muscles</li> <li>Muscle contraction</li> </ul> | <ul style="list-style-type: none"> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>Summative assessment that will include the Biology learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> | <ul style="list-style-type: none"> <li>Develops skills of observation and paying attention to detail.</li> <li>Develops planning and observational skills</li> <li>Develops maths knowledge.</li> <li>Develops written and verbal communication skills.</li> <li>Develops analytical thinking skills</li> </ul> |

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|  | <ul style="list-style-type: none"> <li>• Photosynthesis</li> <li>• Cellular control</li> </ul> <p><b><u>Chemistry</u></b></p> <ul style="list-style-type: none"> <li>• Rates of reaction</li> <li>• Organic synthesis</li> </ul> | <ul style="list-style-type: none"> <li>• <b>PAG – investigation into plant/animal response</b></li> <li>• Photosynthesis and respiration</li> <li>• Chlorophyll and photosynthetic pigments</li> <li>• Light-dependant stage</li> <li>• Light-independent stage</li> <li>• Factors affecting photosynthesis</li> <li>• PAG – factors affecting photosynthesis</li> <li>• Gene mutation</li> <li>• Regulation of gene expression</li> <li>• Genetic control of bod plan development</li> <li>• Orders, rate equations, and rate constants</li> <li>• Concentration-time graphs</li> <li>• Rate-concentration graphs and initial rates</li> <li>• Rate-determining step</li> <li>• Rate constants and temperature</li> <li>• Practical techniques in organic chemistry</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge</li> <li>• Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> <li>• Develops skills of observation and measurement.</li> <li>• Develops planning and organisational skills</li> </ul> |
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|  | <ul style="list-style-type: none"> <li>• Carbonyl compounds and carboxylic acids</li> <li>• Aromatic compounds</li> </ul> <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>• Oscillations</li> <li>• Particle physics</li> <li>• Radioactivity</li> <li>• Thermal physics</li> </ul> | <ul style="list-style-type: none"> <li>• Synthetic routes</li> <li>• PAG 5</li> <li>• Carbonyl compounds</li> <li>• Identifying aldehydes and ketones</li> <li>• Carboxylic acids</li> <li>• Carboxylic acid derivatives</li> <li>• Introducing benzene</li> <li>• Electrophilic reactions of benzene</li> <li>• PAG 10: Investigating SHM</li> <li>• Oscillations and SHM</li> <li>• Analysing SHM</li> <li>• SHM and energy</li> <li>• Damping and resonance</li> <li>• Atomic model theories/history</li> <li>• The nucleus</li> <li>• Antiparticles, hadrons and leptons</li> <li>• Quarks</li> <li>• Beta decay</li> <li>• Radioactivity</li> <li>• Nuclear decay equations</li> <li>• Half-life and activity</li> <li>• Modelling radioactive decay</li> <li>• Temperature</li> <li>• Internal energy</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Physics learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don't go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren't obvious to others. Physics won't give you all the answers, but it will teach you how to ask the right questions.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops analytical thinking skills</li> <li>• Develops skills of observation and measurement.</li> </ul> |
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|               |  | <ul style="list-style-type: none"> <li>• Specific heat capacity</li> <li>• Specific latent heat</li> </ul>  |  |  |   |
| <p>Term 2</p> | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>• Respiration</li> <li>• Patterns of inheritance</li> </ul> | <ul style="list-style-type: none"> <li>• The need for respiration</li> <li>• Glycolysis</li> <li>• Mitochondria structure</li> <li>• Link reaction and Krebs cycle</li> <li>• Oxidative phosphorylation and chemiosmotic theory</li> <li>• Anaerobic respiration in eukaryotes</li> <li>• Respiration in yeast</li> <li>• Respiratory substrates</li> <li>• Factors affecting rate of respiration</li> <li>• Genetic variation</li> <li>• Monogenic and dihybrid inheritance</li> <li>• Multiple alleles</li> <li>• Sex linkage</li> <li>• Codominance</li> <li>• Autosomal linkage</li> <li>• Epistasis</li> <li>• Chi-squared test</li> <li>• Discontinuous and continuous variation</li> <li>• Factors affecting evolution of a species</li> <li>• Hardy-Weinberg principle</li> <li>• Isolating mechanisms</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Biology learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication skills.</li> <li>• Develops analytical thinking skills</li> </ul> |



