

## CHS Curriculum Intent

**SUCCESSFUL:** An education where imagination, curiosity and resilience enable us to ignite our learning.

**CREATIVE:** A shared belief that optimism, empathy and responsibility are the foundations for a respectful, safe and inclusive community.

**HAPPY:** Individuals who are ready to learn, practise being reflective, and are motivated to become champions.

## CHS Curriculum Area Framework for Learning – Year 8

<b>SUBJECT</b>	<b>Science</b>
<b>INTENT</b>	<p>The intent of the science department is to teach students that Science underpins everything.</p> <p>At Chorlton High School we study</p> <ul style="list-style-type: none"><li>• Physics to be able to understand the principles that govern all Energy and Matter in the Universe.</li></ul> <p>Physics gives us tools to understand nature from the scale of sub-atomic particles up to the inter-galactic scale of the universe.</p> <ul style="list-style-type: none"><li>• Chemistry to be able to understand the nature of substances: how they are composed, their behaviour, and their physical and chemical properties.</li></ul> <p>Chemistry allows us to identify unknown substances, monitor concentrations and make new chemicals. Above all, Chemistry is about finding solutions to the problems that concern us and our surroundings.</p> <ul style="list-style-type: none"><li>• Biology to be able to understand life and thereby understand ourselves.</li></ul> <p>Biology allows us an understanding of the amazing complexity of many life processes and mechanisms. Biology encourages us to seek out reasons for strange, surprising and sometimes unusual observations.</p>

# Curriculum Knowledge Map - Science



<b>Year Group</b>	<b>8</b>					
<b>Rationale/ Narrative</b>	To further develop knowledge in Biology, Chemistry and Physics and to explore and engage pupil's curiosity of the natural world. Students will continue to develop their ability to write and carry out scientific investigations and then explore more fundamental areas of science which include; disease, immunity, diet, health, organ systems, separation techniques, forces, motion and evolution.					
	<b>Autumn 1 – Organisms</b>	<b>Autumn 2 – Acids and Alkalis</b>	<b>Spring 1 – Waves, light and sound</b>	<b>Spring 2 – Rocks, climate and the Universe</b>	<b>Summer 1 – Genes and Evolution</b>	<b>Summer 2 Motion and Forces (speed and energy transfers)</b>
<b>Declarative</b> <i>What should they know?</i>	Health and Nutrition  Diet. Food groups Food tests Diabetes. Digestive system. Modelling the journey of food. Enzyme digestion Respiratory system Gas exchange Impact of exercise <i>Drugs (recreational and drugs in sport).</i>	Acids and Alkali  chemical and physical reactions Acids and Alkalis indicators and pH neutralisation strong and weak acid, concentration Concentration Metals and non-metals Metals and oxygen, Metals and water metals and acids making salts displacement reactions reactivity series - fruit batteries	Energy transfer  Waves Wave equations Transverse and longitudinal waves Reflection Refraction Dispersion Sound Transfer of sound through matter Structure of the Ear	Rocks climate and the Universe  Global warming The rock cycle (types of rock) The Earth's structure Composition of the atmosphere Days and seasons Space (planets, stars and galaxies) Gravity on Earth Changing Moon	Genes and Evolution  Variation The structure of DNA Genes, chromosomes and the nucleus Genetic modification Selective breeding Natural selection Evolution Extinction Wild life conservation	Motion and Forces  Measuring forces Resultant force Friction Gravity Air resistance Hooke's Law Calculating speed Distance time graphs Speed and velocity Acceleration Pressure moments

