Science Long Term Plan

Cycle B 2026–27

Science is taught in every half term. Mars and Venus each study a shared topic, with expectations adapted to the year groups learning together. Years 4, 5 and 6 follow their own separate topics. Scientific enquiry and real world applications are taught through these topics throughout the year.

Teaching group	Organisation	How progression is supported
Mars Reception and Year 1	Reception and Year 1 together	Shared experiences and input. Reception explores through talk, play and provision; Year 1 develops named knowledge, simple tests, observations and records.
Venus Years 2 and 3	Years 2 and 3 together	One shared topic and input. Year 2 secures KS1 foundations; Year 3 develops early KS2 explanations, variables, measurement and evidence.
Year 4	Separate year group	Connect processes, select observations and equipment, and use results to explain findings.
Year 5	Separate year group	Plan enquiries, control variables, use repeat measurements and explain evidence.
Year 6	Separate year group	Justify methods, evaluate evidence and communicate increasingly independent explanations.

Three strands through every topic

Scientific knowledge and understanding explains the concepts children learn. Working scientifically develops how they ask, investigate and use evidence. Science in action connects this learning with scientists, careers, inventions, health, the environment and the way ideas change.

The next page shows the Cycle B topic order. Changing Seasons runs throughout Mars provision, with repeated observations of weather, plants and daylight. Summer Making Connections units apply knowledge and enquiry skills developed earlier in the year.

Science Long Term Plan

Cycle B 2026–27

Teaching group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Mars Reception and Year 1	Animal Adventures Changing Seasons (EY) Animals: Sensitive Bodies (Y1)	Animal Adventures Changing Seasons (EY) Animals: Comparing Animals (Y1)	I am a Scientist Changing Seasons (EY) Forces and Space: Seasonal Changes (Y1)	I am a Scientist Changing Seasons (EY) Materials: Everyday Materials (Y1)	Our Beautiful Planet Changing Seasons (EY) Plants: Introduction to Plants (Y1)	Our Beautiful Planet Changing Seasons (EY) Making Connections: Science through Stories (Y1)
Venus Years 2 and 3	Materials: Uses of Everyday Materials	Living Things: Microhabitats	Forces and Space: Forces and Magnets	Animals: Movement and Nutrition	Energy: Light and Shadows	Making Connections: Plant- based Materials
Year 4	Animals including Humans: Digestion and Food	Materials: States of Matter	Energy: Sound and Vibrations	Living Things: Classification and Changing Habitats	Energy: Electricity and Circuits	Making Connections: How does the flow of liquids compare?
Year 5	Materials: Mixtures and Separation	Materials: Properties and Changes	Forces and Space: Earth and Space	Living Things: Life Cycles and Reproduction	Forces and Space: Unbalanced Forces	Making Connections: Does the size of an asteroid affect the diameter of its crater?
Year 6	Living Things: Classifying Big and Small	Energy: Light and Reflection	Living Things: Evolution and Inheritance	Energy: Circuits, Batteries and Switches	Animals including Humans: Circulation and Health	Making Connections: Are some sunglasses safer than others?

Mars and Venus use shared teacher input within each class, followed by age related application. EYFS theme titles are integrated with the Year 1 topic. Years 4, 5 and 6 teach the separate topics above. The progression guide explains the intended knowledge, enquiry skills and science in action links.

Science knowledge and skills progression

EYFS to Year 6 | Cycle B 2026 to 2027

Children develop scientific explanations alongside the practical skills needed to investigate questions and judge evidence. This guide maps the three science progression strands to the supplied Cycle B topics, showing how learning develops from Reception to Year 6 and what teachers can look for.

Strand	What progression means	How it appears in this guide
Scientific knowledge and understanding	From naming and describing to explaining processes, systems and connections.	Subject knowledge overview and essential knowledge for every half term.
Working scientifically	From supported exploration to justified methods, precise measurement and evaluated conclusions.	Year group expectations and a suitable enquiry in every unit.
Science in action	From recognising familiar jobs to explaining applications, changing ideas and the quality of evidence.	A progression overview plus careers, scientists or applications linked to every unit.

