

Science KS3 Curriculum Plan

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
7	<p>Topic: Particles</p> <p>Scientific equipment Hazards and risks Using Bunsen burners</p> <p>Particle model – states of matter Brownian motion (EXT) Particle model- advantages and disadvantages (EXT) Changes of state Melting and Boiling points Expansion and contraction (EXT) Diffusion, osmosis, active transport</p> <p>Atoms and elements Compounds and mixtures Symbols and formulae Structure of an atom</p>	<p>Topic: Types of reaction</p> <p>Physical and Chemical reactions Solubility Rates of dissolving Filtration Crystallisation (linking to evaporation) Simple Distillation Chromatography</p> <p>Acids and Alkalis Indicators Neutralisation</p>	<p>Topic: Forces</p> <p>Identifying forces – contact vs non contact Balanced and unbalanced forces Resultant force Newton's Laws (EXT) Hooke's Law- practical and graph skills (EXT) Friction- advantages and disadvantage Streamlining- everyday examples and linked to particles Moments (EXT) Speed calculations Speed- time graph Velocity-time graph</p> <p>Gravity, weight and mass Solar system Day and night Seasons Galaxies and universe Light year</p>	<p>Topic: Energy</p> <p>Different types of energy stores Energy transfers Sankey diagrams (EXT) Efficiency calculations Conduction, convection and radiation Preventing heat loss- practical skills</p> <p>Renewable and non-renewable Renewables- advantages and disadvantages Nuclear energy Calculations: power and energy costs</p>	<p>Topic: Interdependence and cells</p> <p>Living things: MRS NERG 5 Kingdoms and classes Classification and keys Food chains Food webs Pyramids of numbers Pyramids of biomass (EXT) Environment and habitats Competition Sampling techniques (EXT)</p> <p>Animal cells Plant cells Prokaryotic vs eukaryotic Microscopes Microscope calculations (EXT) Specialised cells Stem cells Cells, tissues, organs, systems</p>	<p>Topic: Reproduction and Variation</p> <p>Male and female reproductive organs in humans and plants Gametes – humans and plants Fertilisation in humans Pregnancy and gestation (EXT) Menstrual cycle (EXT)</p> <p>Genetic and environmental variation Genetic cross diagrams (EXT) Genetic diseases and sexual determination (EXT)</p> <p>Adaptation Natural Selection Selective Breeding Endangered species and extinction Biodiversity (EXT) Extremophiles (EXT)</p>
8	<p>Topic: Periodic table and materials</p> <p>The periodic table – structure History of the periodic table (EXT) Metals and non-metals Alloys (EXT) Ceramics (EXT) Polymers (EXT) Composite (EXT)</p> <p>Atomic Structure Ar and Mr (EXT) Alkali metals (group 1) Halogens (Group 7) Noble Gases (Group 0) (EXT) Naming compounds (EXT) Writing formulae (EXT) Exothermic and endothermic reactions Testing for gases</p>	<p>Topic: Chemical Reactions and the environment</p> <p>Metals and oxygen Metals and acid reactions Acids and hydroxides (EXT) Acids and carbonates (EXT) Combustion Word and symbol equations (taught throughout this topic) Balancing equations (taught throughout this topic) Conservation of mass</p> <p>The Reactivity series (EXT) Displacement reactions (EXT) Extracting metals (EXT) Rates of reaction (EXT) Catalysts (EXT)</p> <p>Fossil fuel formation Climate change Greenhouse effect (EXT) Carbon cycle Recycling</p>	<p>Topic: Waves and Pressure</p> <p>Waves – EM waves Transverse and longitudinal (EXT) The eye and light Reflection Refraction Seeing colour (EXT)</p> <p>Producing sounds How sound travels Hearing sounds – The ear (EXT) Properties of sound waves Wave calculations Using sound: ultrasound and echowaves (EXT)</p> <p>Pressure (over area) Pressure (in liquids) Pressure (in gases)</p>	<p>Topic: Electricity and Magnetism</p> <p>Static electricity (EXT) Conductors and Insulators Electrical circuits Current Potential difference Measuring potential difference Series and Parallel circuits Resistance in a circuit (EXT) Power in a circuit (EXT)</p> <p>Magnets Making Magnets Drawing magnetic fields Earth's magnetic field Electromagnets (EXT) Using Electromagnets (EXT)</p>	<p>Topic: Energy from food</p> <p>Food groups Balanced and unbalanced diets Energy in food Tissues and organs of the digestive system Digestion Absorption – diffusion, active transport, osmosis (EXT) Enzymes in the digestive system</p> <p>Photosynthesis Leaf adaptations – Gas exchange Rood adaptation - Absorption of water Transpiration/translocation (EXT) Testing for starch</p>	<p>Topic: Keeping Healthy</p> <p>Sub cellular structures (recap) Cells, tissues, organs and systems The lungs Breathing Gas exchange The heart and blood The circulatory system Aerobic respiration Anaerobic respiration Exercise and respiration</p> <p>Communicable vs non communicable diseases Microorganisms Pathogens Antibiotics Add in human defences Vaccination (EXT)</p>