

Ropemakers Academy Science Curriculum Content 2025-26

Primary: Years 1 - 6

Developing Experts Scheme of Work • Term by Term Coverage

	Term 1 (Autumn)	Term 2 (Spring)	Term 3 (Summer)
Stage 1	<p>Seasonal Changes & Weather</p> <ul style="list-style-type: none"> • Observing changes across four seasons. • Weather symbols and day length. • <i>Rocket Words</i>: Season, hibernate, harvest, temperature. • Enquiry: Collecting rainwater and designing dens for winter. 	<p>Everyday Materials</p> <ul style="list-style-type: none"> • Distinguishing between object and material. • Identifying wood, plastic, glass, metal, water, rock. • Properties: Hard, soft, shiny, dull, rough, smooth. • Enquiry: Simple sorting and grouping of classroom objects. 	<p>Animals & Plants</p> <ul style="list-style-type: none"> • Animals: Fish, amphibians, reptiles, birds, mammals. • Diet: Carnivores, herbivores, omnivores. • Plants: Common wild and garden plants; structure (roots, leaves). • <i>Rocket Words</i>: Deciduous, evergreen, gill, scale, beak.
Stage 2	<p>Uses of Everyday Materials</p> <ul style="list-style-type: none"> • Suitability of materials (wood, metal, plastic, glass, brick, rock, paper/cardboard). • Changing shapes: Squashing, bending, twisting, stretching. • Enquiry: Testing materials to build a bridge; testing stretchiness. 	<p>Living Things & Habitats</p> <ul style="list-style-type: none"> • Differences between things that are living, dead, and never lived. • Habitats and micro-habitats. • Food chains (sources of food). • Enquiry: Identifying and classifying minibeasts. 	<p>Plants & Growth</p> <ul style="list-style-type: none"> • Seeds and bulbs: Germination and growth. • Requirements: Water, light, suitable temperature. • Plant adaptations (forest vs desert). • <i>Rocket Words</i>: Photosynthesis, energy, reproduction, seedling.
Stage 3	<p>Forces, Magnets & Rocks</p> <ul style="list-style-type: none"> • Forces: Pushes and pulls; magnetic attraction/repulsion; poles. • Rocks: Igneous, sedimentary, metamorphic; fossils and soils. • Enquiry: Testing magnetic materials; soil permeability. 	<p>Light & Shadows</p> <ul style="list-style-type: none"> • Light sources and reflection. • Shadows: Opaque, translucent, transparent objects. • Changing size of shadows. • <i>Rocket Words</i>: Fluorescent, sundial, artificial, natural. • Enquiry: Making shadow puppets; investigating reflective surfaces. 	<p>Scientific Enquiry & Plants</p> <ul style="list-style-type: none"> • Plants: Functions of roots, stem/trunk, leaves, and flowers; pollination and seed dispersal. • Enquiry Focus: <i>How can a solar oven be made more effective?</i> (Posing questions, prediction, recording results). • Animals: Skeletons and muscles (support and movement).

