Theme	Lower KS2	Upper KS2	KS3	KS4 Entry Level Science and GCSE Biology	Vocabulary progression
Animals Including Humans	**K:** Identify key bones and explain how the skeleton, muscles and joints support, protect and move the body. Understand that food provides nutrients, the digestive system breaks down food, and the heart pumps blood around the body; recognise how diet, exercise and everyday choices can affect health. **WS:** Use labelled diagrams, observations and measurements to explore how the body works.	**K:** Explain how bones, joints and muscles work together for movement; how the digestive and circulatory systems provide the body with nutrients and oxygen; and how diet, exercise and drugs can affect health. **WS:** Plan enquiries, take accurate measurements, record data using diagrams, tables and graphs, and draw conclusions.	**K:** Build on knowledge of the skeleton, digestion and circulation by explaining how specialised cells form tissues, tissues form organs and organs work together in systems. Explain how the digestive, respiratory and circulatory systems interact to provide cells with nutrients and oxygen, and how lifestyle choices can increase health risks. **WS:** Plan and carry out controlled enquiries, identify variables, analyse data and evaluate the reliability of conclusions.	**K: ELC 1 – The Human Body:** Apply knowledge of specialised cells and organ systems to explain how the body functions, fights disease and coordinates responses. **WS:** Carry out practical investigations safely and use results to draw conclusions. **K: GCSE Biology:** Explain how specialised cell structure supports function, how enzymes catalyse digestion, and how diffusion, osmosis and active transport move substances into and out of cells. **WS:** Plan, carry out and evaluate practical investigations, using	**LKS2** Bone, Muscle, Move, Food, Heart, Healthy **UKS2** Skeleton, Joint, Nutrient, Digestion, Circulatory System, Heart Rate **KS3** Cell, Organ System, Enzyme, Musculoskeletal system, Antagonistic muscles **ELC** Cell, Tissue, Organ, Organ system, Specialised cell, Digestion **additional GCSE** Denature, Diffusion, Osmosis, Active transport, Variable.

				data to draw evidence-based conclusions.	

Theme	Lower KS2	Upper KS2	KS3	KS4 Entry Level Science and GCSE Biology	Vocabulary progression
Materials and Changes	**K:** Identify common materials and describe simple properties, such as hard, soft and smooth. Sort solids, liquids and gases, and recognise that some changes can be undone while others cannot. **WS:** Use simple observations and	**K:** Explain how material properties make them suitable for different uses and describe how heating and cooling cause changes of state. Explain that some changes, including dissolving, are reversible, while others	**K:** Use the particle model to explain the properties of solids, liquids and gases and changes of state. Distinguish between elements, compounds and mixtures, and between physical and chemical changes; explain that mass is conserved because	**K: ELC Component 3 – Chemistry: Elements, mixtures and compounds.** Build on prior learning about materials, states of matter and reversible and irreversible changes by identifying elements, compounds	**LKS2** Material, Solid, Liquid, Gas, Melt, Change **UKS2** Property, State of Matter, Evaporation, Condensation, Reversible, Irreversible

	sorting to explore materials and changes.	produce new materials and cannot be undone **WS:** Plan and carry out comparative tests of materials, record observations and measurements, and use results to draw conclusions.	atoms are rearranged to form new substances during chemical reactions. **WS:** Plan controlled experiments, accurately measure mass and temperature, record data in tables and graphs, and evaluate conclusions	and mixtures, including separating materials. **K: ELC Component 4 – Chemistry in our world** Recognising chemical reactions involving acids, metals and temperature change **WS:** Test the properties of physical and chemical changes by making predictions, carrying out fair tests and using evidence to draw conclusions. **K: GCSE Biology:** Apply ideas about the particle model to diffusion, osmosis, active transport. **WS:** Follow practical methods safely and evaluate results.	**KS3** particle, physical change, chemical change, element, mixture, compound. **ELC** Variable, reactant, product, acid, alkali, temperature change. **GCSE** Diffusion, Osmosis, Active Transport, Concentration Gradient, High concentration, Low concentration.

