# Accrington Benjamin Hargreaves Church of England Primary School




Our vision is the centre of everything we do. It underpins our teaching and learning, interactions, and environment.

**Document Title**

Science Curriculum Progression

2026-2027

**Vertical Strands**

1) Living things

2) Materials

3) Physical World

4) Scientific Investigation

| | Unit Title | Eat, Move, Grow - Animals inc. Humans (health, exercise) | Wild World! - Seasonal Changes Autumn and Winter | Toy Tales – What's it made of? Properties and Uses of Everyday Materials (what toys are made of) | From Tiny Seeds to Tall Trees Plants | Sun, Heat and Fire Materials, Seasonal Changes (summer conditions, fire links) | Seaside Safari: Life on the Shore Living Things & Habitats (seashore) |
|---|---|---|---|---|---|---|---|
| **Cl.2** | **Substantive Knowledge** | • Humans need food, water and air to survive;<br>• Food provides the body with what it needs to grow and stay healthy;<br>• Eating different types of food helps to support a healthy diet;<br>• Humans need water to stay alive and healthy;<br>• Humans need air to breathe;<br>• Exercise is important for keeping the body active and healthy; | • Know the four seasons, their repeating sequence and typical UK weather patterns, recognising daily variation.<br>• Understand that daylight hours change across the year, decreasing towards winter and increasing towards summer.<br>• Describe seasonal changes in plants, including differences between deciduous and evergreen trees.<br>• Know that animals need food, water, air and suitable | • Distinguish between an object and the material from which it is made.<br>• Identify everyday materials, including wood, metal, plastic, glass, water, rock, brick, paper, cardboard and fabric.<br>• Describe material properties, including hardness, flexibility, texture, absorbency, transparency and waterproofness.<br>• Understand that properties make materials suitable for particular toys and other uses. | • Identify and name common wild and garden plants, including deciduous and evergreen trees.<br>• Identify the main parts of flowering plants, including roots, stems, leaves and flowers, and recognise the trunk and branches of trees.<br>• Know that roots take up water, stems support plants and leaves use light to help plants grow.<br>• Understand that seeds and bulbs can grow into mature plants. | • Know that the Sun provides light and warmth and must never be viewed directly.<br>• Name the four seasons and recognise that UK summer usually brings warmer weather and more hours of daylight, with daily weather variations.<br>• Distinguish objects from materials and identify everyday materials, including wood, plastic, metal, glass, water, rock and fabric. | • Distinguish between things that are living, dead and have never been alive.<br>• Identify and name common coastal plants and animals, including examples of fish, birds and mammals.<br>• Describe and compare the observable structures of selected seaside animals.<br>• Know that animals can be grouped as carnivores, herbivores or omnivores according to their diets. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | • rest and sleep are important parts of a healthy lifestyle;<br>• hygiene helps to reduce the spread of germs;<br>• washing hands is an important way to help prevent illness;<br>• brushing teeth helps to keep teeth and gums healthy;<br>• humans grow and change as they get older;<br>• babies develop into children and children develop into adults;<br>• animals, including humans, produce offspring;<br>• offspring grow and change as they develop into adults;<br>• different animals have different kinds of offspring;<br>• a balanced lifestyle includes appropriate food, movement, rest and cleanliness. | habitats, and that seasonal changes affect these resources.<br>• Describe how animals respond to seasonal changes through migration, hibernation or changes in activity.<br>• Understand that habitats and microhabitats provide food, shelter and suitable conditions.<br>• Know that animals' body features and behaviours suit their habitats, including contrasting polar habitats.<br>• Understand simple feeding relationships and that food-chain arrows point from food to the animal eating it. | • Know that one material can have several uses and different materials can serve the same purpose.<br>• Know that some solid objects change shape through bending, squashing, twisting or stretching; some return to their original shape while others remain changed. | • Know that plants need water, light and a suitable temperature to grow and stay healthy.<br>• Know that plants need air and nutrients; soil usually provides support, water and nutrients.<br>• Recognise the main stages of a flowering plant's life cycle, including germination, growth, flowering and seed production.<br>• Know that seeds can be spread by wind, water and animals.<br>• Understand how people care for plants to support healthy growth. | • Describe material properties and explain their suitability for summer clothing and other uses.<br>• Know that warming and cooling can change some materials, including melting, softening and becoming solid again.<br>• Know that wet materials can dry as water evaporates.<br>• Understand that fire produces heat and light and that flames and hot objects can cause burns. | • Understand that seashores and rock pools are habitats that provide suitable conditions, food and shelter.<br>• Recognise how animals' body features and behaviours help them survive in coastal habitats.<br>• Understand that living things depend on one another and use simple food chains to show feeding relationships.<br>• Know that human actions can harm or protect coastal habitats. |
| | **Disciplinary / Procedural Knowledge** closely, use basic equipment, | They will have opportunities to:<br>• ask simple scientific questions; | **Disciplinary knowledge**<br>• Understand that scientists use observations and evidence to answer | **Disciplinary knowledge**<br>• Understand that questions about materials can be answered through | **Disciplinary knowledge**<br>• Understand that plant questions can be answered through observation | **Disciplinary knowledge**<br>• Understand that questions can be explored through observation, | **Disciplinary knowledge**<br>• Understand that scientific questions can be answered through observation, |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | perform simple tests, identify and classify, and record and describe findings. | • recognise that questions can be answered in different ways;<br>• make predictions based on their own ideas;<br>• observe closely;<br>• compare similarities and differences;<br>• sort and classify information;<br>• perform simple tests;<br>• gather information;<br>• record results;<br>• use observations to suggest answers;<br>• identify simple patterns;<br>• communicate what they have discovered;<br>• use increasingly accurate scientific vocabulary.<br>**Procedural Knowledge**<br>Pupils will learn how to:<br>• observe changes before and after simple physical activity;<br>• count or notice simple changes such as breathing becoming faster; | questions about the natural world.<br>• Recognise that different questions require observation over time, classification, pattern seeking or secondary research.<br>• Understand that repeated, consistent observations support useful comparisons and reveal seasonal patterns.<br>• Recognise that predictions may differ from findings and that patterns can have exceptions.<br>• Understand that limited observations cannot establish a seasonal pattern or prove an animal is absent.<br>• Recognise that conclusions must reflect the evidence and acknowledge uncertainty.<br><br>**Procedural knowledge**<br><br>• Ask seasonal questions and | observation, classification and simple comparative tests.<br>• Recognise that materials should be grouped by observable properties.<br>• Understand that predictions are checked through practical investigation.<br>• Recognise that evidence helps explain why a material is suitable for a particular purpose.<br>• Procedural knowledge<br>• Identify materials in toys and everyday objects.<br>• Observe, describe, compare and group materials using agreed properties.<br>• Make predictions and safely test flexibility, stretchiness, absorbency and waterproofness.<br>• Record observations using drawings, labels and simple tables.<br>• Use findings and scientific vocabulary | over time, comparison, classification and simple tests.<br>• Recognise that plants can be identified and grouped using observable features.