<p>Stage 4</p>	<p>Electricity & Sound</p> <ul style="list-style-type: none"> • Electricity: Mains vs battery; constructing series circuits; switches; conductors and insulators. • Sound: Vibration, pitch, volume; how sound travels to the ear. • <i>Rocket Words:</i> Current, complete circuit, amplitude, frequency. 	<p>States of Matter</p> <ul style="list-style-type: none"> • Solids, liquids, and gases. • Changes of state: Heating and cooling (melting, freezing, evaporating, condensing). • The Water Cycle. • Enquiry: Observing phase changes and temperature. 	<p>Animals (Digestion) & Habitats</p> <ul style="list-style-type: none"> • Digestion: The simple functions of the digestive system (oesophagus, stomach, intestines). • Teeth: Types and functions; tooth decay investigation. • Living Things: Classification keys; environmental changes. • Enquiry: Modelling the digestive system.
<p>Stage 5</p>	<p>Forces</p> <ul style="list-style-type: none"> • Gravity (Isaac Newton); Air resistance (Parachutes). • Water resistance and Friction (surface area effects). • Levers, pulleys, and gears. • <i>Rocket Words:</i> Streamlined, opposing, mechanism, upthrust. • Enquiry: Designing parachutes; testing boat shapes. 	<p>Earth, Space & Materials</p> <ul style="list-style-type: none"> • Space: Movement of Earth/Moon relative to Sun; Solar System; Day and Night. • Materials: Properties (hardness, solubility, transparency, conductivity). • Reversible vs Irreversible changes (burning, rusting). • Enquiry: Separating mixtures; dissolving rates. 	<p>Living Things & Life Cycles</p> <ul style="list-style-type: none"> • Differences in life cycles: Mammal, amphibian, insect, bird. • Metamorphosis (complete/incomplete). • Reproduction in plants and animals. • Enquiry: Researching and presenting specific animal life cycles (e.g., Jane Goodall/David Attenborough studies).
<p>Stage 6</p>	<p>Electricity & Light</p> <ul style="list-style-type: none"> • Electricity: Voltage and brightness; circuit diagrams (symbols); correcting circuits; traffic light project. • Light: Light travels in straight lines; how we see (eye structure). • <i>Rocket Words:</i> Voltmeter, filament, refraction, spectrum. 	<p>Evolution & Classification</p> <ul style="list-style-type: none"> • Classification: Micro-organisms, plants, and animals (Linnaean system). • Evolution: Inheritance, adaptation, and fossils (Charles Darwin). • Enquiry: Classifying distinct species; examining fossil evidence. 	<p>Environment & Human Health</p> <ul style="list-style-type: none"> • Environment: Sustainability; renewable/non-renewable energy; combustion; COP26 outcomes. • Circulatory System: Heart, blood vessels, blood; impact of diet, exercise, drugs, and lifestyle. • Enquiry: Analysing weather data; exploring ways to reduce energy consumption.

Based on Ropemakers Academy Developing Experts Curriculum Maps.

Secondary KS3: Years 7 - 9

Developing Experts Scheme of Work • Term by Term Coverage

Year	Term 1 (Autumn)	Term 2 (Spring)	Term 3 (Summer)
Stage 7	<p>Biology: Life & Cells</p> <ul style="list-style-type: none"> • Cells & Organisation: Unicellular vs multicellular organisms; cell structure (animal/plant); microscopy skills. • Skeletal & Muscular Systems: Bone structure; joints; muscles and movement; keeping healthy. • Reproduction: Human reproductive systems; fertilisation; gestation; puberty. 	<p>Chemistry: Matter & Elements</p> <ul style="list-style-type: none"> • Atoms & Particles: States of matter; particle model; changes of state; diffusion. • The Periodic Table: Elements, compounds, mixtures; symbols and formulae; metals vs non-metals. • Pure Substances: Solutions; solubility; separating mixtures (filtration, distillation, chromatography). 	<p>Physics: Energy & Forces</p> <ul style="list-style-type: none"> • Energy & Heat (1 & 2): Energy stores and transfers; fuel and energy resources; conduction, convection, radiation; insulation. • Forces & Motion (1): Speed, distance, time graphs; balanced and unbalanced forces; gravity and weight.
Stage 8	<p>Biology: Systems & Diet</p> <ul style="list-style-type: none"> • Nutrition, Health & Digestion: Balanced diet; food groups; the digestive system; enzymes; absorption. • Photosynthesis: Plant nutrition; leaf structure; gas exchange; respiration in plants. • Enquiry Focus: Testing foods for starch/sugar; investigating factors affecting photosynthesis. 	<p>Chemistry: Reactions & Materials</p> <ul style="list-style-type: none"> • Chemical Reactions (1 & 2): Acids and alkalis (pH scale); neutralization; combustion; thermal decomposition; conservation of mass. • Materials: Properties of ceramics, polymers, and composites; recycling and sustainability. • Matter (1 & 2): Density; pressure in fluids; particle theory revisited. 	<p>Physics: Forces & Waves</p> <ul style="list-style-type: none"> • Forces & Motion (2): Friction and drag; pressure; moments and levers. • Waves (1): Sound waves; vibration; pitch and volume; hearing; light waves; reflection and refraction. • Enquiry Focus: Investigating sound insulation; exploring light paths.
Stage 9	<p>Biology: Environment & Survival</p> <ul style="list-style-type: none"> • Ecosystems & Evolution (1 & 2): Food webs; interdependence; adaptation; natural selection; inheritance and DNA. • Respiration: Aerobic and anaerobic respiration; exercise and the body; gas exchange systems. 	<p>Physics: Electricity & Magnetism</p> <ul style="list-style-type: none"> • Electricity & Magnetism (1 & 2): Series and parallel circuits; current, voltage, resistance; electromagnets; magnetic fields. • Waves (2): The electromagnetic spectrum; colour; uses of waves (radio, micro, etc.). 	<p>Earth & Space</p> <ul style="list-style-type: none"> • Space Physics: The Solar System; gravity; days, years, and seasons; phases of the Moon; stars and galaxies. • Earth & Atmosphere: Rock cycle; structure of the Earth; the atmosphere and climate change; carbon cycle. • Transition: Consolidation of Key Stage 3 concepts in preparation for Entry Level/GCSE pathways.

