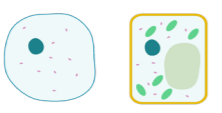
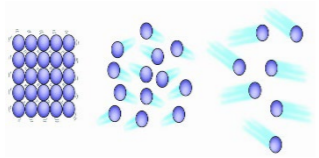



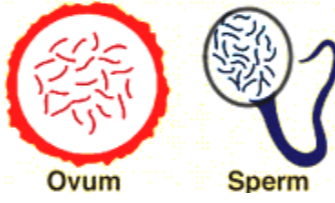


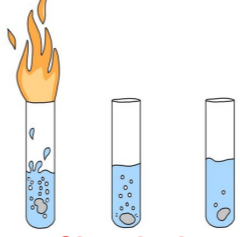




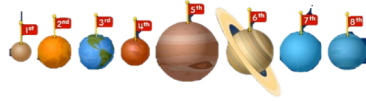


**Key Stage 3 Curriculum Journey: Science**

The curriculum in Science will excite the expectations of our new intake. It will inspire awe and wonder so that pupils will marvel at the contrasts and similarities in nature's design.

YEAR 7 CURRICULUM JOURNEY						
	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Topic	 <p><b>Organisms 1 – Cells</b></p> <p><b>Matter 1 -Particle model</b></p>  <p><b>Energy 1 –Energy costs and transfers</b></p> 	<p><b>Organisms 1 – Movement</b></p>   <p><b>Matter 2 –Separating mixture</b></p>	<p><b>Genes 1 –Human reproduction</b></p>  <p><b>Ovum Sperm</b></p> <p><b>Forces 1 –Speed and gravity</b></p> 	<p><b>Genes 1 –Variation</b></p>   <p><b>Chemical reactions 1 –Metals and non-metals continued</b></p>	 <p><b>Chemical reactions 2 -Acids and alkalis</b></p> <p><b>Electricity 1 –Potential difference and current</b></p> 	 <p><b>Plants 1 –Plant reproduction and Interdependence</b></p>  <p><b>Earth 1 –Earth structure</b></p> <p><b>Earth 2 –The Universe</b></p> 
Key Knowledge, Skills & Understanding	<ul style="list-style-type: none"> <li>• Levels of organization</li> <li>• Animal and plant cells</li> <li>• Using a microscope</li> <li>• Specialised cells</li> <li>• Movement of Substances</li> <li>• Unicellular organisms</li> <li>• Particle arrangement of solids, liquids and gases</li> <li>• Condensation, evaporation</li> <li>• Expansion and contraction</li> <li>• Gas pressure</li> <li>• Food and fuels</li> <li>• Renewable and non-renewable energy resources</li> <li>• Energy and power</li> <li>• Energy stores and conservation</li> <li>• Energy dissipation</li> </ul>	<ul style="list-style-type: none"> <li>• The skeleton</li> <li>• Movement and joints</li> <li>• Muscles</li> <li>• Dissection of chicken leg-tendons and ligaments to understand the role of tissue damage</li> <li>• Elements, compounds and molecules</li> <li>• Pure substances and mixtures</li> <li>• Solutions and dissolving</li> <li>• Solubility curves</li> <li>• Filtration, evaporation, distillation</li> <li>• Chromatography</li> <li>• Continue energy from last half term</li> </ul>	<ul style="list-style-type: none"> <li>• Adolescence</li> <li>• Male and female reproductive systems</li> <li>• Menstrual cycle and fertility</li> <li>• Gametes, fertilisation and implantation</li> <li>• Development of foetus</li> <li>• Factors affecting fertility and foetal development</li> <li>• Balanced and unbalanced forces</li> <li>• Friction</li> <li>• Speed graphs and distance/time graphs</li> <li>• Gravity, mass and weight</li> </ul>	<ul style="list-style-type: none"> <li>• Inherited and environmental variation</li> <li>• Continuous and discontinuous variation</li> <li>• Adapting to change-animals</li> <li>• Adapting to change-plants</li> <li>• Chemical and physical changes</li> <li>• Physical properties of metals and non-metals</li> <li>• Chemical reactions of metals and non-metals</li> <li>• Reactions of metals with acids, water</li> <li>• Displacement reactions</li> </ul>	<ul style="list-style-type: none"> <li>• Concentration and strength of acids</li> <li>• Neutralisation</li> <li>• Making salts</li> <li>• Circuit components</li> <li>• Potential difference in series and parallel circuits</li> <li>• Resistance</li> <li>• Measuring current in series and parallel circuits</li> <li>• Lightening-static electricity</li> </ul>	<ul style="list-style-type: none"> <li>• Construction and destruction of food chains/webs</li> <li>• Ecosystems</li> <li>• Population size</li> <li>• Competition</li> <li>• Flowers and pollination</li> <li>• Fertilisation and germination</li> <li>• Seed dispersal</li> <li>• The structure of the earth</li> <li>• Chemical, biological and physical weathering</li> <li>• Sedimentary, metamorphic and igneous rock</li> <li>• Rock cycle</li> <li>• Ceramics</li> <li>• Day, night, seasons</li> <li>• Phases of the moon</li> <li>• The structure of the Universe and space exploration</li> </ul>