<br>• Understand that comparing growing conditions helps us investigate plants' needs.<br>• Recognise that repeated observations provide evidence of growth and change.<br>• Understand that conclusions should reflect observations and that plants may grow at different rates.<br><br>**Procedural knowledge**<br><br>• Ask simple questions about plants and suggest ways to investigate them.<br>• Identify plants and trees using observations and simple identification guides.<br>• Observe, draw and label plant parts | classification and simple comparative tests.<br>• Recognise that repeated weather observations help identify seasonal patterns.<br>• Understand that useful comparisons keep relevant conditions similar, with adult support.<br>• Recognise that predictions may differ from observations.<br>• Use evidence to explain material changes and suitability for different weather conditions.<br><br>**Procedural knowledge**<br><br>• Ask simple questions about summer weather, warmth and materials.<br>• Observe and record weather and compare supplied daylight information.<br>• Identify, describe and group materials by observable properties.<br>• Carry out safe, adult-supported comparisons of materials in warmer | classification and information sources.<br>• Recognise that observable features help scientists identify, compare and group living things.<br>• Understand that observations provide evidence about how habitats meet living things' needs.<br>• Recognise that patterns can suggest relationships between living things and their habitats.<br>• Understand that conclusions should be supported by evidence.<br><br>**Procedural knowledge**<br><br>• Ask simple questions about coastal habitats and suggest ways to find answers.<br>• Observe closely using simple equipment and identification guides.<br>• Identify, compare and group animals by their structures and diets. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | • compare observations;<br>• sort foods into simple groups;<br>• classify examples of healthy habits;<br>• sequence stages of human growth;<br>• match offspring to adult animals;<br>• carry out simple hygiene-related demonstrations;<br>• gather data using tally charts or simple tables;<br>• record findings using drawings, symbols and labels;<br>• make simple comparisons;<br>• communicate a conclusion verbally or in writing. | suggest what to observe, measure and record.<br>• Identify, name and classify selected plants and animals using observable features and identification guides.<br>• Use simple equipment, including hand lenses, thermometers and rain gauges, with support.<br>• Record repeated observations using weather symbols, drawings, labels, tables, tallies and pictograms.<br>• Compare seasonal records and supplied daylight data to identify changes and patterns.<br>• Use reliable sources to investigate animal behaviour and habitats.<br>• Construct simple food chains and explain findings using evidence and scientific vocabulary. | to explain material choices. | using scientific vocabulary.<br>• Plant and care for seeds and bulbs.<br>• Observe and measure growth, recording findings through drawings, photographs, labels and simple tables.<br>• Carry out simple comparative tests, changing one growing condition while keeping others similar with support.<br>• Compare findings and use evidence to explain what helps plants grow.<br>• Sequence the stages of a flowering plant's life cycle. | and cooler conditions.<br>• Observe changes during warming, cooling and drying.<br>• Record and compare findings using drawings, labels, weather symbols and simple tables.<br>• Explain findings using scientific vocabulary and follow instructions around hot materials and equipment. | • Classify examples as living, dead or never alive.<br>• Gather and record findings using drawings, labels, tallies and simple tables.<br>• Construct simple food chains, with arrows pointing from food to the animal eating it.<br>• Use evidence and scientific vocabulary to explain findings.<br>• Observe responsibly and describe ways to protect coastal habitats. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | • Identify limitations and suggest further observations.<br>• Observe safely and care for habitats, leaving living things undisturbed. | | | | |
| | **LOs** | • To identify the basic things humans need to survive.<br>• To observe how our bodies change when we exercise.<br>• To understand that eating different types of food helps us to stay healthy.<br>• To understand how hygiene helps to keep us healthy.<br>• To describe how humans grow and change from babies to adults.<br>• To recognise that animals, including humans, have offspring that grow into adults.<br>• To explain how food, exercise, rest and hygiene work together to keep us healthy. | • To identify the four seasons and observe signs of the current season.<br>• To observe weather patterns and compare daylight hours.<br>• To observe seasonal changes in plants and distinguish deciduous and evergreen trees.<br>• To investigate how local animals respond to seasonal change.<br>• To investigate how local habitats provide animals with food and shelter as conditions change.<br>• To compare the features and behaviours of local and polar animals.<br>• To use observations and information to explain seasonal changes. | • To distinguish objects from materials and identify the materials used in toys and everyday objects.<br>• To observe, describe and compare the simple properties of materials.<br>• To carry out simple tests and record findings to identify materials suitable for a particular use.<br>• To compare and group materials according to their properties.<br>• To investigate how the shapes of solid objects can be changed by squashing, bending, twisting and stretching.<br>• To use observations and test results to choose suitable materials for a toy | • To observe, compare and group seeds and bulbs, recognising that they can grow into mature plants.<br>• To investigate how water, light and temperature affect plant growth and record observations.<br>• To identify and name the main parts of flowering plants and trees and describe their simple functions.<br>• To observe growth and sequence the stages of a flowering plant's life cycle.<br>• To identify and name common wild and garden plants, including deciduous and evergreen trees.<br>• To use observations from plant investigations to explain what | • To identify the Sun as a source of light and warmth and describe how to stay safe in sunlight.<br>• To identify everyday materials and observe how some change when warmed.<br>• To recognise that fire produces heat and light and describe basic fire safety rules.<br>• To name the four seasons, observe summer weather and compare summer daylight hours with other seasons.<br>• To carry out a simple, adult-supported comparison of materials in warmer and cooler conditions, record observations and describe findings. | • To identify and name common seaside plants and animals and describe how their habitats meet their needs.<br>• To observe, compare and sort seaside examples into living, dead and never alive.<br>• To identify what seaside animals eat, group them as herbivores, carnivores or omnivores and construct simple food chains.<br>• To describe and compare seaside animals' body features and explain how these help them survive.<br>• To describe how human actions affect seaside plants and animals and suggest ways to protect their habitats. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | and explain why they are appropriate. | plants need to grow and stay healthy. | | • To use observations and scientific vocabulary to explain learning about seaside living things, habitats and feeding relationships. |
| | **Assessment** | Whole-unit retrieval quiz; sort healthy lifestyle choices; complete a short end-of-unit assessment; create a "Healthy Human" explanation or teach-back task showing what helps us survive, grow and stay well. | "My Wild World Discoveries"<br>Each child creates a concise illustrated record, annotated display or equivalent recorded explanation. | Pupils design their own toy on paper or using craft materials: Draw or build the toy. Label materials and describe one property for each.<br>Note one test they could do to check material suitability. | Quiz and completed plant reports.<br>Oral explanation of experiment results. | Pupils complete structured investigation tasks:<br>Make a prediction about a material change<br>Record observations in simple table or drawing<br>Write a sentence explaining results<br>Identify whether prediction was correct | What Have I Learned About Life on the Shore?<br>Children respond through:<br>labelled diagrams<br>short scientific explanations<br>oral discussion<br>sorting and matching activities |