# Curriculum Knowledge Map - Science



<p><b>Procedural</b> <i>What should they be able to do?</i></p>	<p>Students will learn to write persuasive articles.</p> <p>Students will learn how to evaluate models and carry out dissections</p> <p>Students will carry out/write up scientific investigations:</p> <p>Students will investigate food groups and food tests</p> <p>Students will investigate the pH of different substances</p> <p>Students will carry out filtration and evaporation techniques.</p> <p>Students will learn the importance of sample size when carrying out research projects, and consider factors that might affect a scientific study. (e.g. age/gender etc.)</p>	<p>Students will carry out/write up scientific investigations:</p> <p>Students will investigate the pH of different solutions and use indicators.</p> <p>Students will investigate the reactivity of different metals and make predictions using fruit batteries for displacement substances.</p> <p>Students will learn how to make salt crystals.</p>	<p>Students will carry out/write up scientific investigations:</p> <p>Students will investigate waves in solids and liquids.</p> <p>Students will investigate ray diagrams (reflection and refraction, dispersion).</p> <p>Students will investigate the speed of sound in air.</p>	<p>Students will carry out/write up scientific investigations:</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>Students will develop oracy and presentation skills.</p> <p>Students will also learn how to write evaluations and comparisons effectively.</p> <p>Students will build DNA models and evaluate the use of models in Science.</p> <p>Students will write about and discuss the ethics of selective breeding in class.</p>	<p>Students will learn how to use and apply key terminology and data such as:</p> <ul style="list-style-type: none"> <li>Repeats</li> <li>Reliability</li> <li>Reproducibility</li> <li>Mean</li> <li>Error</li> <li>Accuracy</li> </ul> <p>Students will carry out/write up scientific investigations:</p> <p>Students will investigate speed</p> <p>Students will investigate the extension of a spring</p> <p>Students will investigate friction, air resistance and weight and make a Newton meter.</p>
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<p><b>Disciplinary Literacy</b> (Tier 3 Vocab)</p>	<p>SEEC :-  Respiratory Trachea Bronchus Alveolus</p>	<p>SEEC :- : Acid Alkali Concentrated Universal</p>	<p>SEEC :-  Longitudinal Transverse Oscillation Amplitude</p>	<p>SEEC :-  Crust Mantle Core Sedimentary</p>	<p>SEEC :-  Variation Species Inherited Evolution</p>	<p>SEEC :-  Gravity Resultant Balanced Equilibrium</p>
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# Curriculum Knowledge Map - Science



	Carbohydrate Lipid Protein Digestive Villi Enzyme	Indicator Neutralise Base Salt Reactant Product Reactivity	Frequency Wavelength Crest Trough Pitch Hertz	Igneous metamorphic solar system galaxy universe	Natural Selection Mutation Chromosome Allele Dominant Recessive	Unbalanced Acceleration Mass gravitational field strength pressure pivot
<b>ASSESSMENTS</b>	Students will be assessed on:  Assessment 1 low stakes test - Digestion  Assessment 2 Low stakes test - breathing	Students will be assessed on:  Assessment 1 Low stakes test Acids  Assessment 2 Low stakes test Metals	Students will be assessed on:  Assessment 1 Low stakes test Wave calculations  Assessment 2 Low stakes test light  <b>Progress test (all knowledge content from Autumn 1 and 2)</b>	Students will be assessed on:  Assessment 1 Low stakes test Rocks  Assessment 2 Low stakes test Solar System	Students will be assessed on:  Assessment 1 Low stakes test Evolution  Assessment 2 Low stakes test Genes	Students will be assessed on:  Assessment 1 Low stakes test Forces  Assessment 2 Low stakes test Pressure  <b>Progress test (all knowledge content from Autumn, spring and summer)</b>
<b>HOME LEARNING</b>	TEAMS homework's relevant to the topic being studied – 4 per term	TEAMS homework's relevant to the topic being studied- 4 per term	TEAMS homework's relevant to the topic being studied - 4 per term  Revision booklet relevant to the END OF TOPIC TEST.	TEAMS homework's relevant to the topic being studied- 4 per term	TEAMS homework's relevant to the topic being studied - 4 per term	TEAMS homework's relevant to the topic being studied.  Revision booklet relevant to the END OF TOPIC TEST.