Teaching groups and scope

Mars combines Reception and Year 1 (Reception learns through practical experiences, talk, play and provision); Venus combines Years 2 and 3. Each has one shared topic and teacher input, with distinct age-related expectations. Years 4, 5 and 6 are separate teaching groups with their own topics.

The guide maps Cycle B 2026–27 only. It shows planned learning, not evidence that pupils have already secured it. Topic examples and year by year refinements of shared source expectations are proposed teaching applications.

Living things and human biology progression

The sequence moves from observable features and needs towards internal systems, classification and explanations of change. Each row describes the contribution of the year group's Cycle B topics; it does not add a separate unit.

Year group	Knowledge developed in Cycle B	Progression in explanation and application
Reception	Familiar animals, senses, plant parts, growth, seasonal changes and care for living things.	Name and notice features, describe a change and care for a plant or habitat through provision.
Year 1	Body parts and senses; animal groups, structures and diets; common plants and tree structures.	Use names and visible features to classify; describe differences and connect a plant or animal with observations.
Year 2	Microhabitats and survival needs; living, dead and never alive; food chains, offspring, health and seed or bulb growth.	Describe how a habitat meets needs and use evidence to explain a material choice, healthy habit or observed growth.
Year 3	Skeleton and muscles, nutrition; deeper habitat comparisons; plant structure, transport and reproduction within plant based materials.	Explain a structure's function, a relationship in a food chain and a pattern in observations; distinguish evidence from a guess.
Year 4	Digestion, teeth and food chains; classification keys and the effects of changing habitats.	Connect organs with functions; choose useful classification questions and explain how change can affect organisms.
Year 5	Life cycles of mammals, amphibians, insects and birds; plant reproduction and propagation; human growth and puberty within life cycle teaching.	Compare processes and explain sexual and asexual reproduction; combine observation with suitable reference evidence.
Year 6	Classification including microorganisms; inheritance, variation and evolution; circulation and relationships between body systems.	Explain patterns across generations and systems; evaluate supporting evidence and qualify conclusions about health or adaptation.

Connections to revisit: Year 1 body parts support Year 3 movement and Year 4 digestion; Year 2 habitats support Year 4 classification and Year 6 adaptation; Year 5 reproduction supports Year 6 inheritance. Retrieve the relevant foundation when it has not been encountered recently.

Materials knowledge progression

Children move from sensory descriptions of objects to the relationship between properties, physical processes and material choice. Apply earlier knowledge where a year group has no dedicated materials unit in Cycle B.

Year group	Knowledge developed or applied	How thinking becomes more precise
Reception	Explore textures, floating and sinking, movement, melting or freezing through practical experiences.	Describe what happens and compare familiar objects with adult support.
Year 1	Distinguish an object from its material; name materials and simple properties.	Group objects by a stated property and use a simple comparison to describe a result.
Year 2	Material suitability, changing shape and plant based materials.	Use a property and evidence from a test to justify a use; recognise that one material can suit several purposes.
Year 3	Apply property knowledge to material testing, magnetic response, light transmission and plant based products.	Select a measurable comparison and explain why controlling a condition strengthens the conclusion.
Year 4	Solids, liquids, gases and changes of state; evaporation and condensation; comparative liquid flow.	Explain a change as a process and use temperature, volume or time data to compare behaviour.
Year 5	Mixtures, solutions, separation, a wider range of properties, and reversible and irreversible changes.	Choose a method from knowledge of properties; distinguish dissolving from melting and explain evidence for a new material.
Year 6	Apply earlier material knowledge within circuits, reflection and sunglass transmission; no dedicated materials unit in Cycle B.	Justify a material or method for a purpose and evaluate whether the evidence supports the claim.