| **Cl.3** | **Unit Title** | **Stones, Bones and Hidden Homes** | **What's the Matter?** | **Brilliant Bodies** | **Switch It On!** | **Plant Power** | **Sounds Around Us** |
| | **Substantive Knowledge** | • Know that rocks have different appearances and properties, including hardness, texture, permeability and durability.<br>• Understand that fossils are preserved remains or traces of past living things, usually formed through | • Know that matter has mass and occupies space, commonly existing as solids, liquids or gases.<br>• Describe the properties of each state, recognising that powders contain solid grains and air is a mixture of gases.<br>• Use a simple particle model to describe particle | • Identify major organs, including the brain, heart, lungs and stomach, and describe their basic functions.<br>• Know that the skeleton supports the body, protects organs and enables movement.<br>• Understand that many joints allow movement and that muscles work in | • Identify everyday appliances that use electricity and distinguish between mains-powered and battery-powered devices.<br>• Identify cells, wires, bulbs, switches, motors and buzzers and describe their functions.<br>• Understand that a simple series circuit needs a complete loop connecting both | • Know the functions of roots, stems, leaves and flowers in flowering plants.<br>• Understand that plants need air, light, water, nutrients and room to grow, with requirements varying between plants.<br>• Know that roots absorb water and nutrients, stems support plants and transport water, and | • Know that sounds are produced by vibrating objects.<br>• Understand that vibrations travel through solids, liquids and gases to reach the ear.<br>• Distinguish pitch (high or low) from volume (loud or quiet).<br>• Recognise patterns between an object's features and the pitch it produces. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | burial in sediment that becomes rock over time.<br>• Know that fossils provide evidence of life long ago.<br>• Know that soil contains rock particles, organic matter, air and water in varying amounts.<br>• Understand that living things can be grouped by observable characteristics and identified using classification keys.<br>• Know that habitats provide conditions for survival and that natural events and human actions can change habitats, sometimes threatening living things. | arrangement and movement in each state.<br>• Understand that heating and cooling can cause melting, freezing, evaporation and condensation.<br>• Know that evaporation occurs at a liquid's surface below boiling point and generally increases in warmer conditions.<br>• Know that water vapour is invisible and that pure water freezes and ice melts at approximately 0°C.<br>• Understand how evaporation, condensation, precipitation and flow move water through the water cycle. | pairs to move bones.<br>• Know that the heart pumps blood and the lungs enable oxygen uptake.<br>• Recognise that body parts work together to support movement and survival.<br>• Know that animals, including humans, cannot make their own food and need the right types and amounts of nutrients.<br>• Understand that different nutrients support energy, growth and health.<br>• Identify incisors, canines and molars and describe their roles in cutting, tearing and grinding food.<br>• Know that brushing teeth and limiting sugary foods and drinks help prevent tooth decay. | terminals of a cell for a device to work.<br>• Know that switches open and close circuits to control devices.<br>• Recognise common circuit faults, including gaps, loose connections and depleted cells.<br>• Know that conductors allow electric current to pass through, while insulators do not readily do so; metals are generally good conductors.<br>• Understand electrical dangers and that classroom investigations use suitable cells, never mains electricity. | leaves make food using light.<br>• Understand that water moves through plants from roots to stems and leaves.<br>• Describe the role of flowers in pollination and seed formation.<br>• Know that seeds are dispersed in different ways and germinate when conditions are suitable.<br>• Recognise the stages of a flowering plant's life cycle.<br>• | • Know that stronger vibrations produce louder sounds and that sounds become fainter with distance.<br>• Understand that materials can transmit, reflect or absorb sound, with some reducing sound more effectively than others. |
| | **Disciplinary / Procedural Knowledge** | **Disciplinary knowledge**<br>• Recognise questions that can be investigated scientifically. | **Disciplinary knowledge**<br>• Understand that classification relies on properties and that different questions require | **Disciplinary knowledge**<br>• Understand that questions about bodies, teeth and nutrition can be explored through observation, | **Disciplinary knowledge**<br>• Understand that questions about circuits and materials can be investigated | **Disciplinary knowledge**<br>• Understand that plant questions can be investigated through observation over time, comparative tests | **Disciplinary knowledge**<br>• Understand that sound can be investigated through observation, comparison and simple fair tests. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | • Understand that systematic observations, measurements and agreed criteria support comparisons and classification.<br>• Recognise that patterns in evidence help scientists draw conclusions.<br>• Understand that explanations should be supported by evidence and can lead to further questions.<br>**Procedural knowledge**<br>• Observe and compare rocks and soils using hand lenses and simple tests, including hardness and permeability.<br>• Handle samples safely and investigate soil components.<br>• Represent fossil formation through sequenced diagrams.<br>• Group organisms and construct and use simple | different enquiry methods.<br>• Recognise that predictions must be checked against evidence.<br>• Understand that fair comparisons change one factor while keeping other relevant conditions similar.<br>• Recognise that models simplify reality and have limitations.<br>• Understand that conclusions must reflect findings, including unclear results, and that repeated observations can increase confidence.<br>**Procedural knowledge**<br>• Observe and classify materials using agreed criteria.<br>• Handle equipment safely and measure temperature accurately in °C.<br>• Identify what to change, measure and keep similar during comparisons. | comparison, simple tests and reliable sources.<br>• Recognise that observable features help explain the functions of bones, joints and teeth.<br>• Understand that measurements before and after activity provide evidence of bodily changes.<br>• Recognise that food information helps scientists compare nutrient content.<br>• Understand that repeated measurements help check findings and that models have limitations.<br>• Support explanations with evidence, recognising that model teeth or eggshells do not behave exactly like human teeth.<br>**Procedural knowledge**<br>• Identify and label major organs, selected bones, muscles, joints and types of teeth.<br>• Observe and compare joint | through practical tests.<br>• Use knowledge of complete circuits to make predictions and check them against evidence.<br>• Recognise that comparisons should keep relevant conditions the same.<br>• Understand that patterns in results help identify conductors and insulators.<br>• Recognise that an unsuccessful circuit may reflect a connection or component fault rather than the material being tested.<br>**Procedural knowledge**<br>• Identify components and construct simple series circuits safely.<br>• Use switches to control bulbs, motors and buzzers.<br>• Predict, test and explain whether circuits will work.<br>• Test materials for conductivity using a working circuit and | and secondary research.<br>• Recognise that fair comparisons change one factor while keeping other relevant conditions similar.<br>• Understand that systematic observations and measurements reveal patterns in growth.<br>• Recognise that conclusions should reflect evidence and that individual plants may vary.<br>• Understand that models and diagrams simplify plant structures and processes.<br>**Procedural knowledge**<br>• Identify, label and describe flowering plant parts and their functions.