Theme	Lower KS2	Upper KS2	KS3	KS4 Entry Level Science and GCSE Biology	Vocabulary progression
Light, Sound and Electricity	**K:** Identify light sources and explain that light helps us to see and can reflect from shiny surfaces. Recognise that sounds are caused by vibrations, and identify everyday electrical objects and components used to build a simple circuit. **WS:** Observe changes in shadows, test materials in simple circuits and record findings using labelled diagrams.	**K:** Explain natural and artificial light sources and use diagrams to show reflection and shadows. Explain that sound is caused by vibrations and that vibration frequency affects pitch. Build and explain complete series circuits, predict the effect of changing components, and identify conductors and insulators. **WS:** Investigate shadows, vibrations and circuits; record results using diagrams and tables and use patterns to explain findings.	**K:** Use ray diagrams to explain how light travels in straight lines, reflects and forms shadows, including that the angle of incidence equals the angle of reflection. Explain sound as a longitudinal wave using frequency and amplitude. Draw, build and compare series and parallel circuits, linking conductivity to electron movement and measuring current and voltage. **WS:** Use accurate diagrams, circuit symbols and measurements to investigate light, sound	**K: ELC Component 6 Electricity, Magnetism and Waves:** Build on prior learning about light, sound and explain electrical current and magnetism, recognising sound as a longitudinal wave and visible light as part of the electromagnetic spectrum. **WS:** Investigate light, sound and circuits, take measurements and use results to draw conclusions. **K: GCSE Biology:** Apply light to microscopy and the eye; apply electrical	**LKS2:** Light source, reflection, shadow, vibration, circuit, cell. **UKS2:** Pitch, frequency, conductor, insulator, series, parallel. **KS3:** Wavelength, amplitude, resistance, attraction, repulsion, refraction.

			and electricity, then analyse results to explain patterns and relationships.	ideas to the nervous system and responses. **WS:** Build circuits or use microscopes accurately; record results.	**ELC** Electromagnetic spectrum, transverse, longitudinal, magnetic field, radiation, energy transfer. **GCSE** Magnification, Resolution, Retina, Optic nerve, Neurone, Synapse.

Theme	Lower KS2	Upper KS2	KS3	KS4 Entry Level Science and GCSE Biology	Vocabulary progression
Rocks, Fossils and Evolution	**K:** Identify different rocks and soils and recognise that fossils are remains of living things from the past. Describe simple examples of adaptation and recognise that some animals are extinct. **WS:** Observe, compare and classify rocks, soils and fossils, recording findings using labelled diagrams and simple tables.	**K:** Compare rocks using their properties and explain that soil is formed from rock. Explain how fossils form and provide evidence for evolution, and how adaptation, extinction and environmental change affect the survival of living things. **WS:** Carry out comparative tests of rocks and soils, record results accurately, and use fossil evidence to support explanations about evolution.	**K:** Classify rocks by their formation and explain soil formation and the rock cycle. Use fossils as evidence for geological time and evolution, and explain how variation, inheritance and natural selection lead to adaptation and affect extinction. **WS:** Analyse rock, soil and fossil evidence, present data using appropriate scientific methods, and evaluate how evidence supports explanations about evolution and extinction.	**K: ELC Component 2 Biology: Environment, evolution and inheritance:** Build on prior learning about fossils and variation to explain adaptations, natural selection and how fossil evidence supports evolution. **WS:** Observe and measure variation, record results in tables and graphs, and use fossil evidence to draw conclusions about changes in living things over time. **K: GCSE**	**LKS2:** Rock, soil, fossil, remains, habitat, extinct. **UKS2:** Property, permeable, sediment, fossilisation, adaptation, evolution. **KS3:** Igneous, sedimentary, metamorphic, weathering, inheritance, national selection.

				Biology: Explain how genetic and environmental factors cause variation, how natural selection leads to evolution, and how fossils and antibiotic resistance provide evidence for evolution. Compare natural selection with selective breeding and genetic engineering. **WS:** Analyse variation data, evaluate evidence for evolution, and assess the benefits and risks of selective breeding and genetic engineering.	**ELC:** Characteristic, variation, species, survival, offspring, reproduction. **GCSE:** Mutation, allele, antibiotic resistance, genotype, phenotype, genetic engineering.