Based on Ropemakers Academy Developing Experts KS3 Curriculum Map (Units 1-25).

Secondary KS4: Years 10 & 11

Pathways to Adulthood: Entry Level & GCSE

Depending on which qualification pathway an individual student is taking (Entry Level Certificate Single/Double Award or GCSE Combined Science), they will cover the following aspects of Science. This map represents a suggested term-by-term breakdown, tailored to the specific ability level and cognitive profile of each group, but is subject to

Year Group	Term 1 (Autumn)	Term 2 (Spring)	Term 3 (Summer)
Stage 10	<p>Biology: The Human Body (Component 1)</p> <ul style="list-style-type: none"> • Cell Biology: Animal and plant cells; microscopy; cell specialisation. • Health & Disease: Pathogens (viruses/bacteria); the immune system; vaccination and antibiotics. • Coordination: The nervous system; homeostasis; hormones and control. • Enquiry: Testing reaction times; investigating heart rate. 	<p>Chemistry: Matter & Bonding (Component 3)</p> <ul style="list-style-type: none"> • Atomic Structure: The Periodic Table; elements, mixtures, and compounds; electronic structure. • Bonding: Ionic and covalent bonding; properties of metals and alloys. • Separation Techniques: Filtration, crystallisation, and chromatography. • Enquiry: Investigating melting points; separating mixtures. 	<p>Physics: Energy & Forces (Component 5)</p> <ul style="list-style-type: none"> • Energy: Energy stores and transfers; conservation of energy; power and efficiency. • Forces: Newton's laws; speed, velocity, and acceleration; stopping distances. • Atomic Physics: Nuclear radiation (alpha, beta, gamma); half-life. • Enquiry: Investigating insulation materials; speed of moving objects.
Stage 11	<p>Biology: Environment & Genetics (Component 2)</p> <ul style="list-style-type: none"> • Ecology: Ecosystems; biotic and abiotic factors; feeding relationships (food webs). • Inheritance: DNA structure; genetic disorders; variation and natural selection. • Evolution: Fossils; extinction; selective breeding. • Enquiry: Investigating photosynthesis (light intensity); sampling organisms in a habitat. 	<p>Chemistry: Reactions & Earth (Component 4)</p> <ul style="list-style-type: none"> • Chemical Changes: Acids and alkalis (pH); neutralization; reactivity of metals. • Rates of Reaction: Factors affecting rate (temperature, concentration, surface area). • Atmosphere: The Earth's resources; potable water; climate change. • Enquiry: Investigating rates of reaction; testing water pH. 	<p>Physics: Electricity & Waves (Component 6)</p> <ul style="list-style-type: none"> • Electricity: Current, potential difference, and resistance; domestic electricity and safety. • Magnetism: Magnetic fields; electromagnets. • Waves: Transverse and longitudinal waves; the electromagnetic spectrum. • Enquiry: Investigating resistance in wires; wave properties. • Assessment: Final exams and coursework completion.

Based on Ropemakers Academy KS4 Entry Level Science Curriculum Outline and Pearson Edexcel GCSE (9-1) Combined Science Specification.