<br>• Plan and carry out simple investigations into plant requirements and water transport.<br>• Observe and measure growth over time using suitable equipment.<br>• Record findings using labelled | • Recognise that useful comparisons change one factor while keeping others similar.<br>• Understand that patterns in observations help explain sound.<br>• Recognise that background noise and judgements of loudness can affect results.<br>• Support conclusions with evidence.<br>**Procedural knowledge**<br>• Ask questions and make predictions about sound.<br>• Observe and describe vibrations using instruments and everyday objects.<br>• Investigate pitch, volume, distance and sound-reducing materials.<br>• Record findings using labelled diagrams, tables and simple charts.<br>• Compare results, identify patterns and draw conclusions using scientific vocabulary.<br>• Handle equipment safely and protect |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | classification keys.<br>• Collect local environmental data and record findings in labelled diagrams, tables and charts.<br>• Draw conclusions using evidence and communicate findings with accurate scientific vocabulary. | • Record observations at agreed intervals and compare results.<br>• Draw labelled diagrams of particle models and changes of state.<br>• Use reliable sources to supplement practical observations.<br>• Explain findings using scientific vocabulary, acknowledge limitations and suggest further investigation. | movements, muscle actions and tooth shapes.<br>• Measure and record pulse and breathing rates before and after suitable activity, with support.<br>• Group foods by the nutrients they provide, recognising that foods contain combinations of nutrients.<br>• Use simple food labels and reliable sources to compare foods and suggest varied, balanced meals.<br>• Use models to explore tooth functions and demonstrate effective brushing.<br>• Record and explain findings using labelled diagrams, models, tables and scientific vocabulary. | record findings in simple tables.<br>• Draw labelled pictures of circuits and explain observations using scientific vocabulary.<br>• Locate faults by checking connections and components systematically.<br>• Apply findings to create, test and improve a simple electrical product. | diagrams, tables and simple graphs.<br>• Compare results, identify patterns and draw evidence-based conclusions.<br>• Use observations and reliable sources to explain pollination, seed formation and dispersal.<br>• Communicate findings using accurate scientific vocabulary and suggest further questions. | hearing by avoiding excessive noise. |
| | **LOs** | • To compare and group rocks according to their appearance and physical properties.<br>• To investigate how the properties of rocks make them | • To classify solids, liquids and gases using observable properties and investigate whether air occupies space.<br>• To use a simple particle model to explain states of matter and | • To identify major organs and describe their basic functions.<br>• To identify the main bones and explain how the skeleton and joints support, protect and enable movement. | • To identify everyday devices that use electricity and describe how to use them safely.<br>• To name the parts of a simple circuit and build a complete circuit that lights a bulb. | • To identify the main parts of a flowering plant and explain their functions.<br>• To investigate what plants need to grow and stay healthy, recording changes over time. | • To identify sound sources and explain that sounds are made by vibrations.<br>• To investigate how vibrations travel through materials to reach our ears.<br>• To compare high and low sounds |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | suitable for different uses.<br>• To describe how fossils are formed when living things become trapped within rock.<br>• To recognise that soils are made from rocks and organic matter.<br>• To recognise that living things can be grouped in different ways.<br>• To use a simple classification key to identify living things.<br>• To explain how changes to environments can affect living things and to demonstrate learning from across the unit. | recognise its limitations.<br>• To investigate melting and freezing through observations and temperature measurements.<br>• To investigate how conditions affect evaporation using a controlled comparison.<br>• To explain how water vapour condenses into liquid droplets on cold surfaces.<br>• To explain evaporation, condensation and precipitation using a water-cycle model.<br>• To use scientific evidence to explain changes of state and apply understanding to new examples. | • To observe and explain how muscles work with bones to move the body.<br>• To explain why animals, including humans, need food and compare how different nutrients support energy, growth and health.<br>• To identify different types of teeth, explain their functions and describe how to keep them healthy.<br>• To investigate changes in pulse and breathing rates before and after activity and record findings.<br>• To use diagrams, models and evidence to explain how nutrition and different body parts help us grow, move and stay healthy. | • To use a switch to open and close a circuit and explain what happens.<br>• To test which materials conduct electricity and record the results.<br>• To find and fix simple circuit faults and explain how they were solved.<br>• To plan, build and improve a simple electrical product and explain how it works. | • To investigate how water moves through a plant.<br>• To explain how flowers help plants reproduce through pollination and seed formation.<br>• To describe how seeds are dispersed, link their features to dispersal methods and use investigation findings to explain plant growth. | and investigate how pitch and volume can change.<br>• To investigate how sounds become fainter as distance increases.<br>• To compare materials to find out which reduce sound most effectively.<br>• To use observations and investigation results to explain what we have learned about sound. |
| | **Assessment** | Pupils complete a short, quiz independently. It should include retrieval, matching, | Hold the Matter Detectives Science Gallery.<br>Pupils share one discovery, its evidence | Each child gives a short “Brilliant Bodies Briefing”, orally or through an annotated drawing: | Switch It On! — The Toy Repair Challenge<br>Children apply their knowledge by identifying components, repairing | Final assessment: Plant Power — Rescue the School Garden!<br>Children solve garden problems by | Sounds Around Us — Solve the Sound Challenge!<br>Children act as sound engineers, demonstrating |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | explanation and simple application. | and an idea they revised.<br>Offer paired, recorded or supported presentations.<br>End with one recalled idea without looking at the display. | "Explain how your body moves and give two pieces of advice to help a sports club member stay healthy. Use something you observed or learned as evidence." | a faulty circuit, testing conductors and insulators, and building a light-up sign controlled by a switch. Individual explanations and labelled drawings demonstrate understanding of complete circuits, switches, electrical safety and evidence-based problem-solving. A final unfamiliar circuit challenge checks application, with spaced retrieval used to assess longer-term retention. | explaining plant-part functions, water transport, growth requirements, pollination and seed dispersal. They use investigation evidence, labelled diagrams and individual explanations to recommend improvements and predict how an unfamiliar seed travels. Spaced retrieval checks assess longer-term retention. | vibrations, changing pitch and volume, investigating distance and comparing sound-reducing materials. Individual explanations and labelled diagrams show understanding and use of evidence. An unfamiliar sound challenge checks application, with spaced retrieval used to assess longer-term retention. |
| **Cl.4** | **Unit Title** | **The Power of Forces** | **Space Explorers** | **Classify That!** | **Reversible or Not?** | **Bright Sparks** | **Changing Humans and Other Animals** |