Theme	Lower KS2	Upper KS2	KS3	KS4 Entry Level Science and GCSE Biology	Vocabulary progression
Classification, Food Chains and Life Cycles	**K:** Identify living and non-living things, group animals using simple features and use simple keys. Describe habitats, food chains, food webs and simple life cycles, including how flowers help flowering plants reproduce. **WS:** Observe plants and animals in their environment, group	**K:** Explain the characteristics of living things and classify organisms using observable features and classification keys. Explain producers, consumers, energy flow and interdependence in ecosystems, and compare life cycles and reproduction in plants and animals. Recognise the importance of biodiversity in	**K:** Apply classification criteria to unusual organisms and use the Linnean system. Explain trophic levels, energy transfer and ecosystem stability, including the impact of environmental and human factors. Explain sexual and asexual reproduction, basic genetics and how biodiversity supports stable ecosystems.	**K: ELC Component 2 – Biology, Environment, evolution and inheritance.** Explain classification, food webs, ecosystems, reproduction and human impact on habitats. **WS:** Investigate how environmental conditions affect organisms, record observations and	**LKS2:** Living, non-living, habitat, food chain, food web, life cycle. **UKS2:** Classification key, producer, consumer, reproduction, biodiversity, interdependence.

	living things and record findings using simple keys and labelled diagrams.	supporting habitats and reducing extinction. **WS:** Collect and record field data, use classification keys and food-chain models, and analyse patterns in habitat data.	**WS:** Use sampling techniques to estimate population size, analyse population data and use evidence to explain changes in ecosystems.	measurements, and use results to identify patterns and draw conclusions. **K: GCSE Biology:** Explain classification using the Linnaean system, interdependence and competition, adaptations, food webs and material cycles. Evaluate how environmental change and human activities affect biodiversity. **WS:** Use quadrats and transects to investigate organism distribution and abundance, analyse ecological data, and evaluate sampling methods and conclusions.	**KS3:** Taxonomy, trophic level, energy transfer, population, ecosystem stability, genetic variation. **ELC:** Predator, prey, competition, pollution, decay, microorganism. **GCSE:** Abiotic, biotic, distribution, biomass, conservation,

Theme	Lower KS2	Upper KS2	KS3	KS4 Entry Level Science and GCSE Biology	Vocabulary progression
Forces, Magnets and Space	**K:** Identify pushes, pulls, friction and gravity, and observe how they affect movement. Identify magnetic materials and recognise attraction and repulsion. Name planets, recognise that Earth rotates to cause day and	**K:** Explain how forces, including friction, gravity and air resistance, affect movement. Describe magnetic fields and use models to explain the Solar System, day and night, and the seasons.	**K:** Apply knowledge of forces to Newton's Third Law, gravity and drag. Explain Earth's magnetic field, compass navigation and electromagnets, and use models to explain the scale of the universe, time zones and seasons.	**K: ELC Component 5 – Physics: Energy, forces and the structure of matter:** Builds on knowledge of gravity and drag by distinguishing contact and non-contact forces and explaining how forces cause	**LKS2:** push, pull, planet, magnet, rotation, season. **UKS2:** Air resistance, magnetic field, orbit, axis, friction, gravity.

	night, and identify the seasons. **WS:** Observe movement, magnets and seasonal changes, recording findings using simple diagrams and tables.	**WS:** Investigate forces and magnetism using models, measurements and diagrams.	**WS:** Use models and practical investigations to test forces and electromagnets, recording measurements and explaining patterns.	movement and frictional heating. **K: Component 6 – Physics: Electricity, magnetism and waves:** Builds on knowledge of magnetism by explaining magnetic fields, attraction and repulsion, and how electric currents produce electromagnets whose strength can be investigated. **WS:** Investigate friction and electromagnet strength, identify variables, take repeat measurements and use results to explain patterns and draw conclusions.	**KS3:** Interaction pair, drag, electromagnet, universe, resultant force, gravitational field. **ELC:** Energy transfer, magnetic force, thinking distance, braking distance, kinetic energy, gravitational potential energy.

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