Key connections: a Year 2 waterproof material test prepares for control of variables in Year 3. Year 4 evaporation supports Year 5 recovery of a dissolved solid. Electrical and optical properties provide contexts for applying material knowledge in Year 6.

Energy forces and space progression

Children develop explanations of effects they can observe, then connect these to forces, energy transfer and models of systems. Seasonal observations continue across Mars, while older pupils revisit them through Earth and Space.

Year group	Knowledge developed in Cycle B	Progression in explanation and application
Reception	Pushes and pulls, sounds, light and shadow, weather and seasonal change through exploration.	Notice an effect, describe a change and begin suggesting what may happen.
Year 1	Weather, daylight and seasonal patterns; apply sensory and material observations.	Use repeated observations to describe change and distinguish a pattern from one day's weather.
Year 2	Explore forces, magnets, light, shadows and transparency through shared Venus topics.	Describe effects and make simple comparisons, securing material and observation skills within these contexts.
Year 3	Contact and non-contact forces, magnetic poles, light sources, reflection and shadow formation.	Explain a simple mechanism and use measured evidence to describe a relationship.
Year 4	Vibrations, pitch and loudness; complete series circuits, switches, conductors and insulators.	Connect cause and effect, diagnose a circuit or sound comparison and support an explanation with observations.
Year 5	Earth, Moon and Sun movements; gravity, friction, resistance and mechanisms; crater models.	Explain with models and controlled tests, identifying variables, repeated results and model limitations.
Year 6	Straight line light travel and reflection; effects of cells and components in series circuits; UV transmission in sunglasses.	Use ray or circuit diagrams and justify conclusions, distinguishing a test result from a broader safety claim.

Concepts deepen across years: visible shadow changes in Venus become ray explanations in Year 6; Year 4 complete circuits become Year 6 comparisons of components and voltage; Year 1 seasonal observations become Year 5 explanations involving rotation, orbit and tilt.

Working scientifically from Reception to Year 3

Enquiry skills are taught through scientific content. The supplied working scientifically resource shares many expectations within KS1 and lower KS2; these individual year steps refine the degree of support, precision and explanation.

Skill family	Reception	Year 1	Year 2	Year 3
Questions and planning	Ask about the natural world with support; suggest an action.	Ask a simple question and order a suggested method.	Choose from suitable ways to answer a question and notice a fair comparison.	Identify a testable question; select changed, measured and controlled variables from options.
Predicting	Suggest what might happen.	Use a familiar experience to make a prediction.	Give a simple reason for a prediction.	Use knowledge to predict an effect or trend and explain why.
Observing and measuring	Describe what is seen or heard.	Observe with simple equipment and compare lengths or amounts.	Use standard units and simple scales with growing confidence.	Measure in standard units, read intermediate scale divisions and record detailed observations.
Researching	Recognise that books and digital sources can help.	Find a detail in one specified accessible source.	Select information relevant to a question from a suitable source.	Gather relevant information from more than one source and compare it with observations.
Recording and graphing	Draw a feature and contribute to a shared record.	Label a diagram; use a prepared table, tally, pictogram or block graph.	Use a suitable simple table or chart and explain what it shows.	Add headings, begin designing tables, draw clearer diagrams and use bar charts accurately.
Grouping and keys	Sort familiar objects with support.	Group using visible features.	State a sorting rule and explain a choice.	Group by observable or measurable properties and begin using simple classification questions.
Concluding and evaluating	Describe a discovery.	Use results to answer a simple question.	Compare a finding with a prediction and use an observation as evidence.	Quote results, identify a pattern or anomaly and suggest a method improvement or next question.

One shared Venus test can serve both years: Year 2 compares samples and explains a useful property; Year 3 identifies the measured outcome, keeps sample conditions comparable and explains how the evidence supports a choice.

Working scientifically in Years 4 to 6

The source expectations for Years 5 and 6 are largely shared. The distinction below is a planning refinement: Year 5 plans and explains with increasing independence; Year 6 justifies choices and evaluates evidence across a broader range of contexts.