| | **Substantive Knowledge** | • Know that forces are pushes or pulls that can start, stop, speed up, slow down or change the direction of movement.<br>• Understand that forces can act through contact or at a distance.<br>• Know that gravity pulls objects towards the Earth.<br>• Understand that friction, air | • Know that the Sun is a star orbited by eight planets in the order Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.<br>• Know that the Sun, Earth and Moon are approximately spherical.<br>• Distinguish rotation from orbit: Earth rotates approximately every 24 hours, causing day and | • Understand that classification organises living things into groups using shared characteristics.<br>• Distinguish vertebrates, which have backbones, from invertebrates, which do not.<br>• Identify the main vertebrate groups: mammals, birds, fish, reptiles and amphibians.<br>• Recognise common invertebrate groups, | • Know that materials can change through heating, cooling, mixing and physical actions.<br>• Understand that reversible changes, including melting, freezing and many examples of dissolving, can be reversed.<br>• Know that dissolved solids can be recovered through evaporation.<br>• Understand that some changes, | • Know that electrical devices transfer electrical energy into light, sound, movement or heat.<br>• Identify cells, batteries, wires, bulbs, switches, buzzers and motors and describe their functions.<br>• Understand that a working series circuit needs a complete loop connecting both terminals of a | • Know that humans grow and develop through infancy, childhood, adolescence, adulthood and old age.<br>• Understand that puberty involves physical changes as children develop towards adulthood.<br>• Recognise that growth and development vary between individuals.<br>• Know that bones support and protect |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | resistance and water resistance can oppose movement.<br>• Recognise that friction can be useful or unwanted.<br>• Know that magnets attract or repel without touching and attract certain materials, including iron, but not all metals. | night, and orbits the Sun every 365¼ days.<br>• Know that the Moon orbits Earth, reflects sunlight and can be visible during daylight.<br>• Understand that lunar phases show changing views of the Moon's illuminated portion; its orbit takes approximately 27.3 days and its phase cycle 29.5 days.<br>• Understand that Earth's axial tilt and orbit cause seasonal changes in daylight duration and sunlight angle.<br>• Know that shadows depend on the relative positions of the light source, object and surface.<br>• Understand that gravity maintains orbits alongside orbital motion and remains present when astronauts experience apparent weightlessness.<br>• Know that sound requires matter to travel and that spacecraft need technology and | including insects, spiders, molluscs and worms.<br>• Know that plants can be grouped using features such as leaves, flowers and stems.<br>• Understand that classification keys use a sequence of questions to identify organisms.<br>• Know that habitats provide conditions for survival and that adaptations help organisms survive.<br>• Recognise that organisms sharing a habitat may belong to different classification groups. | including burning and cooking, produce new materials and are usually irreversible.<br>• Recognise that colour changes, gas production and temperature changes may indicate new materials forming but are not conclusive alone.<br>• Use a simple particle model to describe changes during heating and cooling. | suitable power source.<br>• Know that switches open and close circuits.<br>• Distinguish conductors from insulators and recognise that metals generally conduct electricity.<br>• Understand that bulb brightness depends on the circuit; adding identical bulbs in series usually reduces brightness when the power source remains unchanged.<br>• Know that standard symbols represent components in circuit diagrams.<br>• Understand electrical safety, including using suitable cells rather than mains electricity in investigations. | the body and muscles enable movement.<br>• Understand that nutrition, exercise, sleep and hygiene support health and wellbeing.<br>• Recognise that ageing brings natural changes and that health is influenced by several factors.<br>• Know the Life Cycles of a range of other animals. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | internal conditions suited to survival in space. | | | | |
| | **Disciplinary / Procedural Knowledge** | **Disciplinary knowledge**<br>• Identify investigable questions and make predictions using scientific knowledge.<br>• Understand that fair tests involve identifying what to change, measure and keep the same.<br>• Recognise that systematic observations and accurate measurements provide evidence.<br>• Use patterns and comparisons to explain relationships between forces and movement.<br>• Understand that conclusions and further predictions should be supported by results.<br>**Procedural knowledge**<br>• Set up investigations | **Disciplinary knowledge**<br>• Understand that enquiry methods should match scientific questions.<br>• Recognise that repeated observations reveal patterns but differ from controlled comparisons.<br>• Understand that models simplify reality and that models and datasets have limitations.<br>• Evaluate secondary sources for authority, date and relevance.<br>• Recognise measurement uncertainty and consider alternative explanations.<br>• Check predictions against evidence and revise explanations when stronger evidence emerges. | **Disciplinary knowledge**<br>• Understand that careful observation and reliable information support identification and classification.<br>• Recognise that useful classification criteria distinguish between organisms consistently.<br>• Understand that organisms can be grouped differently depending on the question being investigated.<br>• Recognise that appearance or habitat alone may not provide enough evidence for identification.<br>• Understand that classification keys must be tested and refined to work reliably.<br>**Procedural knowledge**<br>• Observe, compare and describe organisms using suitable equipment and identification guides. | **Disciplinary knowledge**<br>• Identify testable questions and make predictions using prior knowledge.<br>• Understand that fair tests control relevant variables.<br>• Recognise that systematic observations and accurate measurements support conclusions.<br>• Understand that unusual results should be checked and investigated.<br>• Distinguish observations from explanations and support conclusions with evidence.<br>**Procedural knowledge**<br>• Plan and carry out safe comparative investigations.<br>• Measure temperature, mass and volume using suitable equipment and units.<br>• Observe changes over time and record | **Disciplinary knowledge**<br>• Understand that predictions about circuits can be tested through practical investigation.<br>• Recognise that fair comparisons change one factor while controlling other relevant conditions.<br>• Understand that circuit diagrams represent connections using agreed symbols.<br>• Recognise that patterns in results support explanations of circuit behaviour.<br>• Understand that faults and depleted cells can affect results and conclusions.<br>**Procedural knowledge**<br>• Construct and test simple series circuits safely.<br>• Draw and interpret circuit diagrams using standard symbols.<br>• Use switches to control devices and | **Disciplinary knowledge**<br>• Understand that observations, measurements and reliable sources provide evidence about growth and health.<br>• Recognise that patterns in human data describe variation rather than rules applying to everyone.<br>• Understand that fair comparisons require consistent methods and control of relevant variables.<br>• Recognise that an association between factors does not necessarily show cause.<br>• Understand that conclusions must reflect evidence and its limitations.<br>**Procedural knowledge**<br>• Sequence and describe stages of human development using scientific vocabulary. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | and use measuring equipment to record distance and time accurately.<br>• Compare movement across surfaces to investigate friction.<br>• Investigate gravity, air resistance and water resistance using simple practical models.<br>• Test materials for magnetic attraction and explore attraction and repulsion between magnets.<br>• Record and present results using tables, appropriate graphs and labelled diagrams.<br>• Communicate evidence-based conclusions using scientific vocabulary. | **Procedural knowledge**<br>• Research and cross-check information using suitable sources, distinguishing facts from illustrations.<br>• Construct and label models of scientific relationships.<br>• Plan observations and measure shadows consistently, recording length, time and conditions.