



Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Science Skills	<p>Explain why we use hazard symbols.</p> <p>Describe which apparatus should be used in certain experiments</p> <p>Explain the different uses of the different flames.</p> <p>Describe which equipment should be used to accurately measure in a variety of different situations</p> <p>Use correct SI units and SI symbols for recording measurements.</p> <p>Explain how to test for hydrogen, oxygen, carbon dioxide and chlorine.</p>	<p>Observation</p> <p>investigation</p> <p>analyse</p> <p>evaluate</p> <p>conclusion</p> <p>data</p> <p>dependent variable</p> <p>control variable</p> <p>prediction</p> <p>plan</p> <p>accurate</p> <p>precise</p> <p>spread,</p> <p>uncertainly</p> <p>repeatable</p> <p>reproducible</p> <p>continuous,</p> <p>discrete</p> <p>categorical</p> <p>range</p> <p>outliner</p> <p>mean</p> <p>line graph</p> <p>bar chart</p> <p>pie chart</p> <p>line of best fit</p> <p>confidence</p> <p>random error</p> <p>system</p>	<p>This topic covers the introduction to working in a Science laboratory, the equipment and required safety knowledge needed to use the equipment.</p> <p>Within in this topic pupils will look at the Bunsen burner, the parts of the Bunsen and how to use a Bunsen.</p>	<p>Working Scientifically:</p> <p>WSA Scientific attitudes</p> <p>WSA1 pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility</p> <p>WSA3 evaluate risks</p> <p>WSB Experimental skills and investigations</p> <p>WSB4 ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience</p> <p>WSB7 use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety</p> <p>AQA GCSE specification</p> <p>5.8.2 Identification of common gases</p> <p>5.8.2.2 Test for oxygen, carbon dioxide and chlorine</p>	<p>This will be set as either a Vocabulary test or as consolidation questions on a weekly basis.</p>



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Cells	<p>Describe the function of the different parts of a cell</p> <p>Describe the function of the key organelles.</p> <p>Describe how the structure of an animal cell differs from that of a plant cell</p> <p>Describe the key features of different specialised cells</p> <p>Label diagrams of bacterial cells.</p> <p>Describe simply how and why body cells divide by mitosis</p> <p>Describe the process of Osmosis</p>	<p>Organism</p> <p>cell</p> <p>microscope</p> <p>observation</p> <p>nucleus</p> <p>membrane</p> <p>cytoplasm,</p> <p>mitochondria</p> <p>respiration</p> <p>cell wall</p> <p>vacuole</p> <p>chloroplast</p> <p>specialised cell</p> <p>nerve cell</p> <p>red blood cell</p> <p>sperm cell</p> <p>leaf cell</p> <p>root hair cell,</p> <p>diffusion,</p> <p>concentration,</p> <p>unicellular</p> <p>amoeba</p> <p>euglena</p> <p>flagellum</p>	<p>This is an introduction to Biology, covering Prokaryotic and Eukaryotic Cells. Pupils will learn about the structure of an basic Animal and Plant cell as well as specialised Animal and Plant Cells.</p> <p>Within this topic pupils will look at Light Microscopes, the parts of the microscope and how to prepare and view specimens under the microscope.</p>	<p>Working Scientifically:</p> <p>WSB4 ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience</p> <p>WSB7 use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety</p> <p>WSB9 apply sampling techniques</p> <p>WSC Analysis and evaluation</p> <p>WSC10 apply mathematical concepts and calculate results</p> <p>WSD17 use and derive simple equations and carry out appropriate calculations</p>	<p>This will be set as either a Vocabulary test or as consolidation questions on a weekly basis.</p>



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Particles	<p>Describe the properties of the three states of matter with reference to the particle model (forces, bonds, energy, arrangement and movement)</p> <p>Recall and apply the density equation to Calculate the density of a range of regular shaped objects</p> <p>Describe how pressure acts and changes in liquids</p> <p>Describe atmospheric pressure in terms of air particles</p> <p>Describe the effects of volume and temperature on gas pressure</p> <p>Describe what factors can affect the rate of diffusion</p> <p>Demonstrate experimentally that there is no temperature change while a system is changing state</p> <p>Draw and interpret the pattern of heating/cooling graphs</p> <p>Investigate the factors that affect the energy required to heat an object</p>	<p>Solid, liquid, gas density evaporation melting boiling condensing sublimation pressure, volume diffusion temperature compressed atmosphere incompressible newtons</p>	<p>This topic covers the introduction to states of matter, the movement of particles and energy needed to change states.</p> <p>It also incorporates the concept of density or regular and irregular objects. Within this pupils will draw and interpret graphs to interpret heating and cooling of objects.</p>	<p>Working Scientifically:</p> <p>WSB5 make predictions using scientific knowledge and understanding</p> <p>WSB8 make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements</p> <p>WSC10 apply mathematical concepts and calculate results</p> <p>WSC11 present observations and data using appropriate methods, including tables and graphs</p> <p>WSC12 interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions</p> <p>WSD17 use and derive simple equations and carry out appropriate calculations</p> <p>Maths skills:</p> <p>4 a Translate information between graphical and numeric form</p> <p>Links to AQA GCSE specification:</p> <p>6.3.1 Changes of state and the particle model</p> <p>6.3.1.1 Density of materials</p> <p>6.3.1.2 Changes of state</p> <p>6.3.3 Particle model and pressure</p> <p>6.3.3.1 Particle motion in gases</p>	<p>This will be set as either a Vocabulary test or as consolidation questions on a weekly basis.</p>



