



## CHS Curriculum Intent

**SUCCESSFUL:** Learners who gain deep and powerful knowledge in preparation for life; combining academic rigour, curiosity and creative flair.

**CREATIVE:** Learners who are imaginative, optimistic and inventive; finding their voice to become effective communicators prepared for lifelong adaptability

**HAPPY:** Learners who are confident, resilient, well-rounded citizens; they understand the world's communities and are ready to discover their place in it.

## CHS Curriculum Area Framework for Learning – Year 9

<b>SUBJECT</b>	Science
<b>INTENT</b>	Students will learn the foundations of chemistry, biology and physics during KS3 and build upon them during KS4, with the intention of raising interest and engagement in the natural world and developing their curiosity.

<b>Year Group</b>	9 DBA
<b>Rationale/ Narrative</b>	Year 9 is a transition year where pupils continue to learn the main aspects of the KS3 National curriculum before moving on to the more complex topics covered in the GCSE specification. During the year, students will reinforce the knowledge that they have gained in years 7 and 8 and focus on building on these key ideas to ensure a good foundation for the Key Stage 4 GCSE in Combined or Separate Sciences. Students will study an equal mix of Biology, Chemistry and Physics across the year and continue to develop HSW (How science works) skills as they move through the course.



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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>KNOWLEDGE</b>	<p><b>Human Body</b></p> <p>Animal and plant cells Microscopy Cell specialization Aerobic and anaerobic respiration Skeletal and Muscular systems Biomechanics</p> <p>Drugs (recreational and drugs in sport)</p>	<p><b>Earth and Space</b></p> <p>Renewable and Non renewable Global warming The rock cycle (types of rock) The Earth's structure Composition of the atmosphere Days and seasons</p> <p>Space (planets, stars and galaxies)</p>	<p><b>Physics – 6.1 Energy</b></p> <p>6.1.1.1 Energy stores and systems</p> <p>6.1.1.2 Changes in energy</p> <p>6.1.1.3 Energy changes in systems</p> <p>6.1.1.4 Power</p> <p>6.1.2 Conservation and dissipation of energy</p> <p>6.1.2.1 Energy transfers in a system</p> <p>6.1.2.2 Efficiency</p> <p>6.1.3 National and global energy resources</p>	<p><b>4.1 Cell Biology</b></p> <p>4.1.1.1 Eukaryotes and Prokaryotes</p> <p>4.1.1.2 Animal and Plant cells</p> <p><b>Required prac 1 (microscopes)</b></p> <p>4.1.1.3 cell specialization</p> <p>4.1.1.4 Cell differentiation</p> <p>4.1.1.5 Microscopy</p> <p>4.1.2.1 Chromosomes</p> <p>4.1.2.2</p> <p>Mitosis and the cell cycle</p> <p>4.1.2.3 stem cells</p> <p>4.1.3.1 diffusion</p> <p>4.1.3.2 osmosis</p>	<p><b>5.1 Atomic structure and the periodic table</b></p> <p>5.1.1.1 Atoms, elements and compounds 5.1.1.2 Mixtures 5.1.1.3 The development of the model of the atom (common content with physics) 5.1.1.4 Relative electrical charges of subatomic particles 5.1.1.5 Size and mass of atoms 5.1.1.6 Relative atomic mass 5.1.1.7 Electronic structure</p> <p>5.1.2.1 The periodic table 5.1.2.2 Development of the periodic table 5.1.2.3 Metals and non-metals 5.1.2.4 Group 0 5.1.2.5 Group 1 5.1.2.6 Group 7</p>	<p><b>5.2 Bonding, structure, and the properties of matter</b></p> <p>5.2.1.1 Chemical bonds 5.2.1.2 Ionic bonding 5.2.1.3 Ionic compounds 5.2.1.4 Covalent bonding 5.2.1.5 Metallic bonding 5.2.2.1 The three states of matter 5.2.2.2 State symbols 5.2.2.3 Properties of ionic compounds 5.2.2.4 Properties of small molecules 5.2.2.5 Polymers 5.2.2.6 Giant covalent structures 5.2.2.7 Properties of metals and alloys 5.2.2.8 Metals as conductors 5.2.3.1 Diamond 5.2.3.2 Graphite 5.2.3.3 Graphene and fullerenes</p>