<br>• Identify controlled variables in practical comparisons and repeat measurements where useful.<br>• Present findings using tables, appropriate graphs and labelled diagrams.<br>• Explain findings using evidence, evaluate methods and suggest improvements. | • Sort animals and plants using shared characteristics and explain choices.<br>• Identify vertebrate and invertebrate groups using evidence.<br>• Use, construct and test branching classification keys.<br>• Record findings in classification tables, labelled drawings and branching diagrams.<br>• Explain links between adaptations, habitats and survival.<br>• Communicate findings using accurate scientific vocabulary and observe living things responsibly. | results systematically.<br>• Present findings in tables, labelled diagrams and appropriate graphs.<br>• Compare results, identify patterns and investigate unusual findings.<br>• Explain conclusions using scientific vocabulary and suggest improvements | systematically identify circuit faults.<br>• Test materials for conductivity using a working circuit.<br>• Investigate changes in bulb brightness, identifying variables to change, observe and control.<br>• Record findings in diagrams and tables and communicate evidence-based conclusions using scientific vocabulary. | • Identify and explain the functions of bones and muscles.<br>• Ask investigable questions and plan appropriate body-related enquiries.<br>• Measure, record and compare data using suitable equipment, tables and graphs.<br>• Identify patterns, interpret evidence and draw supported conclusions.<br>• Explain how healthy habits support the body using reliable information.<br>• Handle personal information sensitively and suggest improvements to investigations |
| | **LOs** | • To understand that forces are pushes and pulls that can change | • To identify and classify Solar System bodies, sequence the | • To group living things using shared characteristics and | • To observe and classify material changes, using evidence to | • To identify everyday electrical devices, distinguish battery | • To describe the stages of the human life cycle and explain how |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | the movement of objects.<br>• To explain that gravity pulls unsupported objects towards the Earth.<br>• To investigate how friction affects the movement of objects on different surfaces.<br>• To understand how air resistance affects moving objects.<br>• To investigate how water resistance affects objects moving through water.<br>• To investigate magnetic forces and identify which materials are magnetic.<br>• To apply knowledge of forces to explain real-life situations and demonstrate understanding from across the unit. | planets and recognise limitations of scale models.<br>• To explain day and night through Earth's rotation and distinguish rotation from orbit.<br>• To analyse changes in shadows throughout the day and draw conclusions using evidence.<br>• To explain the Moon's changing appearance through its orbit and reflected sunlight.<br>• To explain seasonal changes and daylight variation through Earth's axial tilt and orbit.<br>• To research how we explore and work in space, including technology, gravity and life-support needs.<br>• To apply knowledge of Earth and space to new examples and communicate explanations | explain why classification is useful.<br>• To distinguish vertebrates from invertebrates and identify their main groups.<br>• To use and create branching classification keys to identify animals.<br>• To observe plant features and use classification keys to identify and group plants.<br>• To explain how animals' features help them survive in their habitats.<br>• To apply classification knowledge to unfamiliar plants and animals, testing keys and explaining decisions using evidence. | explain whether they can be reversed.<br>• To investigate melting and freezing and explain why they are reversible changes.<br>• To investigate dissolving and explain how a dissolved solid can be recovered.<br>• To identify changes that form new materials and explain why they are usually irreversible.<br>• To plan a fair test, identifying variables and making a prediction using scientific knowledge.<br>• To carry out an investigation, record results and draw evidence-based conclusions, suggesting improvements. | and mains power, and describe safe use.<br>• To build a simple series circuit and explain why it needs a complete loop to work.<br>• To use a switch to control a circuit and explain the effect of opening and closing it.<br>• To test and classify materials as conductors or insulators, using evidence to explain findings.<br>• To investigate how adding identical bulbs in series affects brightness with the same power source, and represent circuits using standard symbols. | humans grow and develop.<br>• To explain how bones, joints and muscles support, protect and move the body.<br>• To explain how exercise, nutrition and hygiene support health and wellbeing.<br>• To describe natural changes associated with ageing, recognising differences between individuals.<br>• To investigate how activity affects pulse rate, record measurements and identify patterns.<br>• To apply knowledge of human growth, movement and health, using scientific evidence to explain ideas. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | supported by evidence. | | | | |
| | **Assessment** | Choose one force from the unit. Explain what it is, whether it is a contact or non-contact force, how it affects movement, and give evidence from an investigation or everyday example.<br>Forces Expert Challenge<br>Pupils who complete the assessment accurately and efficiently choose one real-life context such as:<br>cycling;<br>swimming;<br>parachuting;<br>football;<br>sailing;<br>a magnetic crane.<br>They create a quick annotated diagram showing:<br>the forces acting;<br>the direction of each force;<br>whether each force is contact or non-contact;<br>how the forces affect movement. | Create an individual exhibit containing:<br>Solar System relationships.<br>A day–night explanation.<br>Interpretation of shadow data.<br>A Moon or seasons explanation.<br>A research-supported exploration fact.<br>A model or evidence limitation.<br>Check remaining knowledge through brief individual questions.<br>Apply learning to a fresh claim: "A child says a longer winter night means Earth rotates more slowly." | Classify That! — The Wildlife Survey Challenge<br>Children act as wildlife scientists, classifying plants and animals, using and creating branching keys, and explaining how features support survival. Individual explanations and an unfamiliar organism challenge assess accurate classification, scientific vocabulary and evidence-based reasoning. Spaced retrieval checks assess longer-term retention. | The Materials Mystery Challenge<br>Children classify material changes, investigate recovering salt from a solution and use evidence to explain reversible and irreversible changes. Individual explanations and an unfamiliar example assess scientific understanding, enquiry skills and application. Spaced retrieval checks assess longer-term retention. | Bright Sparks — The Emergency Lighting Challenge<br>Children build a switched lighting circuit, test conductors and insulators, and investigate changes in bulb brightness. Circuit diagrams, individual explanations and an unfamiliar fault-finding challenge assess understanding and scientific enquiry skills. Spaced retrieval checks assess longer-term retention. | Changing Humans — Healthy Lives Challenge<br>Children sequence human development, explain movement, recommend healthy habits and interpret exercise data. Individual explanations and an unfamiliar scenario assess scientific understanding, evidence use and application. Spaced retrieval checks assess longer-term retention. |
| **Cl.5** | **Unit Title** | **Earth, Sun and Beyond** | **Forces in Action** | **Material World** | **Evolution Detectives** | **Seeing the Light** | **Super Circuits** |
