

## Fairfield High School Curriculum Overview – Year 8

Subject	Science	Why do we study these units in Year 8?
Lessons per fortnight	8	<p><b>The Year 8 Science programme builds on the foundations established in Year 7.</b> Following a mastery approach to the KS3 National Science Curriculum, key ideas are revisited in new contexts to strengthen understanding and retention. For example, the Biochemistry unit in Year 8 develops the knowledge of cells first introduced in Year 7. Each unit is designed to expose pupils to core scientific knowledge, while also giving them opportunities to apply this in practical activities and unfamiliar scenarios. Pupils’ science capital is further enriched through a range of trips and extra-curricular workshops offered across the year.</p>
Setting	Mixed ability teaching in mixed tutor groups	

**Students are encouraged to be Responsible Global Citizens** through numerous links to the sustainable development goals embedded within the year 8 programme of study. All science topics are linked to at least one goal and these are explored through their links to the science being explored.

**We ensure all students experience high challenge in the sciences by** differentiating lessons so that ideas can be extended by all students even those making greater than expected progress.

**Literacy work this year includes** the introduction of a wide range of scientific vocabulary. This is explored through various scientific texts and scientific talk.

**Innovation and Creativity opportunities** are included in lessons and via workshops delivered by local universities and employers throughout the year. Through a range of off-site trips pupils are challenged to explore the sciences in all its forms.

**Employability opportunities and skills** are highlighted in lessons throughout the course and supplemented with workshops and trips throughout the year.

Term	Unit title	Knowledge and Understanding/content	Skills	Assessment
1	<b>Digestion and Breathing:-</b>	<ol style="list-style-type: none"> <li>1. Healthy Diet</li> <li>2. Malnutrition</li> <li>3. Digestion System</li> <li>4. Food Tests</li> <li>5. Enzymes</li> <li>6. The Respiratory System</li> <li>7. Gas Exchange</li> <li>8. The Skeletal System</li> <li>9. Muscles</li> <li>10. Lifestyle Choices and Health</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – describing systems, processes, and test results.</li> <li>• <b>Practical techniques</b> – carrying out food tests and experiments safely.</li> <li>• <b>Applying knowledge</b> – linking lifestyle, organs, and health outcomes.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>
1/2	<b>Chemical Reactions:-</b>	<ol style="list-style-type: none"> <li>1. Chemical &amp; Physical Change</li> <li>2. Metals and Non-Metals</li> <li>3. Properties of Metals and Non-Metals</li> <li>4. Metals and Oxygen</li> <li>5. Reactivity of Metals Investigation</li> <li>6. Displacement</li> <li>7. Displacement of Salts</li> <li>8. Balancing Equations</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – noting reactions and property differences clearly.</li> <li>• <b>Practical techniques</b> – carrying out reactivity investigations safely, accurately.</li> <li>• <b>Applying knowledge</b> – predicting reactions, writing and balancing equations.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>

2	<b>Energy (Heating Processes):-</b>	<ol style="list-style-type: none"> <li>1. Energy and Temperature</li> <li>2. Energy in Food</li> <li>3. Energy in Fuels</li> <li>4. Conduction</li> <li>5. Convection</li> <li>6. Radiation</li> <li>7. Insulation Investigation</li> <li>8. Specific Heat Capacity</li> <li>9. Specific Latent Heat</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – measuring temperature, energy, and heat changes.</li> <li>• <b>Practical techniques</b> – using apparatus safely, investigating heat transfer.</li> <li>• <b>Using calculations</b> – applying specific heat capacity and energy formulas.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>
3	<b>Biochemistry:-</b>	<ol style="list-style-type: none"> <li>1. Aerobic Respiration</li> <li>2. Anaerobic Respiration</li> <li>3. Fermentation Investigation</li> <li>4. Photosynthesis</li> <li>5. Rate of Photosynthesis Investigation</li> <li>6. Starch in Leaves.</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – noting changes, evidence, and test results.</li> <li>• <b>Practical techniques</b> – carrying out investigations safely and systematically.</li> <li>• <b>Using calculations</b> – analysing photosynthesis rates and respiration energy yields.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>
3/4	<b>Chemical Reactions and Energy</b>	<ol style="list-style-type: none"> <li>1. Chemical and Physical Change</li> <li>2. Observing Chemical Reactions</li> <li>3. Exothermic Reactions</li> <li>4. Endothermic Reactions</li> <li>5. Catalysts</li> <li>6. Combustion</li> <li>7. Combustion of Fuels</li> <li>8. Thermal Decomposition</li> <li>9. Oxidation</li> <li>10. Extracting Metals</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – noting reaction changes and energy effects.</li> <li>• <b>Practical techniques</b> – carrying out combustion, decomposition, and energy reactions.</li> <li>• <b>Applying knowledge</b> – explaining exothermic, endothermic, and catalyst roles.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>