<p><b>KS3 National Curriculum Links</b></p>	<p>Please see K3 programme of study for details of KS3 content covered.  <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf</a></p> <p>Our KS3 course is also resourced using the AQA Activate Kerboodle resource and pupils are issued a login for this resource when they join Year 7. The Year 7 course is resourced using Activate I.  <a href="https://global.oup.com/education/secondary/kerboodle/science/aqa-activate-kerboodle/?region=uk">https://global.oup.com/education/secondary/kerboodle/science/aqa-activate-kerboodle/?region=uk</a></p>					
<p><b>MAPs</b></p>	<p>MAP 1- Cells                      MAP 1- Particle model                      MAP 1- Energy costs and energy transfer</p>	<p>MAP 2 – Separating mixtures                      P2S1                      P2S1                      P2S1</p>	<p>MAP 2 – Movement                      MAP 2 - Speed and gravity</p>	<p>MAP 3 – Metals and non-metals                      P2S2                      P2S2                      P2S2</p>	<p>MAP 3 – Reproduction and Variation                      MAP 4 – Acids and alkalis                      MAP 3 – Potential difference and current</p>	<p>MAP 4 – Plant reproduction and Interdependence                      MAP 4 – Earth and the Universe                      P2S3                      P2S3                      P2S3</p>

**Key Stage 3 Curriculum Journey: Science**

The year 8 Science curriculum will explore year 7 concepts in greater depth. Pupils will embed their experience of practical science with greater dexterity, peer collaboration and validity.

