Wenlock CE Academy

Science Curriculum and Skills Progression 2024-2025

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	**Skeletal and muscular systems** • Ask questions about the world around them and explain that they can be answered in different ways. • Compare and contrast the diets of different animals. • Describe how humans need the skeleton and muscles for support, protection and movement. • Describe the requirements of plants for life and growth (air, light, water, nutrients and room to grow) and how they vary from plant to plant. • Explain the importance and characteristics of a healthy, balanced diet.		**Forces and Magnets** • Compare and group materials based on their magnetic properties • Compare how objects move over surfaces made from different materials. • Explain that an object will not move unless a push or pull force is applied, describing forces in action and whether the force requires direct contact or whether the force can act at a distance (magnetic force). • Investigate and compare a range of magnets (bar, horseshoe and floating) and explain that magnets have two poles (north and south) and that opposite poles attract each other, while like poles repel each other. **Rocks (Driver project – Rocks, Relics and Rumbles)** • Compare and group rocks based on their appearance, properties or uses. • Describe simply how fossils are formed, using words, pictures or a model. • Investigate soils from the local environment, making comparisons and identifying features.		**Plant nutrition and reproduction** • Describe the requirements of plants for life and growth (air, light, water, nutrients and room to grow) and how they vary from plant to plant. • Draw and label the life cycle of a flowering plant. • Investigate how water is transported within plants. • Name and describe the functions of the different parts of flowering plants (roots, stem, leaves and flowers).	**Light and shadows** • Describe the differences between dark and light and how we need light to be able to see. • Explain, using words or diagrams, how shadows are formed when a light source is blocked by an opaque object. • Explain why light from the Sun can be dangerous. • Find patterns in the way shadows change during the day. • Group and sort materials as being reflective or non-reflective.

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Year 4	**Electrical circuits and conductors** ● Compare common household equipment and appliances that are and are not powered by electricity. ● Construct operational simple series circuits using a range of components and switches for control. ● Describe materials as electrical conductors or insulators. ● Explain the precautions needed for working safely with electrical circuits. ● Predict and describe whether a circuit will work based on whether or not the circuit is a complete loop and has a battery or cell.	**States of Matter** ● Group and sort materials into solids, liquids or gases. ● Observe and explain that some materials change state when they are heated or cooled and measure or research the temperature in degrees Celsius (°C) at which materials change state.	**Grouping and classifying** ● Compare, sort and group living things from a range of environments, in a variety of ways, based on observable features and behaviour. ● Gather, record, classify and present observations and measurements in a variety of ways (pictorial representations, timelines, diagrams, keys, tables, charts and graphs).	**Digestive systems** ● Construct and interpret a variety of food chains and webs to show interdependence and how energy is passed on over time. ● Describe the purpose of the digestive system, its main parts and each of their functions. ● Describe what damages teeth and how to look after them. ● Explain how unfamiliar habitats, such as a mountain or ocean, can change over time and what influences these changes. ● Identify the four different types of teeth in humans and other animals, and describe their functions.	**Sound** ● Compare and find patterns in the pitch of a sound, using a range of equipment, such as musical instruments. ● Compare and find patterns in the volume of a sound, using a range of equipment, such as musical instruments. ● Compare how the volume of a sound changes at different distances from the source. ● Explain how sounds are made and heard using diagrams, models, written methods or verbally.

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Working Scientifically – to be incorporated into each unit	- Ask relevant questions and use different types of scientific enquiries to answer them - Set up simple practical enquiries, comparative and fair tests - Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gather, record, classify and present data in a variety of ways to help in answering questions - Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Identify differences, similarities or changes related to simple scientific ideas and processes (Year 3 focus) Use straightforward scientific evidence to answer questions or to support his/her findings

