

## What are the aims and intentions of this curriculum?

The Year 8 Curriculum Intent is developed to inspire and challenge our students at Rosedale College of all abilities and aspirations.

This Key Stage 3 (KS3) Scheme of Work will help to create engaging lessons and promotes teaching for understanding rather than covering fragmented content. By following the framework within this Scheme of Work, teachers will understand what our students need to know by the end of Year 8 as it relates to Biology, Chemistry and Physics. Using a logical order of objectives, this scheme of work uses big ideas and mastery goals to equip students for success at GCSE. It also provides a method to follow student progress as their understanding develops during KS3.

Finally, in order for students to reach their potential, students will study the examined content with a mastery of ideas and skills. This Year 8 Scheme of Work will help teacher to identify what mastery looks like. This Scheme of Work can be used with the accompanying resources to help our students develop their knowledge, from understanding to application.

Term	Topics	Knowledge and key terms	Skills developed	Assessment
Summer 2	Physics <b>Waves</b> <ul style="list-style-type: none"> <li>• Sound</li> <li>• Light</li> </ul>	Students will learn: <ul style="list-style-type: none"> <li>- That higher-pitched sounds have a greater frequency (and therefore a shorter wavelength).</li> <li>- The definitions of the terms incident ray, reflected ray, normal line, angle of reflection, angle of incidence, refraction, absorption, scattering, transparent, translucent, opaque, convex lens, concave lens and retina.</li> </ul>	Students are able to: <ul style="list-style-type: none"> <li>- Describe the amplitude and frequency of a wave from a diagram or oscilloscope picture.</li> <li>- Draw ray diagrams to show how light reflects off mirrors, forms images and refracts.</li> </ul>	Enquiry: <ul style="list-style-type: none"> <li>- Heliographs</li> </ul> The Big Idea End of Chapter Assessment
Autumn 1	Chemistry <b>Matter</b> <ul style="list-style-type: none"> <li>• Elements</li> <li>• Periodic table</li> </ul> <b>Reactions</b> <ul style="list-style-type: none"> <li>• Types of reactions</li> <li>• Chemical energy</li> </ul>	Students will learn: <ul style="list-style-type: none"> <li>- The definitions of the terms element, atom, molecule, compound, chemical formula and polymer.</li> <li>- The names of groups 1, 7 and 0 and give general descriptions of the characteristic properties of the elements in each of these groups.</li> <li>- That combustion is a reaction with oxygen in which energy is transferred to the surroundings as heat and light.</li> <li>- That if the energy released is greater than the energy required, the reaction is exothermic; if the reverse, it is endothermic.</li> </ul>	Students are able to: <ul style="list-style-type: none"> <li>- Use observations from chemical reactions to decide if an unknown substance is an element or a compound.</li> <li>- Use observations of a pattern in chemical reactions to predict the behavior of an element in a group.</li> <li>- Explain why a given reaction is an example of combustion or thermal decomposition.</li> <li>- Use experimental observations to distinguish between exothermic and endothermic reactions.</li> </ul>	Enquiry: <ul style="list-style-type: none"> <li>- Element or compound?</li> <li>- Developing the periodic table</li> <li>- Burning alcohols</li> <li>- Handwarmers and cold packs</li> </ul> <ul style="list-style-type: none"> <li>- Apply questions</li> <li>- Extended questions</li> </ul>