| | **Substantive Knowledge** | • Know that planets orbit the | • Know that forces are pushes or | • Describe solids, liquids and gases | • Understand that evolution involves | • Know that light comes from natural | • Understand that electric current flows |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Sun, the Moon orbits Earth, and the Sun, Earth and Moon are approximately spherical.<br>• Understand that Earth's rotation causes day and night, taking approximately 24 hours.<br>• Understand that Earth's axial tilt and orbit produce the seasons.<br>• Know that planets differ in size, composition, atmosphere and distance from the Sun.<br>• Recognise that the Moon's appearance follows a predictable cycle of phases.<br>• Know that stars produce light, appear in recognisable constellations and that our Solar System lies within the Milky Way.<br>• Understand that developing technologies | pulls arising from interactions and can change speed, direction or shape.<br>• Understand that the combined forces determine changes in motion; balanced forces allow rest or steady movement in a straight line.<br>• Distinguish mass from weight, recognising that weight depends on gravitational strength.<br>• Understand that friction, air resistance and water resistance oppose relative movement and can be useful or undesirable.<br>• Know that resistance depends on factors including shape, surface area, speed and orientation.<br>• Understand how levers, pulleys and gears change force, direction or movement, involving trade-offs between force | using their properties and a simple particle model.<br>• Understand how heating and cooling affect particle movement and can cause changes of state.<br>• Distinguish reversible changes, including melting and dissolving, from changes that produce new substances, including burning and rusting.<br>• Know that mixtures contain substances together and that solutions form when a solute dissolves in a solvent.<br>• Distinguish soluble from insoluble materials; understand that temperature can affect solubility, while stirring usually affects the rate of dissolving.<br>• Explain how sieving, filtration, evaporation and magnetic separation recover materials using differences in their properties. | changes in populations of living things over many generations.<br>• Know that fossils provide evidence of past life and changes over time.<br>• Understand that offspring inherit characteristics but are not identical to their parents.<br>• Recognise variation within species, distinguishing inherited characteristics from changes caused by the environment.<br>• Understand that some inherited variations increase the likelihood of survival and reproduction in particular environments.<br>• Know that natural selection can make beneficial inherited characteristics more common over generations.<br>• Recognise structural, behavioural and functional adaptations, understanding that organisms do not deliberately develop | and artificial sources and travels in straight lines.<br>• Understand that we see when light enters our eyes directly from sources or after reflecting from objects.<br>• Know that darkness is the absence of light.<br>• Understand that materials reflect, absorb and transmit different amounts of light.<br>• Distinguish transparent, translucent and opaque materials.<br>• Explain that shadows form when objects block light; their outlines depend on the object's shape and orientation.<br>• Understand how the relative positions of the light source, object and surface affect shadow size and position. | through a complete circuit connected to a suitable power source.<br>• Identify the functions of cells, batteries, wires, bulbs, switches, buzzers and motors.<br>• Know recognised symbols used to represent components in circuit diagrams.<br>• Understand that changing the number and voltage of cells can affect bulb brightness, buzzer volume and motor speed.<br>• Explain how the number and arrangement of components affect a series circuit.<br>• Distinguish conductors from insulators and explain their uses.<br>• Know how to use electricity safely, including matching components to suitable power sources. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | enable humans to explore space. | and distance or speed. | • Know that chemical changes form new substances, with starting substances called reactants and resulting substances called products.<br>• Apply knowledge of material properties and changes to everyday problems. | features because they need them.<br>• Understand that environmental change can affect survival and contribute to extinction.<br>• Know that scientific explanations of evolution draw on multiple sources of evidence. | | |
| | **Disciplinary / Procedural Knowledge** | **Disciplinary knowledge**<br>• Recognise questions that can be explored through observations, comparisons, models or secondary evidence.<br>• Understand that patterns in astronomical data support explanations of day length, seasons and lunar cycles.<br>• Recognise that models represent scientific ideas but simplify reality and may not be to scale.<br>• Understand that scientific explanations | **Disciplinary knowledge**<br>• Use scientific knowledge to make predictions and evidence to support or challenge them.<br>• Understand that fair comparisons control relevant variables and repeated measurements reveal variation.<br>• Recognise that evidence quality, quantity and measurement variation affect confidence in conclusions.<br>• Understand that models simplify reality and have limitations.<br>• Distinguish direct measurements | **Disciplinary knowledge**<br>• Understand that enquiry methods and classification criteria should match the question.<br>• Use scientific knowledge to make predictions and evidence to evaluate them.<br>• Understand how controlling variables enables fair comparisons.<br>• Recognise that equipment precision, repeated measurements and variation affect confidence in findings.<br>• Understand that particle models simplify reality and have limitations. | **Disciplinary knowledge**<br>• Understand that scientists use fossils, comparisons and patterns to investigate changes that cannot be observed directly over a lifetime.<br>• Recognise that the fossil record is incomplete and evidence has limitations.<br>• Understand that scientific theories are well-supported explanations that can be refined through new evidence.<br>• Distinguish evidence from opinion and evaluate competing explanations.<br>• Recognise that models illustrate | **Disciplinary knowledge**<br>• Understand that observations and investigations provide evidence for explanations about light.<br>• Recognise that ray diagrams and models represent light's path but simplify reality.<br>• Use scientific knowledge to predict outcomes and explain cause and effect.<br>• Understand that fair comparisons control relevant variables.<br>• Recognise that conclusions must reflect results and acknowledge limitations. | **Disciplinary knowledge**<br>• Understand that circuit predictions can be tested through systematic investigations.<br>• Recognise that fair comparisons change one variable while controlling other relevant conditions.<br>• Understand that repeated observations and measurements help evaluate findings.<br>• Recognise that circuit diagrams represent electrical connections rather than physical layouts.<br>• Understand that faults, loose connections and depleted cells can affect results. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | should be supported by evidence.<br>**Procedural knowledge**<br>• Ask relevant questions and plan simple comparative investigations.<br>• Use globes, balls and torches to model rotation, orbits, seasons and Moon phases.<br>• Make careful observations and identify patterns.<br>• Interpret astronomical information in tables, diagrams and graphs.<br>• Communicate evidence-based explanations through labelled diagrams, annotated models, presentations and precise scientific vocabulary. | from inferences and recognise that patterns alone do not fully explain causes.<br>• Investigate unusual results rather than automatically discarding them.<br>**Procedural knowledge**<br>• Select suitable equipment, check force meters and measure force in newtons.<br>• Use timers consistently and identify variables to change, measure and control.<br>• Record repeated measurements and calculate means where appropriate.<br>• Draw labelled force diagrams and select suitable tables, charts and graphs.<br>• Compare differences between results with variation across repeats.<br>• Draw evidence-based conclusions and recommend improvements | • Recognise that observations may suggest new substances have formed but require careful interpretation.<br>• Distinguish evidence from inference and evaluate conclusions against the available results.<br>**Procedural knowledge**<br>• Observe, compare and classify materials, mixtures and changes using scientific criteria.<br>• Plan safe investigations, identifying independent, dependent and controlled variables.<br>• Select suitable equipment and measure accurately using appropriate units.