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Year 5	**Properties and changes in materials** ● Compare and group everyday materials by their properties, including hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism. ● Explain, following observation, that some substances (solutes) will dissolve in liquid (solvents) to form a solution and the solute can be recovered by evaporating off the solvent. ● Describe, using evidence from comparative or fair tests, why a material has been chosen for a specific use, including metals, wood and glass. ● Separate mixtures by filtering, sieving and evaporating. ● Explain the precautions needed for working safely when heating, burning, cooling and mixing materials. ● Identify, demonstrate and compare reversible and irreversible changes.	**Human reproduction and ageing** ● Compare the life cycles of animals, including a mammal, an amphibian, an insect and a bird. ● Describe the changes as humans develop from birth to old age. ● Describe the life process of reproduction in some plants and animals. ● Describe the process of human reproduction. ● Explain why personal hygiene is important during puberty. **Life processes (Driver project – Sow, Grow and Farm)** ● Compare the life cycles of animals, including a mammal, an amphibian, an insect and a bird. ● Describe the life process of reproduction in some plants and animals. ● Describe, using their knowledge of food chains and webs, what could happen if a habitat had a living thing removed or introduced. ● Group and sort plants by how they reproduce. ● Label and draw the parts of a flower involved in sexual reproduction in plants (stamen, filament, anther, pollen, carpel, stigma, style, ovary, ovule and sepal). ● Research and describe different farming practices in the UK and how these can have positive and negative effects on natural habitats.	**Forces and Mechanisms** ● Compare and describe, using a range of toys, models and natural objects, the effects of water resistance, air resistance and friction. ● Describe and demonstrate how simple levers, gears and pulleys assist the movement of objects. ● Explain that objects fall to Earth due to the force of gravity.	**Earth and Space** ● Describe or model the movement of the Moon relative to Earth. ● Describe or model the movement of the planets in our Solar System, including Earth, relative to the Sun. ● Describe the Sun, Earth and Moon as approximately spherical bodies and use this knowledge to understand the phases of the Moon and eclipses. ● Use the idea of Earth's rotation to explain day and night, and the Sun's apparent movement across the sky.

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Year 6	**Circulatory system** ● Explain that the circulatory system in animals transports oxygen, water and nutrients around the body. ● Explain the impact of positive and negative lifestyle choices on the body. ● Name and describe the purpose of the circulatory system and the functions of the heart, blood vessels and blood.	**Electrical circuits and components** ● Compare and give reasons for variations in how components in electrical circuits function (brightness of lamps; volume of buzzers and function of on or off switches). ● Create circuits using a range of components and record diagrammatically using the recognised symbols for electrical components. ● Explain how the brightness of a lamp or volume of a buzzer is affected by the number and voltage of cells used in a circuit. **Classification (Driver project – Frozen Kingdom)** ● Classify living things, including microorganisms, animals and plants, into groups according to common observable characteristics and based on similarities and differences. ● Use and construct classification systems to identify animals and plants from a range of habitats ● Identify how animals and plants are adapted to suit their environment, such as giraffes having long necks for feeding, and that adaptations may lead to evolution. ● Research unfamiliar animals and plants from a range of habitats, deciding upon and explaining where they belong in the classification system.	**Light Theory** ● Describe, using diagrams, how light behaves when reflected off a mirror (plane, convex or concave) and when passing through a lens (concave or convex). ● Describe, using scientific language, phenomena associated with refraction of light. ● Revise the understanding of light, reflection and daylight from previous years. ● Explain that, due to how light travels, we can see things because they give out or reflect light into the eye. ● Identify that light travels in straight lines. ● Explain the dangers of using lasers and ways to use them safely.	**Evolution and inheritance** ● Classify living things, including microorganisms, animals and plants, into groups according to common observable characteristics and based on similarities and differences. ● Describe how animals and plants can be bred to produce offspring with specific and desired characteristics (selective breeding). ● Identify that living things produce offspring of the same kind, although the offspring are not identical to either parent. ● Describe some significant changes that have happened on Earth and the evidence, such as fossils, that support this. ● Explain that living things have changed over time, using specific examples and evidence. ● Identify how animals and plants are adapted to suit their environment, such as giraffes having long necks for feeding, and that adaptations may lead to evolution.

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				● Research unfamiliar animals and plants from a range of habitats, deciding upon and explaining where they belong in the classification system.

Working Scientifically – to be incorporated into each unit	- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - Use test results to make predictions to set up further comparative and fair tests - Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations - Identify scientific evidence that has been used to support or refute ideas or arguments -