

**CNCS**  
**Year 7 Science: Curriculum Overview**

**Rationale:** In Year 7, students will build on prior knowledge from KS2 and develop their skills in key foundation concepts in Biology, Chemistry and Physics. Students will learn how to work safely in a lab and investigate scientific questions. Students will revisit and be introduced to a range of specific subject terminology, learning how to identify and discuss this appropriately. Furthermore, students will be given opportunities to develop their own responses to scientific problems and consider how to apply their knowledge to them.

**A learner in Year 7 will know/ have studied:**

Key areas in all three sciences, this will build the foundation for further study and investigation. They will have worked in a lab and will know the key safety rules to follow. They will have carried out key investigations to help with their understanding of the areas taught.

**A learner in Year 7 will be able to:**

Work safely in labs and carry out investigations. They will be able to question and will have begun to understand the world around them from the units studied.

Term	Outline	Assessment	Home Learning	Key Skills/ End Point
<b>1</b>	<p><b><u>B1 Cell Biology</u></b> Students will be able to describe and compare plant, animal and bacterial cells. They will be able to use a microscope to view a slide they have prepared. They will be able to simply describe diffusion, state the factors that affect it and name places where it occurs in living things.</p> <p><b><u>C1 Atomic Structure &amp; the Periodic table</u></b> Students will be able to describe the structure of the atom and the arrangement of elements in the periodic table. They will be able to describe some methods of separating mixtures.</p> <p><b><u>P3 Particle Model of Matter</u></b> Students will be able to compare the arrangement of particles in solids, liquids and gases and describe changes of state. They will be able to calculate and measure the density of regular and irregular objects.</p>	<p><b><u>1.1 &amp; 1.2 Pit Stops</u></b> B1 Cell Biology 1a B1 Cell Biology 1b</p> <p>C1 Atomic Structure &amp; the Periodic Table 1a C1 Atomic Structure &amp; the Periodic Table 1b</p> <p>P3 Particle Model of Matter 1a B4 Bioenergetics 1a</p> <p><b><u>1.2 End of Term Assessment</u></b> B1 Cell Biology C1 Atomic Structure &amp; the Periodic Table P3 Particle Model of Matter B4 Bioenergetics</p> <p><b><u>Skills Tested</u></b> AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures.</p>	<p>Set once per week via Educake.</p>	<p>Students are able to recall key knowledge and apply this knowledge to exam questions from different areas.</p> <p>Students will interpret and then describe and explain what graphs show with reference to the data collected for a range of contexts.</p> <p>Students are able to analyse information given to them, and apply their knowledge gained through the course to evaluate data provided.</p>

	<p><b><u>B4 Bioenergetics</u></b> Students will be able to describe and measure the rate of photosynthesis. They will also be able to describe respiration and simply compare aerobic and anaerobic respiration.</p>	<p>AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures.</p>		
2	<p><b><u>B2 Organisation</u></b> Students will be able to describe organ systems, e.g. digestive system, respiratory system and skeletal system. They will evaluate the importance of a balanced diet and the consequences of an imbalanced diet. They will test the presence of different food groups in food samples.</p> <p><b><u>C2 Bonding</u></b> Students will be able to compare covalent, ionic and metallic bonds. They will be able to identify the signs of a chemical reaction and will describe how atoms join to form bonds during chemical reactions. They will be able to explain the properties of diamond and graphite.</p> <p><b><u>P2 Electricity</u></b> Students will be able to compare current and voltage in series and parallel circuits. They will be able to draw circuit diagrams using their knowledge of circuit symbols. They will understand the role of the National Grid in the distribution of electricity.</p>	<p><b><u>2.1 &amp; 2.2 Pit Stops</u></b> B2 Organisation 1a B2 Organisation 1b</p> <p>C2 Bonding 1a P2 Electricity 1a</p> <p><b><u>2.2 End of Term Assessment</u></b> B2 Organisation C2 Bonding P2 Electricity</p> <p><b><u>Skills Tested</u></b> AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures. AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures.</p>	Set once per week via Educake.	<p>Students are able to recall key knowledge and apply this knowledge to exam questions from different areas.</p> <p>Students will interpret and then describe and explain what graphs show with reference to the data collected for a range of contexts.</p> <p>Students are able to analyse information given to them, and apply their knowledge gained through the course to evaluate data provided.</p>

<p style="text-align: center; font-size: 24pt; font-weight: bold;">3</p>	<p><b><u>B3 Infection and Response</u></b>  Students will be able to describe the role of pathogens in spreading communicable diseases. They will describe how the human body prevents the entry of pathogens and how white blood cells destroy pathogens. They will explain the importance of vaccinations and describe the difference between painkillers and antibiotics.</p> <p><b><u>C4 Chemical Changes</u></b>  Students will be able to describe the chemical reactions of metals with oxygen, water and acids. They will learn how to make a soluble salt and an indicator to test the pH of different household substances. They will compare the reactivity of different metals and describe how to extract metals from their ores.</p> <p><b><u>P1 Energy</u></b>  Students will be able to describe the energy stores and energy transfers via conduction, convection and radiation. They will compare the renewable and non-renewable energy resources.</p> <p><b><u>C5 Energy Changes</u></b>  Students will be able to describe energy changes during chemical reactions. They will be able to draw energy profile diagrams for exo-/endothermic reactions.</p>	<p><b><u>3.1 &amp; 3.2 Pit Stops</u></b>  B3 Infection and Response 1a   C4 Chemical Changes 1a  C4 Chemical Changes 1b   P1 Energy 1a   C5 Energy Changes 1a</p> <p><b><u>3.2 End of Term Assessment</u></b>  B3 Infection and Response  C4 Chemical Changes  P1 Energy  C5 Energy Changes</p> <p><b><u>Skills Tested</u></b>  AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures.  AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures.  AO3: Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures.</p>	<p>Set once per week via Educake</p>	<p>Students are able to recall key knowledge and apply this knowledge to exam questions from different areas.</p> <p>Students will interpret and then describe and explain what graphs show with reference to the data collected for a range of contexts.</p> <p>Students are able to analyse information given to them, and apply their knowledge gained through the course to evaluate data provided.</p>
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