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|  | <ul style="list-style-type: none"> <li>• Manipulating genomes</li> </ul> <p><b>Chemistry</b></p> <ul style="list-style-type: none"> <li>• Equilibrium</li> <li>• Acids, bases and pH</li> <li>• Aromatic compounds (continued)</li> <li>• Amines, amino acids and polymers</li> </ul> | <ul style="list-style-type: none"> <li>• Artificial selection</li> <li>• <b>PAG - investigation using computer modelling</b></li> <li>• DNA sequencing</li> <li>• Applications of gene sequencing</li> <li>• DNA profiling</li> <li>• Polymerase chain reaction</li> <li>• Electrophoresis</li> <li>• Genetic engineering</li> <li>• Issues with genetic manipulation</li> <li>• Gene therapy</li> <li>• The equilibrium constant <math>K_c</math></li> <li>• The equilibrium constant <math>K_p</math></li> <li>• Controlling the position of equilibrium</li> <li>• Bronsted-Lowry acids and bases</li> <li>• The pH scale and strong acids</li> <li>• The acid dissociation constant <math>K_a</math></li> <li>• The pH of weak acids</li> <li>• pH and strong bases</li> <li>• The chemistry of phenol</li> <li>• Directing groups</li> <li>• Amines</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine</li> </ul> | <ul style="list-style-type: none"> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> <li>• Develops skills of observation and measurement.</li> <li>• Develops planning and organisational skills</li> </ul> |
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|               | <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>• Radioactivity (continued)</li> <li>• Ideal gases</li> <li>• Gravitational fields</li> <li>• Cosmology</li> </ul> | <ul style="list-style-type: none"> <li>• Amino acids, amides, and chirality</li> <li>• Condensation polymers</li> <li>• Radioactive decay calculations</li> <li>• Radioactive dating</li> <li>• PAG 7: Investigating radiation</li> <li>• Kinetic theory of gases</li> <li>• Gas laws</li> <li>• RMS speed</li> <li>• The Boltzmann constant</li> <li>• PAG 8: Investigating gases</li> <li>• Gravitational fields</li> <li>• Newton’s laws of gravitation</li> <li>• Astronomical distances</li> <li>• The Doppler effect</li> <li>• Hubble’s law</li> <li>• The Big Bang theory</li> <li>• Evolution of the Universe</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Physics learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don’t go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren’t obvious to others. Physics won’t give you all the answers, but it will teach you how to ask the right questions.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops analytical thinking skills</li> <li>• Develops skills of observation and measurement.</li> </ul>   |
| <p>Term 3</p> | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>• Cloning and biotechnology</li> </ul>   | <ul style="list-style-type: none"> <li>• Natural clones</li> <li>• Clones in plants</li> <li>• Artificial clones in animals</li> <li>• Introduction to biotechnology</li> <li>• Using biotechnology to make food</li> </ul>   | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will</li> </ul>  | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to</li> </ul>   | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication skills.</li> <li>• Develops analytical thinking skills</li> </ul> |



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|  | <ul style="list-style-type: none"> <li>Ecosystems</li> <li>Revision of Year 12 topics</li> </ul> <p><b>Chemistry</b></p> <ul style="list-style-type: none"> <li>Buffers and neutralisation</li> <li>Enthalpy and entropy</li> <li>Organic synthesis</li> </ul> | <ul style="list-style-type: none"> <li>Microorganisms cultures</li> <li>Population growth in closed cultures</li> <li>Immobilised enzymes</li> <li>Ecosystems</li> <li>Transfer of biomass</li> <li>Manipulating transfer of biomass</li> <li>Recycling within ecosystems</li> <li>Succession</li> <li>Studying ecosystems</li> <li>Revision of topics highlighted in summative assessments to focus on in lessons</li> <li>Buffer solutions</li> <li>Buffer solutions in the body</li> <li>Neutralisation</li> <li>Lattice enthalpy</li> <li>Enthalpy changes in solution</li> <li>Factors affecting lattice enthalpy and hydration</li> <li>Entropy</li> <li>Free energy</li> <li>Carbon-carbon bond formation</li> <li>Further practical techniques</li> </ul> | <p>include the Biology learnt in modules covered throughout the two years – both AS and A2 content.</p> <ul style="list-style-type: none"> <li>On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <p>pass the practical aspect of the A-level course</p> <ul style="list-style-type: none"> <li>Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> <li>Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine.</li> </ul> | <ul style="list-style-type: none"> <li>Develops numeracy and problem-solving skills</li> <li>Develops skills of analysis and presentation</li> <li>Develops team working</li> <li>Develops skills of observation and measurement.</li> <li>Develops planning and organisational skills</li> </ul> |
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|               | <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>• Stars</li> <li>• Gravitational fields (continued)</li> </ul>                       | <ul style="list-style-type: none"> <li>• Further synthetic routes</li> <li>• Objects in the universe</li> <li>• Lifecycle of stars</li> <li>• H-R diagram</li> <li>• Energy levels in atoms</li> <li>• Spectra</li> <li>• Analysing starlight</li> <li>• Stellar luminosity</li> <li>• Gravitational field strength</li> <li>• Kepler’s laws</li> <li>• Satellites</li> <li>• Gravitational potential</li> <li>• Gravitational potential energy</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Physics learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don’t go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren’t obvious to others. Physics won’t give you all the answers, but it will teach you how to ask the right questions.</li> </ul>                      | <ul style="list-style-type: none"> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops analytical thinking skills</li> <li>• Develops skills of observation and measurement.</li> </ul>   |
| <p>Term 4</p> | <p><b>Biology</b></p> <ul style="list-style-type: none"> <li>• Populations and sustainability</li> <li>• Preparation for A-level exams</li> </ul> | <ul style="list-style-type: none"> <li>• Population size</li> <li>• Interaction between populations</li> <li>• Conservation and preservation</li> <li>• Sustainable management</li> <li>• Conservation and human needs</li> <li>• Controlling effects of human activities</li> <li>• Revision of AS and A2 topics from year 12+13</li> </ul>   | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Biology learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• Practical skills involve following instructions to set up apparatus and carry out the experiment. The students need to be organised and make accurate observations and record the results to achieve the skills required to pass the practical aspect of the A-level course</li> <li>• Good communication skills are an essential ingredient of a successful career in science or elsewhere and this skill is embedded into the science lessons.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops skills of observation and paying attention to detail.</li> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops written and verbal communication skills.</li> <li>• Develops analytical thinking skills</li> </ul> |