Skill family	Year 4	Year 5	Year 6
Questions and planning	Frame a relevant question; plan numbered steps, choose equipment and identify variables with guidance.	Justify an enquiry type, select variables and equipment, and plan control conditions and repeats.	Independently refine a feasible question and justify a method, sample or model and its limitations.
Predicting	Use scientific knowledge to predict a relationship or outcome.	Link prior knowledge and evidence to a reasoned prediction.	Explain a testable prediction and use findings to propose a further investigation.
Observing and measuring	Measure with increasing accuracy, standard units and suitable equipment.	Choose equipment and precision; read varied scales and repeat measurements.	Justify resolution and sampling; distinguish precision from accuracy and check inconsistent readings.
Researching	Compare relevant evidence from several sources.	Research open questions and consider the source's relevance and trustworthiness.	Evaluate source quality and competing claims, distinguishing evidence from an unsupported assertion.
Recording and graphing	Design a simple table; draw labelled diagrams and accurate bar charts.	Use units, repeat columns, appropriate means, scientific diagrams and suitable line or scatter graphs.	Independently select representations and circuit symbols; interpret patterns and qualify what graphs show.
Grouping and keys	Complete and help design a branching key using useful questions.	Apply classification and comparisons in unfamiliar contexts where relevant.	Construct and refine branching keys, test ambiguous questions and justify grouping decisions.
Concluding and evaluating	Use results as evidence; identify anomalies, control problems and improvements.	Explain patterns using data; evaluate repeatability, control and information sources.	Weigh conclusions, explain uncertainty and limitations, and propose a focused improvement or next enquiry.

Use a bar chart for categories, a line graph for appropriate ordered continuous data and a scatter graph for exploring a relationship between numerical variables. Repeats can show consistency but do not remove systematic error. Investigate unusual results; do not delete them simply because they disagree with a prediction.

Science in action progression

Science in action explains why scientific knowledge and methods matter. Pupils learn about people, applications and decisions alongside the concepts being taught. Names alone are not progression: children should explain what was investigated, how evidence was used and why it matters.

Year group	Understanding developed	Cycle B examples and evidence of learning
Reception	People use observations and tools in familiar jobs.	Talk about a gardener, animal carer or weather reporter and an observation they might make.
Year 1	Scientific observation helps answer questions and meet everyday needs.	Explain how a weather record informs a decision, or how animal observation helps a zoologist learn.
Year 2	Material and biological knowledge support health, design and environmental care.	Explain an engineer's material choice or how habitat observations support conservation.
Year 3	Research and practical evidence inform inventions and explanations.	Connect movement with prosthetics, magnets with applications and plant knowledge with a product choice; explain the evidence used.
Year 4	Scientists collaborate, use models and classify evidence; practical knowledge has consequences.	Explain a taxonomist's key, an electrical safety design or a flow comparison, including a limitation.
Year 5	Ideas can change when evidence improves; models and technologies support research.	Compare explanations of the Solar System, justify separation or rust prevention, and explain limits of a crater model.
Year 6	Claims require suitable evidence, scrutiny and sometimes several methods; ethics and uncertainty affect decisions.	Explain how classification or circulation understanding has developed; evaluate a sunglass claim without treating a classroom test as certification.

Include scientists and careers from varied backgrounds. Use age-appropriate examples of collaboration, peer review and research ethics. When discussing a current discovery, check a reliable, dated source and distinguish an established explanation from an early claim.