<p><b>Autumn 2</b></p>	<p>Chemistry</p> <p style="text-align: center;"><b>Earth</b></p> <ul style="list-style-type: none"> <li>• Climate</li> <li>• Earth resources</li> </ul> <p>Biology</p> <p style="text-align: center;"><b>Organisms</b></p> <ul style="list-style-type: none"> <li>• Breathing</li> <li>• Digestion</li> </ul>	<p>Students will learn:</p> <ul style="list-style-type: none"> <li>- How to describe processes that increase and decrease the amount of carbon dioxide in the atmosphere</li> <li>- How to describe the issues associated with extracting limited natural resources from the Earth.</li> <li>- That oxygen and carbon dioxide move between alveoli and the blood in gas exchange.</li> <li>- What a balanced diet is and why it is important.</li> </ul>	<p>Students are able to:</p> <ul style="list-style-type: none"> <li>- Explain how human activities affect the carbon cycle.</li> <li>- Explain why recycling of some materials is particularly important.</li> <li>- Explain how exercise, smoking and asthma affect the gas exchange system.</li> <li>- Suggest the possible health effects of an unbalanced diet.</li> </ul>	<p>Enquiry:</p> <ul style="list-style-type: none"> <li>- The global warming debate</li> <li>- Is fracking a good idea?</li> <li>- Investigate a claim linking height to lung volume</li> <li>- Evaluate models of the digestive system</li> <li>- Apply questions</li> <li>- Extended questions</li> <li>- Big Idea End of Chapter Examination</li> </ul>
<p><b>Spring 1</b></p>	<p>Biology</p> <p style="text-align: center;"><b>Ecosystem</b></p> <ul style="list-style-type: none"> <li>• Respiration</li> <li>• Photosynthesis</li> </ul> <p><b>Genes</b></p> <ul style="list-style-type: none"> <li>• Evolution</li> <li>• Inheritance</li> </ul>	<p>Students will learn:</p> <ul style="list-style-type: none"> <li>- That respiration is a chemical reaction that releases energy from glucose</li> <li>- That plant and algae obtain their energy from photosynthesis.</li> <li>- That evolution is explained by natural selection.</li> <li>- That inherited characteristics are the result of DNA transfer from parents to offspring during reproduction.</li> </ul>	<p>Students are able to:</p> <ul style="list-style-type: none"> <li>- Explain how specific activities involve aerobic or anaerobic respiration, including word equations for aerobic and anaerobic respiration.</li> <li>- Describe ways in which plants obtain resources for photosynthesis.</li> <li>- Use evidence to explain why a species has become extinct or survived changing conditions.</li> <li>- Identify DNA, chromosomes and genes in a diagram.</li> </ul>	<p>Enquiry:</p> <ul style="list-style-type: none"> <li>- Using yeast to explore fermentation</li> <li>- Is chlorophyll essential for photosynthesis?</li> <li>- Extinction</li> <li>- The future of genetics</li> <li>- Apply questions</li> <li>- Extended questions</li> </ul>

<b>Spring 2</b>	<p>Physics</p> <p><b>Forces</b></p> <ul style="list-style-type: none"> <li>• Contact forces</li> <li>• Pressure</li> </ul> <p>Physics</p> <p><b>Electromagnetism</b></p> <ul style="list-style-type: none"> <li>• Magnetism</li> <li>• Electromagnetism</li> </ul>	<p>Students will learn:</p> <ul style="list-style-type: none"> <li>- That when the resultant force on an object is zero, it is in equilibrium and does not move, or remains at constant speed in a straight line</li> <li>- To describe how pressure acts in a fluid.</li> <li>- That magnetic materials, electromagnets and the Earth create magnetic fields.</li> <li>- That a current through a wire causes a magnetic field, an effect called electromagnetism.</li> </ul>	<p>Students are able to:</p> <ul style="list-style-type: none"> <li>- Explain whether an object is in equilibrium.</li> <li>- Explain observations of fluids in terms of unequal pressure using diagrams.</li> <li>- Explain how the direction or strength of the field around a magnet varies, using the idea of field lines.</li> <li>- Use a diagram to explain how an electromagnet can be made.</li> </ul>	<p>Enquiry:</p> <ul style="list-style-type: none"> <li>- Safe landings from space</li> <li>- Under the sea</li> <li>- Making stronger magnets</li> <li>- Apply questions</li> <li>- Extended questions</li> <li>- The Big Idea End of Chapter Examination</li> </ul>
<b>Summer 1</b>	<p><b>Energy</b></p> <ul style="list-style-type: none"> <li>• Work</li> <li>• Heating &amp; cooling</li> </ul> <p>Physics</p> <p><b>Waves</b></p> <ul style="list-style-type: none"> <li>• Wave effects</li> <li>• Wave properties</li> </ul>	<p>Students will learn:</p> <ul style="list-style-type: none"> <li>- That work is done and energy transferred when a force moves an object</li> <li>- How to give the direction of energy transfer between objects of different temperature.</li> <li>- How to describe the movement of particles to and fro when some waves travel through a substance.</li> <li>- How to describe a physical model of a transverse wave that demonstrates it moves from place to place, while the material it travels through does not.</li> </ul>	<p>Students are able to:</p> <ul style="list-style-type: none"> <li>- Draw a diagram to explain how a lever makes a job easier.</li> <li>- Explain observations about changing temperature in terms of energy transfer.</li> <li>- Explain that in general electromagnetic waves cause more damage to living cells as frequency increases.</li> <li>- Describe the properties of different longitudinal and transverse waves.</li> </ul>	<p>Enquiry:</p> <ul style="list-style-type: none"> <li>- Rising high</li> <li>- Solar showers and insulated mugs</li> <li>- Apply questions</li> <li>- Extended questions</li> </ul> <p>The Big Idea End of Chapter Examination</p>