<br>• Take repeated measurements where useful and record results systematically.<br>• Separate mixtures using appropriate techniques and explain each choice.<br>• Draw labelled particle diagrams and present data in | natural selection but simplify real populations and environments.<br>**Procedural knowledge**<br>• Observe and compare fossils, organisms and inherited characteristics using suitable sources.<br>• Interpret data and identify patterns in variation, adaptation and change.<br>• Use models to explore natural selection and explain their limitations.<br>• Ask critical questions and assess the relevance of evidence.<br>• Construct explanations linking variation, inheritance, survival and reproduction.<br>• Apply understanding to unfamiliar organisms and environmental changes.<br>• Communicate and discuss evidence-based conclusions using precise scientific vocabulary. | **Procedural knowledge**<br>• Draw labelled ray diagrams with arrows showing light travelling from a source to an object and into the eye.<br>• Plan and carry out investigations into reflection, light transmission and shadows.<br>• Measure shadow size while controlling relevant distances and positions.<br>• Compare materials and record results using tables, diagrams and appropriate graphs.<br>• Identify patterns and explain findings using evidence and scientific vocabulary.<br>• Use torches and mirrors safely, avoiding direct sunlight or bright beams into eyes.<br>• Apply knowledge to explain everyday light phenomena | • Use evidence to explain patterns and evaluate improvements to circuits.<br>**Procedural knowledge**<br>• Construct, test and modify series circuits safely using suitable cells.<br>• Draw and interpret circuit diagrams using recognised symbols.<br>• Plan investigations into the effects of changing cells or components.<br>• Select suitable equipment and record observations or measurements systematically.<br>• Test materials for conductivity and explain appropriate uses.<br>• Identify patterns, draw supported conclusions and suggest improvements.<br>• Locate faults systematically and communicate explanations using accurate scientific vocabulary. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | linked to identified limitations. | suitable tables and graphs.<br>• Identify patterns, investigate unusual results and draw supported conclusions.<br>• Evaluate methods, suggest specific improvements and communicate findings using scientific vocabulary. | | | |
| | **LOs** | • To know the names and order of the planets in the Solar System and describe their movement around the Sun.<br>• To understand that the Sun, Earth and Moon are approximately spherical bodies.<br>• To explain how the Earth's rotation causes day and night.<br>• To explain how the tilt of Earth's axis and its orbit around the Sun cause the seasons.<br>• To describe the movement of the Moon relative to Earth and explain | • To identify forces, explain gravity, distinguish mass from weight and measure force using a force meter.<br>• To investigate how different surfaces affect friction and explain when friction is helpful.<br>• To investigate how parachute canopy size affects descent time through air resistance.<br>• To investigate how an object's shape affects its movement through water.<br>• To investigate how the position of a lever's pivot affects the effort | • To compare solids, liquids and gases using a simple particle model and explain the effects of heating and cooling.<br>• To investigate mixtures and solutions, identifying materials that dissolve in water.<br>• To plan and carry out a fair test investigating factors that affect the rate of dissolving.<br>• To select and use suitable methods to separate mixtures and recover materials.<br>• To use evidence to explain changes that produce new | • To use fossil evidence to explain how living things have changed over time, distinguishing observations from inferences.<br>• To describe how fossils can form and explain why the fossil record is incomplete.<br>• To explain inheritance and variation, using data to identify differences within a species.<br>• To use a simulation to explain how natural selection can make helpful inherited characteristics | • To identify light sources and explain why light is needed to see.<br>• To investigate reflection, compare reflective materials and represent light paths using ray diagrams.<br>• To explain how we see objects when light reflects from them into our eyes.<br>• To investigate how the positions of a light source, object and screen affect shadow size, using measurements to explain patterns.<br>• To use evidence that light travels in straight lines to explain shadows, | • To construct series circuits safely and explain why a complete loop is needed for current to flow.<br>• To investigate how changing components or the number of cells affects bulb brightness, buzzer volume or motor speed.<br>• To draw and interpret circuit diagrams using recognised symbols and build circuits from them.<br>• To test materials for conductivity and explain the uses of conductors and insulators.<br>• To design, build and improve a |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | the sequence of Moon phases.<br>• To identify and compare the characteristics of planets in the Solar System.<br>• To explore stars, constellations and galaxies and understand how humans have explored space. | needed to lift a load.<br>• To explore how pulleys and gears change force, direction and movement.<br>• To apply knowledge of forces to explain a design using scientific evidence. | substances and are usually irreversible.<br>• To plan, carry out and evaluate a materials investigation, recording results and drawing evidence-based conclusions. | more common over generations.<br>• To identify adaptations and explain how they support survival in particular environments.<br>• To use evidence to explain how environmental change can affect survival, reproduction and evolution over generations, sometimes leading to extinction. | reflection and unfamiliar light phenomena. | circuit that solves a practical problem, using evidence to justify choices.<br>• To apply knowledge of circuits to unfamiliar problems and evaluate findings using scientific vocabulary. |
| | **Assessment** | Pupils complete a Space Exploration and Universe Summary Page in their science books. They should include: a labelled hierarchy showing Universe → Milky Way → Solar System → Earth; the difference between stars and planets; one example of a constellation; at least two methods humans use to explore space; one explanation of how technology has improved scientific understanding. | Each pupil:<br>Annotates forces on a descending supply package.<br>Interprets a table of investigation results.<br>Explains a useful and an unwanted resistance force.<br>Recommends a lifting mechanism.<br>Identifies a method improvement.<br>Then groups:<br>Prepare one rescue solution for the exhibition.<br>Use existing results and a model or diagram.<br>Ensure every pupil contributes an | Materials Rescue — The Mixed-Up Laboratory<br>Children separate a mixture, evaluate claims about dissolving and explain reversible and irreversible changes. Individual explanations, particle diagrams and an unfamiliar problem assess scientific understanding, practical skills and evidence-based reasoning. Spaced retrieval checks assess longer-term retention. | Evolution Detectives — Survive a Changing World<br>Children interpret fossil and population evidence to explain inheritance, variation and natural selection in a changing habitat. Individual explanations and an unfamiliar scenario assess scientific reasoning, application and recognition of evidence limitations. Spaced retrieval checks assess longer-term retention. | Light Detectives — The Hidden Object Challenge<br>Children use mirrors to illuminate a hidden object, investigate shadow size and compare materials. Ray diagrams, individual explanations and an unfamiliar problem assess understanding of light, scientific enquiry and evidence-based reasoning. Spaced retrieval checks assess longer-term retention. | Super Circuits — Design a Rescue Signal. Children design, build and improve a switched rescue signal, investigating how changing cells affects its output. Circuit diagrams, individual explanations and an unfamiliar problem assess electrical knowledge, safe working and evidence-based reasoning. Spaced retrieval checks assess longer-term retention. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | explanation or accessible alternative. | | | | |