The strands mapped to the Cycle B topics in teaching order

Science in Mars Class (Reception and Year 1) autumn and early spring

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Autumn 1 **Animal Adventures** **Changing Seasons (EY)** **Animals: Sensitive Bodies (Y1)**	Humans and other animals use senses to explore. Name body parts and link eyes, ears, nose, tongue and skin with sight, hearing, smell, taste and touch. People can experience senses differently.	Reception: describe a familiar animal or body part using talk and pictures. Year 1: label body parts, link them to senses and use a simple comparison to answer a question. Enquiry: identify and group sensory observations using a prepared record.	Explore how firefighters use senses and how research supports people with sensory impairments. Vocabulary: body, sense, sight, hearing, smell, taste, touch
Autumn 2 **Animal Adventures** **Changing Seasons (EY)** **Animals: Comparing Animals (Y1)**	Name and compare common fish, amphibians, reptiles, birds and mammals. Animals have different body structures and diets; carnivores eat animals, herbivores plants and omnivores both.	Reception: name familiar animals and notice body features. Year 1: group animals by a stated feature or diet, explain a choice and draw a labelled example. Enquiry: classify using direct observations and suitable images or information.	Use Jane Goodall and zoologists as examples of learning through careful animal observation. Vocabulary: mammal, bird, reptile, fish, amphibian, diet
Spring 1 **I am a Scientist** **Changing Seasons (EY)** **Forces and Space: Seasonal Changes (Y1)**	The UK has four seasons with patterns in weather and daylight. Plants and some animal behaviours change seasonally. A single day does not define a season; observe repeatedly across the year.	Reception: name a seasonal sign and compare outdoor experiences. Year 1: record weather and compare daylight information, using a simple table, pictogram or block graph. Enquiry: observe changes over time; use Spring 1 to compare records from the year.	Explain how weather reporters use observations to inform everyday decisions. Never look directly at the Sun. Vocabulary: season, weather, daylight, observe, compare

Reception and Year 1 hear the same core input, then apply learning through appropriate play, talk, models, observation and recording. Changing Seasons continues throughout the year; the Spring 1 unit consolidates repeated observations rather than replacing them.

Science in Mars Class (Reception and Year 1) late spring and summer

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Spring 2 **I am a Scientist** **Changing Seasons (EY)** **Materials: Everyday Materials (Y1)**	An object is a thing; a material is what it is made from. Name wood, plastic, glass, metal, water and rock. Compare properties such as hardness, flexibility, transparency and absorbency.	Reception: explore and describe objects and changes through practical play. Year 1: distinguish object from material, group by a property and use a simple test to compare materials. Enquiry: predict, test, record and explain one finding.	Discuss why a designer chooses a material for a familiar object. Vocabulary: object, material, property, hard, soft, waterproof
Summer 1 **Our Beautiful Planet** **Changing Seasons (EY)** **Plants: Introduction to Plants (Y1)**	Name common wild and garden plants, including deciduous and evergreen trees. Identify roots, stem, leaves and flowers and tree parts such as trunk and branches. Plants grow and change over time.	Reception: name a familiar plant or part and care for a growing plant. Year 1: identify and draw plants, label structures and compare seasonal tree observations. Enquiry: use observation and a simple reference source to identify plants.	Connect identification and plant care with the work of botanists and gardeners. Vocabulary: root, stem, leaf, flower, tree, deciduous, evergreen
Summer 2 **Our Beautiful Planet** **Changing Seasons (EY)** **Making Connections: Science through Stories (Y1)**	Stories provide questions to investigate, but evidence is needed to decide what happens in the real world. Reapply animal, plant, material and seasonal knowledge through a selected story problem.	Reception: suggest and explore a practical solution through play. Year 1: ask a question, suggest a prediction and use a simple test or observation to support an answer. Enquiry: choose a suitable familiar approach with guidance and explain what was found.	Link problem solving with a designer or scientist who checks ideas rather than accepting a story as proof. Vocabulary: question, predict, test, observe, result

Reception and Year 1 hear the same core input, then apply learning through appropriate play, talk, models, observation and recording. Changing Seasons continues throughout the year; the Spring 1 unit consolidates repeated observations rather than replacing them.

