

Curriculum Knowledge Map – Science



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Year 8	Autumn 1: Organisms	Autumn 2: Acids and Alkalis	Spring 1: Waves, light and sound	Spring 2: Rocks, climate and Universe	Summer 1: Genes and Evolution	Summer 2: Forces
Declarative <i>What should they know?</i>	Organisms 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 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 Resultant force Friction Gravity Air resistance Hooke's Law Calculating speed Distance time graphs Speed and velocity Acceleration Pressure moments

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<p>Procedural <i>What should they be able to do?</i></p>	<ul style="list-style-type: none"> Students will learn to write persuasive articles. Students will learn how to evaluate models and carry out dissections Students will carry out/write up scientific investigations: Students will investigate food groups and food tests Students will investigate the pH of substances Students will carry out filtration and evaporation Students will learn the importance of sample size, and consider factors that might affect a scientific study. (e.g. age/gender etc.) 	<ul style="list-style-type: none"> Students will carry out/write up scientific investigations: Students will investigate the pH of different solutions and use indicators. Students will investigate e reactivity of different metals and make predictions using fruit batteries for displacement. substances. Students will learn how to make salt crystals. 	<ul style="list-style-type: none"> Students will carry out/write up scientific investigations: Students will investigate waves in solids and liquids. Students will investigate ray diagrams (reflection and refraction, dispersion). Students will investigate the speed of sound in air. 	<ul style="list-style-type: none"> Students will carry out/write up scientific investigations: Analysis of data from the department of energy relating to global warming. Interpret graphs showing climate change data. Practical skills- analysis of rock samples, and identification using data. Use of prefixes- kilo, mega, giga. 	<ul style="list-style-type: none"> Students will develop oracy and presentation skills. Students will also learn how to write evaluations and comparisons effectively. Students will build DNA models and evaluate the use of models in Science. Students will write about and discuss the ethics of selective breeding in class. 	<ul style="list-style-type: none"> Students will learn how to use and apply key terminology and data such as: Repeats, Reliability Reproducibility Mean Error, Accuracy Students will carry out/write up scientific investigations: Students will investigate speed Students will investigate the extension of a spring Students will investigate friction, air resistance and weight and make a Newton meter.
<p>Disciplinary Literacy (Tier 3 Vocab)</p>	<p>SEEC :-</p> <ul style="list-style-type: none"> Respiratory Trachea Bronchus Alveolus Carbohydrate Lipid Protein Digestive Villi Enzyme 	<p>SEEC :-</p> <ul style="list-style-type: none"> Acid Alkali Concentrated Universal Indicator Neutralise Base Salt Reactant Product Reactivity 	<p>SEEC :-</p> <ul style="list-style-type: none"> Longitudinal Transverse Oscillation Amplitude Frequency Wavelength Crest Trough Pitch Hertz 	<p>SEEC :-</p> <ul style="list-style-type: none"> Crust Mantle Core Sedimentary Igneous metamorphic solar system galaxy universe 	<p>SEEC :-</p> <ul style="list-style-type: none"> Variation Species Inherited Evolution Natural Selection Mutation Chromosome Allele Dominant Recessive 	<p>SEEC :-</p> <ul style="list-style-type: none"> Gravity Resultant Balanced Equilibrium Unbalanced Acceleration Mass gravitational field strength pressure pivot

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ASSESSMENTS	<p>Mid Point Assessments (MPA) and teacher assessed questions (TAQ)</p> <p>MPA 1 Breathing</p> <p>MPA 2 Digestion</p> <p>MPA's Focus on low stakes testing using exam questions from KS 3 assessments.</p> <p>TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions</p>	<p>Mid Point Assessments (MPA) and teacher assessed questions (TAQ)</p> <p>MPA 1 Acids</p> <p>MPA 2 Metals</p> <p>MPA's Focus on low stakes testing using exam questions from KS 3 assessments.</p> <p>TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions</p>	<p>Mid Point Assessments (MPA) and teacher assessed questions (TAQ)</p> <p>MPA 1 Waves</p> <p>MPA 2 Light and sound</p> <p>MPA's Focus on low stakes testing using exam questions from KS 3 assessments.</p> <p>TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions</p> <p>Progress Test based on units taught so far in Year 8</p> <ul style="list-style-type: none"> Plants Particles and Separation Organisms Acids and alkalis 	<p>Mid Point Assessments (MPA) and teacher assessed questions (TAQ)</p> <p>MPA 1 Rocks and weathering</p> <p>MPA 2 Space</p> <p>MPA's Focus on low stakes testing using exam questions from KS 3 assessments.</p> <p>TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions</p>	<p>Mid Point Assessments (MPA) and teacher assessed questions (TAQ)</p> <p>MPA 1 Genes</p> <p>MPA 2 Evolution</p> <p>MPA's Focus on low stakes testing using exam questions from KS 3 assessments.</p> <p>TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions</p>	<p>Mid Point Assessments (MPA) and teacher assessed questions (TAQ)</p> <p>MPA 1 Forces 1</p> <p>MPA 2 Forces 2</p> <p>MPA's Focus on low stakes testing using exam questions from KS 3 assessments.</p> <p>TAQ 6 mark questions in preparation for GCSE style long answer / QWC questions</p> <p>Progress Test based on units taught so far in Year 8</p> <ul style="list-style-type: none"> Organisms Acids and alkalis Waves light and sound Rocks, climate, universe
HOME LEARNING	<p>Creative homework based on organisms' topics.</p> <p>Comprehension exercise on famous people – Marie Maynard Daly</p> <p>4 educake quizzes of between 10 and 20 marks on organisms.</p>	<p>Creative homework based on Acids and alkalis topic.</p> <p>Comprehension exercise on famous people – George Washington</p> <p>4 educake quizzes of between 10 and 20 marks on Acids and Alkalis</p>	<p>Creative homework based on Waves, light and sound</p> <p>Comprehension exercise on famous people: Sir Charles Kao</p> <p>4 educake quizzes of between 10 and 20 marks on Waves, light and sound.</p> <p>Revision for the January progress test</p> <ul style="list-style-type: none"> Plants and Organisms Particles and Separation Acids and alkalis 	<p>Creative homework based on Rocks, climate, universe</p> <p>Comprehension exercise on famous people: Neil deGrasse Tyson</p> <p>4 educake quizzes of between 10 and 20 marks on Rocks, climate and the universe</p>	<p>Creative homework based on genes and evolution</p> <p>Comprehension exercise on famous people: Rosalind Franklin</p> <p>4 educake quizzes of between 10 and 20 marks on Genes and evolution</p>	<p>Creative homework based on the Forces topic.</p> <p>Comprehension exercise on famous people : Sally Ride</p> <p>4 educake quizzes of between 10 and 20 marks on Forces</p> <p>Revision for the summer progress test</p> <ul style="list-style-type: none"> Organisms Acids and alkalis Waves light and sound Rocks climate, universe



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