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|  | <p><b>Chemistry</b></p> <ul style="list-style-type: none"> <li>• Chromatography and spectroscopy</li> <li>• Redox and electrode potentials</li> </ul> | <ul style="list-style-type: none"> <li>• Chromatography and functional groups</li> <li>• NMR spectroscopy</li> <li>• C-13 NMR spectroscopy</li> <li>• Proton spectroscopy</li> <li>• Interpreting NMR spectra</li> <li>• Combined techniques</li> <li>• Redox reactions</li> <li>• Manganate (VII) redox titrations</li> <li>• Iodine/thiosulfate redox titrations</li> <li>• Electrode potentials</li> <li>• Predictions from electrode potentials</li> <li>• Storage and fuel cells</li> </ul> | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Chemistry learnt in modules covered throughout the two years – both AS and A2 content.</li> </ul> | <ul style="list-style-type: none"> <li>• Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> <li>• Studying chemistry opens doors to a range of sectors and opportunities, meaning future career are not restricted to the lab, examples include patent attorney, forensic scientist, chemical engineer, teacher, nanotechnologist, biochemist, medicine.</li> </ul> | <ul style="list-style-type: none"> <li>• Develops numeracy and problem-solving skills</li> <li>• Develops skills of analysis and presentation</li> <li>• Develops team working</li> <li>• Develops skills of observation and measurement.</li> <li>• Develops planning and organisational skills</li> </ul> |
|  | <p><b>Physics</b></p> <ul style="list-style-type: none"> <li>• Nuclear physics</li> <li>• Capacitance</li> </ul>                                      | <ul style="list-style-type: none"> <li>• Einstein's mass-energy equation</li> <li>• Binding energy</li> <li>• Nuclear fission</li> <li>• Nuclear fusion</li> <li>• Capacitors in circuits</li> <li>• Energy stored in capacitor</li> <li>• Charging capacitors</li> <li>• Discharging capacitors</li> </ul>  | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment that will include the Physics learnt in modules covered throughout</li> </ul>   | <ul style="list-style-type: none"> <li>• A Level Physics will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don't go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren't obvious to others. Physics won't give you all the answers,</li> </ul>                         | <ul style="list-style-type: none"> <li>• Develops planning and observational skills</li> <li>• Develops maths knowledge.</li> <li>• Develops analytical thinking skills</li> <li>• Develops skills of observation and measurement.</li> </ul>   |

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|               | <ul style="list-style-type: none"> <li>• Medical imaging</li> </ul>  | <ul style="list-style-type: none"> <li>• PAG 9: Investigating capacitors</li> <li>• X-rays</li> <li>• Interaction of X-rays with matter</li> <li>• CAT scans</li> <li>• The gamma camera</li> <li>• PET scans</li> <li>• Ultrasound</li> <li>• Acoustic impedance</li> <li>• Doppler imaging</li> </ul> | <p>the two years – both AS and A2 content.</p>  | <p>but it will teach you how to ask the right questions.</p>  |  |
| <p>Term 5</p> | <p><b>Biology, Chemistry and Physics</b></p> <ul style="list-style-type: none"> <li>• Preparation for A-level exams</li> </ul> | <ul style="list-style-type: none"> <li>• Revision of AS and A2 topics from year 12+13</li> </ul>  | <ul style="list-style-type: none"> <li>• On-going in class formative assessment using quizzes and regular progress checks to check key knowledge understanding</li> <li>• Summative assessment – regular use of A level papers</li> </ul> | <ul style="list-style-type: none"> <li>• Perseverance and resilience are key transferrable skills that will be developed during the preparation for the assessments.</li> </ul> |  |
| <p>Term 6</p> |  |   |   |   |  |