Science in Venus Class (Years 2 and 3) autumn and early spring

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Autumn 1 **Materials: Uses of Everyday Materials**	A material's properties affect its suitability for a purpose. One material can have several uses and different materials can serve one purpose. Some solid objects change shape when bent, twisted, stretched or squashed.	Year 2: compare suitability and changing shape; use a simple test and observations to justify a choice. Year 3: suggest a measurable question, choose equipment and control a relevant variable with support. Enquiry: compare material samples for a stated purpose.	Link Stephanie Kwolek's materials research and engineers' choices with evidence about useful properties. Vocabulary: suitable, flexible, absorbent, waterproof, force, property
Autumn 2 **Living Things: Microhabitats**	A microhabitat is a small habitat such as leaf litter or beneath a log. Living things depend on conditions and each other. Distinguish living, dead and never alive; show feeding relationships with simple food chains.	Year 2: identify organisms and describe how a microhabitat meets needs; record counts or observations. Year 3: compare sampled locations using a consistent method, explain a pattern and identify a limitation. Enquiry: identify, classify and seek patterns in local evidence.	Explain how naturalists and conservation workers use observations to care for habitats. Vocabulary: living, dead, microhabitat, shelter, food chain, organism
Spring 1 **Forces and Space: Forces and Magnets**	Pushes and pulls can change motion. Contact forces involve touching; magnetic forces can act at a distance. Not all metals are magnetic. Magnets have poles: like poles repel and unlike poles attract.	Year 2: explore pushes, pulls, material properties and magnetic sorting using simple comparisons. Year 3: explain contact and non-contact forces, predict pole interactions and investigate a measured effect while keeping conditions comparable. Enquiry: fair comparison and grouping.	Identify uses of friction and magnets in everyday objects and engineering. Vocabulary: push, pull, friction, magnet, pole, attract, repel

Year 2 outcomes protect KS1 foundations within the shared context. Year 3 explains mechanisms and relationships with greater precision. Plant growing and life cycle observations begin early enough to support Summer 2; plant transport and reproduction are explicitly revisited for Year 3.

Science in Venus Class (Years 2 and 3) late spring and summer

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Spring 2 **Animals: Movement and Nutrition**	Animals need food, water and air. A varied balanced diet, exercise and hygiene support health. Offspring grow into adults. Skeletons support and protect; muscles work with bones for movement. Animals obtain nutrients from food.	Year 2: describe survival needs, healthy choices and a simple animal life cycle; use observations to answer a question. Year 3: explain the functions of skeleton and muscles and compare nutrient needs using evidence. Enquiry: classify diets and research body structures.	Connect movement with prosthetics research and health knowledge with everyday choices. Vocabulary: nutrition, skeleton, muscle, support, offspring, hygiene
Summer 1 **Energy: Light and Shadows**	Light is needed to see; darkness is the absence of light. Materials differ in transparency. An opaque object blocks light and forms a shadow. Changing relative positions changes shadows; never look directly at the Sun.	Year 2: compare transparent and opaque materials, describe a shadow and record a simple test. Year 3: explain shadow formation, measure changes and describe a pattern while controlling positions with support. Enquiry: compare materials and investigate shadow size.	Explore how designers and performers use light and shade; compare explanations with observations. Vocabulary: light source, dark, transparent, opaque, shadow, reflect
Summer 2 **Making Connections: Plant- based Materials**	Many materials come from plants. Link paper or fabric properties with their uses. Embed seed and bulb growth: plants need water, light and suitable temperature; germination needs water, oxygen and suitable warmth. Revisit plant parts and life cycles.	Year 2: compare plant based materials and observe a planted seed or bulb over time. Year 3: link plant structures with functions, water transport, pollination and seed dispersal; justify a material choice from results. Enquiry: material tests plus ongoing plant observations.	Connect botanists, growers and product designers with plant resources and responsible material choices. Vocabulary: plant based, seed, bulb, germinate, root, stem, absorbent

Year 2 outcomes protect KS1 foundations within the shared context. