

Year 7 Curriculum Plan

Science



	Autumn / Spring Terms	Spring / Summer Terms
PRIOR LEARNING	<p>Beginning scientist: Plan and conduct investigations, control variables, take accurate measurements, record complex data, use results for predictions.</p> <p>Matter 1: Classify materials, observe state changes, group by properties, separate mixtures, understand reversibility.</p> <p>Forces 1: Compare movement, identify contact/non-contact forces, explore gravity as a pulling force, explore resistance, amplify force with tools.</p> <p>Organisms 1: Skeletons support/protect, vertebrates have backbones, body systems have specific functions (circulatory, skeletal, digestive).</p> <p>Ecosystems 1: Group living things. Explore adaptations. Build and interpret food chains.</p>	<p>Waves: Vibrations make sound, vibration strength affects volume. Light travelling straight explains seeing and shadows.</p> <p>Genes 1: Compare life cycles, plant/animal reproduction, human development. Evolution and adaptations.</p> <p>Reactions 1: Identify non-reversible changes like burning and acid reactions.</p> <p>Earth 1: Movement of planets around the Sun in the solar system, the Moon's movement relative to Earth, the spherical nature of the Sun, Earth, and Moon. The cause of day and night. Identify rocks from appearance and simple physical properties. Simple fossil formation. Soils are made from rocks and organic matter.</p>
KNOWING WHAT...	<p>Beginning Scientist: Lab safety, identify equipment, microscope parts, hazard symbols.</p> <p>Matter 1: Particle motion explains material properties. Temperature changes energy in particles. Pure substances change state at fixed points, mixtures separated by physical differences.</p> <p>Forces 1: Forces are pushes or pulls (measured in Newtons). Mass vs. weight (kg vs. Newtons).</p> <p>Organisms 1: Identify and describe main cell functions. Types of cells (prokaryote/eukaryote). Cell vs. tissue vs. organ vs. organ system (basic functions).</p> <p>Ecosystems 1: Producers, consumers, decomposers in food webs. Toxin accumulation in food chains. Insect role in fruit production. Wind vs. insect pollinated plants. Seed dispersal strategies.</p>	<p>Waves: waves transfer energy, not matter. Label wave types. Sound: vibrations and pitch. Waves reflect, refract, transmit, absorb. Light spectrum, both visible and invisible.</p> <p>Genes 1: Variation within species (inherited, environmental, combined). Variation helps avoid extinction. Reproductive organs and functions. Menstrual cycle and pregnancy. Foetus dependence on mother.</p> <p>Reactions 1: Metals vs. non-metals properties. Chemical rearrangements: combustion, thermal decomposition, oxidation, displacement. Acids/alkalis and neutralisation. pH scale and indicators. Acids with metals/alkalis reactions.</p> <p>Earth 1: characteristics of each layer of the Earth; earthquakes, volcanic eruptions and mountain formation at tectonic plate boundaries; rock cycle; the differences between the Sun, other stars and galaxies; implications of the Earth being tilted on its axis; phases of the moon</p>
KNOWING HOW	<p>Beginning Scientist: Bunsen safety, risk assessment, microscopes, variables, data, math.</p> <p>Matter 1: Separation techniques, particle models.</p> <p>Forces 1: Speed calculations, distance-time graphs, motion experiments, force diagrams, weight formula.</p> <p>Organisms 1: Microscope-aided cell observation, magnification calculations.</p> <p>Ecosystems 1: Population changes in food webs, predicting predator/prey dynamics, evaluating seed dispersal methods</p>	<p>Waves: Models explaining reflection and refraction (ray diagrams).</p> <p>Genes 1: Graphs for variation (continuous/discontinuous), gestation/menstrual timelines.</p> <p>Reactions 1: Word equations, mass change data, hazard awareness, pH measurements with indicators.</p> <p>Earth 1: Explain the need for a large unit of astronomical distance; Evaluate models; interpreting diagrams to develop explanations; peer review; scientific theories.</p>
ASSESSMENT	<p>Beginning Scientist: Bunsen burner licence awarded upon successful independent use.</p> <p>Matter 1: Separation techniques, particle models.</p> <p>Forces 1: Speed calculations, distance-time graphs, experiments, force diagrams, weight formula.</p> <p>Organisms 1: Animal and plant cells, magnification calculations, how to prepare and view a microscope slide.</p> <p>Ecosystems 1: Population changes in food webs, predicting predator/prey dynamics, evaluating seed dispersal methods.</p> <p>End of block assessment: An end of block assessment in the form of a 1-hour exam paper will be undertaken upon completion of the first Biology, Chemistry and Physics units outlined above. This assessment will cover key concepts encountered over all of these topics.</p>	<p>Waves: Models explaining reflection and refraction (ray diagrams).</p> <p>Genes 1: Graphs for variation (continuous/discontinuous), gestation/menstrual timelines.</p> <p>Reactions 1: Word equations, mass change data, hazard awareness, pH measurements with indicators.</p> <p>Earth 1: layers of the earth, rock cycle, explaining seasons,</p> <p>End of block assessment: An end of block assessment in the form of a 1-hour exam paper will be undertaken upon completion of the first Biology, Chemistry and Physics units outlined above. This assessment will cover key concepts encountered over all of these topics.</p>