YEAR 8 CURRICULUM JOURNEY						
Topic	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
<p><b>Topic</b></p>	<p><b>Organisms 2- Gas exchange and Respiration</b></p> <p><b>Matter 3-Elements &amp; the Periodic Table</b></p> <p><b>Energy 2</b></p>	<p><b>Organisms 3- Digestion</b></p> <p><b>Matter 3-Elements &amp; the Periodic Table continued</b></p> <p><b>Waves 1- The transfer of energy by sound</b></p>	<p><b>Organisms 3- Digestion</b></p> <p><b>Chemical Reactions &amp; Energy Changes</b></p> <p><b>Waves 2- The transfer of energy by light (radiation)</b></p>	<p><b>Genes 2- Evolution and Inheritance</b></p> <p><b>Chemical Reactions &amp; Energy Changes</b></p> <p><b>Forces 2</b></p>	<p><b>Genes 2- Evolution and Inheritance</b></p> <p><b>Earth 2- Atmosphere and Resources</b></p> <p><b>Forces 2</b></p>	<p><b>Plants-Photosynthesis</b></p> <p><b>Earth 2- Atmosphere and Resources</b></p> <p><b>Electricity 2- Magnetism and Electromagnetism</b></p>
<p><b>Key Knowledge, Skills &amp; Understanding</b></p>	<ul style="list-style-type: none"> <li>Explain structure and function of lung tissue during inhalation and exhalation</li> <li>Explain factors affecting the rate of gas exchange</li> <li>Describe aerobic and anaerobic respiration and identify when each is used</li> <li>Describe how the respiration of other organisms can be useful in manufacturing products e.g. bread.</li> <li>Describe the effects of drugs on mental and physical health.</li> <li>See content list for HT2</li> <li>Describe and calculate work done.</li> <li>Describe heating and cooling in terms of energy</li> <li>Describe conduction, convection and radiation using the particle model.</li> </ul>	<ul style="list-style-type: none"> <li>Name the components of a 'balanced diet'</li> <li>Describe the effects of nutrient deficiencies</li> <li>Describe how to test foods for key nutrients</li> <li>Describe the main stages of digestion and the key physical adaptations</li> <li>Describe the role of enzymes and bacteria in digestion.</li> <li>Identify elements, compounds and mixtures.</li> <li>Identify chemical symbols from the Periodic Table.</li> <li>Explain chemical formulae</li> <li>Describe the structure and properties of polymers.</li> <li>Describe the arrangement of the periodic table.</li> <li>Analyse data to identify trends in Groups and to predict the properties of unknown elements.</li> <li>Write word equations for displacement.</li> </ul>	<ul style="list-style-type: none"> <li>Identify the reactants and products within a reaction.</li> <li>Explain chemical change and conservation of mass.</li> <li>Describe and write word equations for thermal decomposition and combustion.</li> <li>Compare non-renewable and renewable fuels.</li> <li>Analyse data and energy level diagrams to identify endothermic/exothermic changes.</li> <li>Compare properties of longitudinal and transverse waves.</li> <li>Describe sound waves</li> <li>Investigate reflection and refraction of light</li> <li>Describe primary and secondary colours of light.</li> <li>Explain the effect of filters on coloured light.</li> <li>Describe the EM spectrum and its uses</li> </ul>	<ul style="list-style-type: none"> <li>Describe Darwin's theory of natural selection to explain how organisms evolve over time.</li> <li>Consider the implications of Darwin's theory in consideration of others</li> <li>Describe factors that could lead to the extinction of a species.</li> <li>Define 'biodiversity' and explain its importance in an ecosystem.</li> <li>Describe current methods to prevent extinction.</li> <li>Identify contact and non-contact forces.</li> <li>Investigate Hooke's Law</li> <li>Describe levers and moments</li> <li>Calculate pressure and describe the effect of pressure in solids</li> <li>Explain the effects pressure in liquids and gases</li> </ul>	<ul style="list-style-type: none"> <li>Describe how characteristics are inherited.</li> <li>Describe the structure of DNA and how collaboration was important in this field.</li> <li>Describe dominant and recessive alleles</li> <li>Use punnet squares to predict gene inheritance</li> <li>Give examples of genetic modification</li> <li>Define global warming</li> <li>Name greenhouse gases</li> <li>Describe the proportions of gases in the Earth's atmosphere</li> <li>Compare the relative effects of human-produced and natural global warming</li> <li>Describe how metals can be extracted from their ores.</li> <li>Explain why and describe how materials are recycled into useful materials</li> <li>See content from last half term</li> </ul>	<ul style="list-style-type: none"> <li>Define the term 'producer'.</li> <li>Describe how a plant obtains the raw materials for photosynthesis and the products made as a result of it</li> <li>Explain how the structure of the leaf is adapted for photosynthesis.</li> <li>State factors that can affect the rate of photosynthesis.</li> <li>Investigate a leaf for starch</li> <li>Describe how a plant uses minerals found in fertiliser for healthy growth.</li> <li>Investigate properties of permanent magnets.</li> <li>Investigate magnetic fields</li> <li>Compare magnets and electromagnets.</li> <li>Investigate factors affecting the strength of electromagnets</li> <li>Describe uses of electromagnets</li> </ul>

<b>KS3 National Curriculum Links</b>	<p>Please see K3 programme of study for details of KS3 content covered.  <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf</a></p> <p>Our KS3 course is also resourced using the AQA Activate Kerboodle resource. Year 8 is resourced using Activate 2.  <a href="https://global.oup.com/education/secondary/kerboodle/science/aqa-activate-kerboodle/?region=uk">https://global.oup.com/education/secondary/kerboodle/science/aqa-activate-kerboodle/?region=uk</a></p>					
<b>MAPs</b>	<p>MAP 1 Breathing &amp; Respiration                      MAP 1 Elements                      MAP 2 The Periodic Table</p>	<p>MAP 2 Digestion                      MAP 1 Energy 2</p> <p>P2S1                      P2S1                      P2S1</p>	<p>MAP 3 Types of Reactions &amp; Energy Changes                      MAP 2 Energy</p>	<p>MAP 3 Evolution                      MAP 3 Forces 2</p> <p>P2S2                      P2S2                      P2S2</p>	<p>MAP 4 Evolution &amp; Natural Selection                      MAP 4 Earth's Climate &amp; Resources</p>	<p>MAP 5 Photosynthesis                      MAP 4 Magnets &amp; Electromagnets</p> <p>P2S3                      P2S3                      P2S3</p>

**Key Stage 3 Curriculum Journey: Science**

Pupils recall prior learning and develop their use of concise, scientific language to communicate a deeper understanding of key concepts. The 'bigger picture' of science emerges as topics begin to overlap.