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				<b>Required prac 2 (osmosis)</b>  4.1.3.3 Active transport		
<b>SKILLS</b>	<p>Develop microbiology practical techniques in microscopy.</p> <p>Develop numeracy skills relating to magnification.</p> <p>Analyse differences between different types of cells. E.g. Prokaryote, eukaryote and a range of specialised cells.</p> <p>Use of prefixes centi-, milli-, micro and nano in relation to cells and microscopy</p> <p>RP- Use of a light microscope to observe, drawn and label cells</p> <p>Comparison of different bones and their roles in the body's movement.</p> <p>Knowledge of recreational drugs and their effects on the human body.</p> <p>Diagnosing which drug has been taken based on patient symptoms.</p>	<p>Analyse advantages and disadvantages of renewable energy.</p> <p>Analysis of data from the department of energy relating to global warming.</p> <p>Interpret graphs showing climate change data.</p> <p>Practical skills- analysis of rock samples, and identification using data.</p> <p>Use of prefixes-kilo, mega, giga</p> <p>Modelling the solar system</p>	<p><b>Physics – 6.1 Energy</b></p> <p>A large focus on maths in science</p> <p>Students will learn how to calculate energy changes</p> <p>Recall and apply the following equations:</p> <p><math>KE = \frac{1}{2} mv^2</math></p> <p><math>GPE = mgh</math></p> <p><math>P = E/t</math></p> <p><math>P = W/t</math></p> <p>Use of equations to calculate efficiency</p>	<p><b>Biology 4.1</b></p> <p>Students will carry out the following required practicals (AQA trilogy)</p> <p><b>RP 1- Microscopy</b></p> <p><b>RP 2- Investigating the effect of different concentrations of salt and sugar solution on mass of plant tissue.</b></p> <p>Calculating percentage gain and loss of plant tissue linked to RP.</p>	<p><b>5.1 Atomic structure and the periodic table</b></p> <p>Represent the first 20 elements in both numerical form and as a diagram showing electron configuration</p> <p>Use the periodic table to make predictions on reactivity</p> <p>Understand how theories develop linked to the development of the periodic table</p>	<p><b>5.2 Bonding, structure, and the properties of matter</b></p> <p>Students will learn whether metals / nonmetals react and how they react together.</p> <p>Calculate charges on ions and work out what other ions will bond together for stability.</p> <p>Work out how covalent substances share electrons to become stable. Based on the type of bonding predictions will be made as to the properties of the compound.</p> <p>Students will be taught the latest developments in the chemistry of graphite, graphene and fullerenes.</p>



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			<p>Use of prefixes-kilo, mega, giga.</p> <p>In this unit there will be a large focus on the use of modelling and specific investigative skills.</p>			
<b>ASSESSMENTS</b>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p><b>Required Practical 1 (RP 1) write up and analysis – Microscopy</b></p> <p>Lance Armstrong Drugs in Sport (Oracy)</p> <p>EOT</p>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p>How to save the world write up-letter on how to reduce climate change.</p> <p>End of topic test (L1/L2/L3) or Earth and space MCT</p> <p>Progress test End of KS3 Exam</p>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p>Write up of WORK practical</p> <p>MOJA island task</p> <p>EOT</p>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p><b>RP 1- Microscopy</b></p> <p><b>RP 2- Investigating the effect of different concentrations of salt and sugar solution on mass of plant tissue.</b></p> <p>EOT</p> <p>Progress test</p>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p>Reactivity of metals write up</p> <p>EOT</p>	<p>Students will be assessed on: <b>(3 will be selected per term plus Progress test)</b></p> <p>EOT</p> <p>Progress test</p>