4	<b>Electricity:-</b>	<ol style="list-style-type: none"> <li>1. Intro to Circuits</li> <li>2. Modelling Circuits</li> <li>3. Series Circuits</li> <li>4. Parallel Circuits</li> <li>5. Measuring Voltage</li> <li>6. Resistance</li> <li>7. Static Electricity</li> <li>8. Magnets</li> <li>9. Making Electromagnets</li> <li>10. Uses of Electromagnets</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – building circuits, noting behaviours and results.</li> <li>• <b>Practical techniques</b> – measuring voltage, current, resistance safely and accurately.</li> <li>• <b>Using calculations</b> – applying circuit equations to solve electrical problems.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>
5	<b>Variation, Inheritance and Evolution:-</b>	<ol style="list-style-type: none"> <li>1. Discontinuous Variation</li> <li>2. Continuous Variation</li> <li>3. Genetic and Environmental Variation</li> <li>4. Chromosomes and DNA</li> <li>5. Determining Characteristics</li> <li>6. Classification</li> <li>7. Competition and Adaptation</li> <li>8. Natural Selection</li> <li>9. Evolution</li> <li>10. Evolutionary Trees</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – describing variation patterns, genetic evidence, plotting graphs.</li> <li>• <b>Comparing and classifying</b> – grouping organisms, traits, and evolutionary relationships.</li> <li>• <b>Interpreting data</b> – analysing graphs, trees, and selection evidence.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>

5/6	<b>Waves:-</b>	<ol style="list-style-type: none"> <li>1. Types of Waves</li> <li>2. Investigation Sound</li> <li>3. The Ear</li> <li>4. Wave Speed</li> <li>5. Microphones and Speakers</li> <li>6. Ultrasound</li> <li>7. Light Waves</li> <li>8. Reflection</li> <li>9. Refraction</li> <li>10. Seeing colour</li> <li>11. Lenses</li> <li>12. The Eye</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – noting wave behaviours and practical results.</li> <li>• <b>Practical techniques</b> – investigating sound, light, reflection, and refraction.</li> <li>• <b>Using calculations</b> – applying wave speed equations.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>
6	<b>Earth Chemistry:-</b>	<ol style="list-style-type: none"> <li>1. Earth's Atmosphere</li> <li>2. Earth's Early Atmosphere</li> <li>3. The Greenhouse Effect</li> <li>4. Global Warming</li> <li>5. Pollutants</li> <li>6. Carbon Footprint</li> <li>7. The Carbon Cycle</li> <li>8. Reduce, Reuses, Recycle</li> <li>9. Life Cycle Assessment</li> <li>10. Extracting Metal using Reduction</li> <li>11. Extracting Metal using Electrolysis</li> </ol>	<ul style="list-style-type: none"> <li>• <b>Observation and recording</b> – describing atmospheric changes and environmental impacts.</li> <li>• <b>Interpreting data</b> – analysing graphs, cycles, and pollutant trends.</li> <li>• <b>Evaluating evidence</b> – comparing processes, impacts, and sustainability options.</li> </ul>	<p><b>Homework:</b> Quizzes set on Educake and Revision task set on Teams.</p> <p><b>Midpoint Assessment (formative only):</b> 10 multiple choice and 1 long answer question.</p> <p><b>End of unit test.</b></p>