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Magnets	<p>Describe how magnets interact</p> <p>Describe the difference between magnetic materials and permanent magnets</p> <p>Describe how to find and draw the magnetic field around a permanent (bar) magnet</p> <p>Relate the magnetic field around a bar magnet to the Earth's magnetic field</p> <p>Describe the difference between induced/temporary and permanent magnets</p> <p>Explain how electromagnets work in different examples</p> <p>Describe how we can change the strength of an electromagnet</p> <p>Describe how a simple motor works</p> <p>Suggest ways to make a motor turn faster</p>	Magnet, north pole, south pole, magnetic material, magnetic field, magnetic field line, electromagnet, core, magnetise, relay, motor	<p>This topic covers the principles of magnets, what makes a material magnetic and understanding a magnetic field.</p> <p>Within this topic pupils will learn about the applications of magnets, the uses of electromagnets and how motors work.</p>	<p><b>Working Scientifically</b></p> <p>pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility</p> <p>make predictions using scientific knowledge and understanding</p> <p>select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables</p> <p>make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements</p> <p>present observations and data using appropriate methods, including tables and graphs</p> <p><b>Links to AQA GCSE specification</b></p> <p>6.7 Magnetism and electromagnetism</p> <p>6.7.1.1 Poles of a magnet</p> <p>6.7.1.2 Magnetic fields</p> <p>6.7.2.1 Electromagnetism</p> <p>6.7.2.3 Electric motors (HT only)</p>	This will be set as either a Vocabulary test or as consolidation questions on a weekly basis.



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The Periodic Table	<p>Explain why some elements are more reactive than others</p> <p>Build simple formula from symbols</p> <p>Explain why a non – metals properties make them useful for certain jobs and give examples</p> <p>Describe ways in which group one metals are different from main group metals.</p> <p>Use data to describe a trend in (e.g. boiling points of Halogens)</p> <p>Link the properties of group 7 elements to their uses.</p> <p>Link the properties to their uses</p> <p>Describe and Explain why the periodic table has changed throughout the years</p> <p>Write word equations for reactions</p> <p>Explain the difference between atoms and molecules</p> <p>Write symbol equations for reactions</p>	<p>Element, periodic table, chemical symbol, atom, compound, molecules, chemical formula metal, non-metal, metalloid, physical property, chemical property, acid rain, group, density, period, group 1, reactive, group 7, halogen, displace, displacement reaction, group 0, noble gases, unreactive.</p>	<p>In this topic pupils will cover an introduction to the Periodic Table developed by Mendeleev and understanding how the periodic table has evolved.</p> <p>Pupils will be able to draw the atomic structure of the first 20 elements and be able to distinguish between protons, neutrons and electrons.</p> <p>Within this topic pupils will practice writing chemical formula for elements and compounds, including balancing symbol equations,</p>	<p>Working Scientifically:</p> <p>WSA2 understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review</p> <p>WSB4 ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience</p> <p>WSB5 make predictions using scientific knowledge and understanding</p> <p>WSC12 interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions</p> <p>Links to AQA GCSE specification</p> <p>5.1.1.1 Atoms, elements and compounds</p> <p>5.1.1.4 Relative electrical charges of subatomic particles</p> <p>5.1.1.5 Size and mass of atoms</p> <p>5.1.2.1 The periodic table</p> <p>5.1.2.2 Development of the periodic table</p> <p>5.1.2.3 Metals and non-metals</p> <p>5.1.2.4 Group 0, 5.1.2.5 Group 1, 5.1.2.6 Group 7</p> <p><b>Maths skills</b></p> <p>4 Graphs - 4a Translate information between graphical and numeric form</p>	<p>This will be set as either a Vocabulary test or as consolidation questions on a weekly basis.</p>



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