YEAR 9 CURRICULUM JOURNEY						
	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Topic	<p><b>Cells 2: Cell division</b></p> <p><b>Matter 4 Atomic Structure</b></p> <p><b>Matter 5- Energy in matter (particle theory)</b></p>	<p><b>Cells 3: Stem Cells and Diffusion</b></p> <p><b>Matter 4 Periodic Table</b></p> <p><b>Matter 5- Energy in matter (continued)</b></p>	<p><b>Organisation 1: Digestion</b></p> <p><b>Reactivity of metals</b></p> <p><b>Energy 3</b></p>	<p><b>Organisation 2: Circulation</b></p> <p><b>Reactions of acids</b></p> <p><b>Energy 3 continued</b></p>	<p><b>Bioenergetics 1: Photosynthesis</b></p> <p><b>Energy Changes</b></p> <p><b>Electricity 3: Circuit Electricity</b></p>	<p><b>Bioenergetics 1: Respiration</b></p> <p><b>Energy Changes</b></p> <p><b>Electricity 3: Circuit Electricity continued</b></p> <p><math>V=IR</math> <math>P=IV</math></p>
Key Knowledge, Skills & Understanding	<ul style="list-style-type: none"> <li>Give examples of organisational hierarchy in multicellular organisms</li> <li>Compare eukaryotic and prokaryotic cells</li> <li>Describe the function of their organelles</li> <li>Use a scale to calculate the size of an object</li> <li>Use a light microscope to observe, draw and label cells</li> <li>Describe the development of microscopy techniques over time.</li> <li>Describe the function of specialised plant and animal cells</li> <li>Recall names and symbols of the first 20 elements.</li> <li>Write chemical formulae of elements and compounds.</li> <li>Write word and balanced symbol equations</li> <li>Explain different separation techniques.</li> <li>Describe the development of the model of the atom based on evidence</li> </ul>	<ul style="list-style-type: none"> <li>Explain the importance of cell differentiation.</li> <li>Describe the function of stem cells in embryos, in adult animals and in the meristems in plants</li> <li>Describe diffusion.</li> <li>Explain factors that affect the rate of diffusion.</li> <li>Calculate surface area to volume ratios</li> <li>Compare diffusion in unicellular and multicellular organisms</li> <li>Describe how elements are ordered in the periodic table</li> <li>Explain the development of the periodic table</li> <li>Describe the properties and trends of Group 1 metals.</li> <li>Describe how Group 1 metals react with water using word and symbol equations</li> <li>Explain how Group 1 metals form ions</li> <li>Describe properties and trends of Group 7 elements.</li> </ul>	<ul style="list-style-type: none"> <li>Describe role of key organs in the digestive system.</li> <li>Link adaptations of the small intestine to the process of diffusion.</li> <li>Explain the role of enzymes in digestion.</li> <li>Identify factors that affect enzyme activity</li> <li>Explain how the body maintains optimum conditions for enzyme function</li> <li>Investigate factors that affect the rate of enzyme activity</li> <li>Describe how to test foods for key nutrients</li> <li>List the order of common metals in the reactivity series.</li> <li>Write word and balanced symbol equations for the reaction of metals and oxygen</li> <li>Investigate the reaction of metals with acid</li> <li>Predict and explain displacement reactions</li> </ul>	<ul style="list-style-type: none"> <li>Label the key tissues of the heart.</li> <li>Describe their function</li> <li>Describe the function of blood vessels and blood components</li> <li>Compare the composition of oxygenated and deoxygenated blood</li> <li>Define coronary heart disease (CHD)</li> <li>Identify factors that increase risk of CHD</li> <li>Evaluate treatments and interventions for CHD and faulty heart valves.</li> <li>Describe how universal indicator and pH scale can be used to classify a solution as acidic, neutral or alkaline.</li> <li>Use ionic equations to explain how solutions can be acidic or alkaline</li> <li>Name salts formed during the reaction of acids with metals, metal carbonates,</li> </ul>	<ul style="list-style-type: none"> <li>Define the term 'respiration'.</li> <li>Use word and symbol equations to summarise aerobic and anaerobic respiration.</li> <li>Compare the process of aerobic and anaerobic respiration.</li> <li>Describe the process of fermentation with an equation.</li> <li>Describe and explain the effects of exercise on the body.</li> <li>Explain what is meant by 'oxygen debt' and recovery time.</li> <li>Define exothermic and endothermic reactions.</li> <li>Investigate temperature changes in reactions between solutions</li> <li>Describe applications of exothermic and endothermic reactions.</li> <li>Draw reaction profiles</li> <li>Explain activation energy</li> </ul>	<ul style="list-style-type: none"> <li>Label a cross section of a leaf</li> <li>Explain how the structure and organisation of plant tissues is related to their function</li> <li>State the raw materials and products of photosynthesis</li> <li>Summarise the photosynthesis reaction with a word and symbol equation.</li> <li>Identify 'limiting factors' and explain how they affect rate of photosynthesis</li> <li>Describe the importance of limiting factors on economics e.g. farmers.</li> <li>Describe how plants use the products from photosynthesis</li> <li>See content from last term</li> <li>See content from last half term</li> </ul>

