



# Year 9 – Science – Curriculum grid



Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 9	<p><b>10.3 – Evolution (Genes)</b>            -Theory of natural selection.            -Process of peer review.            -Charles Darwin evidence of his theory.            -Factors that may lead to extinction and techniques to prevent.            -Lack of biodiversity in an ecosystem.            -Preserving biodiversity to benefit humans.</p> <p><b>10.4 – Inheritance (Genes)</b>            -Inheritance of characteristics.            -Relationship between DNA, genes and chromosomes.            -Structure of DNA.            -Difference between dominant and recessive alleles.            -Why offspring are not identical to their parents.            -Products is produced using genetic modification.            -Advantages of genetic modification.</p>	<p><b>2.3 – Magnetism (Electromagnets)</b>            -How magnets interact.            -How magnetic fields are link to the strength and direction.  <b>Investigation:</b>            Creating a magnetic field using a magnet and iron filings.</p> <p><b>2.4 –Electromagnets (Electromagnets)</b>            -How to make an electromagnet.            -How the strength of an electromagnet changes with distance.            -Purpose of electromagnets.            -How electric bells, circuit breakers and loudspeakers work.  <b>Investigation:</b>            Creating and testing electromagnets.</p> <p><b>3.3 – Work (Energy)</b>            - What ‘work’ is and work needed to move objects different distances.            -How a lever works.  <b>Investigation:</b>            Creating a pulley system to lift heavier objects.</p> <p><b>3.4 – Heating and cooling (Energy)</b>            -Difference between energy</p>	<p><b>5.3 – Elements (Matter)</b>            -What are elements and the chemical symbols.            -What are atoms and their particle diagrams.            -What are compounds.            -Representing molecules, elements, mixtures and compounds with particle diagrams.            -Chemical formulae of different elements.            -Structure of polymers and particle diagrams.</p> <p><b>5.4 – Periodic table (Matter)</b>            -Groups and periods of the Periodic Table – elements.            -Properties and reactivity of the elements of group 1, 7 and 0.            -Reactions of the elements in group 1, 7 and 0.</p>	<p><b>9.3 – Respiration (Ecosystems)</b>            - What happens during aerobic respiration.            -Difference between aerobic respiration and anaerobic respiration and the activities            -Biotechnology - How bread, beer and wine are made.  <b>Investigation:</b>            Making bread dough.</p> <p><b>9.4 – Photosynthesis (Ecosystems)</b>            -Photosynthesis and the resources plants need.            -How plants make glucose.            -Structure and function of the main components of a leaf.            -Adaptation of a leaf for photosynthesis.            -Factors that affect the rate of photosynthesis.            -How plant use minerals for healthy growth.            – Fertiliser uses.  <b>Investigation:</b>            Collecting oxygen produced by pondweed.            Testing leaves for starch.</p>	<p><b>7.3 – Climate (Earth)</b>            -Increase of greenhouse gases and the temperature of the Earth.            -Naming greenhouse gases.            -Names and percentages of gases in the Earth’s atmosphere.            -Processes that recycle carbon naturally -The carbon cycle.            -Causes of global warming and scientific evidence.            -Human activities affecting the carbon cycle.            -Global warming impacts on climate and weather patterns.</p> <p><b>7.4 – Earth resources (Earth)</b>            -What an ore is and the methods of extracting metals.            -How the Earth’s resources are extracted.            -Why certain natural resources will run out.            -Recycling some materials is more important.            -How the Earth’s resources are recycled.</p>	<p><b>6.3 – Types of reactions(Reactions)</b>            -Model of chemical change and conservation of mass.            -Word equations for chemical reactions.            -Energy transfers involved in combustion and the particle diagrams.            -What thermal decomposition is and the equations/ article diagrams.            -What conversation of mass is in a chemical or physical change.  <b>Investigation:</b>            Testing the gas produced when copper carbonate is heated.</p> <p><b>6.4 Chemical energy (Reactions)</b>            -Exothermic and endothermic changes.            -Energy level diagrams to show exothermic and endothermic reactions.            -Chemical bonds during exothermic and endothermic reactions.  <b>Investigation:</b>            Testing a range of endothermic and exothermic reactions.</p>

		<p>and temperature.</p> <ul style="list-style-type: none"><li>-Thermal energy of objects and why they change temperature.</li><li>-How energy transfer: particles</li><li>-Sources of infrared radiation.</li><li>-How energy is transferred from the sun to Earth.</li><li>-Conduction, convection and radiation.</li></ul> <p><b>Investigation:</b> Testing how energy is transferred a range of substances.</p>				
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