	<ul style="list-style-type: none"> <li>• State the charges and masses of sub-atomic particles</li> <li>• Describe atoms using the nuclear model</li> <li>• Use atomic number and mass numbers of atoms to determine the number of each sub-atomic particle</li> <li>• State the location of electrons in shells</li> <li>• Explain patterns between elements in the same group</li> <li>• State the relative sizes of an atom.</li> <li>• Explain why ions have a charge</li> <li>• Define the term 'isotope'.</li> <li>• Describe the physical properties of solids, liquids and gases.</li> <li>• Density investigation</li> <li>• Define Internal Energy</li> <li>• Define specific heat capacity and specific latent heat</li> <li>• Explain and interpret heating/cooling curves</li> <li>• Describe particle motion in gases.</li> <li>• Calculate gas pressure and volume</li> <li>• Link gas pressure, volume and temperature</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate halogen displacement reactions</li> <li>• Write word, symbol and ionic equations for Group 7 reactions.</li> <li>• Apply knowledge of reactivity and explain trend in Groups 2 and 6.</li> <li>• List the typical properties of transition metals and their compounds.</li> <li>• Compare transition metals with Group 1 metals</li> <li>• Interpret the formula and names of transition metal compounds.</li> <li>• See content from last half term</li> </ul>	<ul style="list-style-type: none"> <li>• Describe and explain oxidation and reduction reactions</li> <li>• Describe how metals can be extracted from ores</li> <li>• Explain why some metals are found native in the Earth</li> <li>• Evaluate extraction processes that obtain metal from ores.</li> <li>• Describe changes in energy systems</li> <li>• Calculate kinetic, gravitational potential and elastic potential energy.</li> <li>• Calculate specific heat capacity</li> <li>• Calculate power</li> <li>• Describe wasted energy</li> <li>• Explain how to increase energy efficiency</li> <li>• Explain thermal insulation</li> <li>• Describe National and Global energy resources</li> </ul>	<p>metal hydroxides and metal oxides</p> <ul style="list-style-type: none"> <li>• Prepare a pure, dry sample of a soluble salt from an insoluble base and a dilute acid</li> <li>• Explain the agricultural importance of salts</li> <li>• Describe how an acid or alkali can be concentrated, dilute, strong or weak</li> <li>• Explain the difference between concentration and strong or weak in terms of acids and alkalis</li> <li>• See content from last half term</li> </ul>	<ul style="list-style-type: none"> <li>• Explain how a chemical reaction occurs using particle model</li> <li>• Explain energy change in terms of bond making and bond breaking</li> <li>• Calculate energy transferred in a reaction using bond energy data</li> <li>• Evaluate the uses of exothermic and endothermic reactions.</li> <li>• Identify circuit symbols</li> <li>• State units of measurement for electrical quantities</li> <li>• Calculate charge flow</li> <li>• Calculate potential difference, current and resistance</li> <li>• Investigation-series and parallel circuits</li> <li>• Describe current-voltage characteristics of resistors, filament lamps and diodes</li> <li>• Investigate I-V characteristics</li> <li>• Describe how current, potential difference and resistance differ in series and parallel circuits.</li> </ul>	
<p>KS3 National Curriculum Links</p>	<p>Please see K3 programme of study for details of KS3 content covered.  <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf</a></p> <p>Our KS3 course is also resourced using the AQA Activate Kerboodle resource..  <a href="https://global.oup.com/education/secondary/kerboodle/science/aqa-activate-kerboodle/?region=uk">https://global.oup.com/education/secondary/kerboodle/science/aqa-activate-kerboodle/?region=uk</a></p>					
<p>MAPs</p>	<p>MAP 1- Cells                  MAP 1- Atomic Structure                  MAP 1- Particle Theory</p>	<p>P2S1                  P2S1                  P2S1</p>	<p>MAP 2- The Digestive System                  MAP 2 –The Periodic Table                  MAP 2- Energy Stores</p>	<p>P2S2                  P2S2                  P2S2</p>	<p>MAP 3- The Heart &amp; Circulation                  MAP 3- Chemical changes                  MAP 3- National and Global Energy Resources</p>	<p>MAP 4- Bioenergetics                  MAP 4– Energy changes                  MAP 4- Series and parallel circuits                  P2S3                  P2S3                  P2S3</p>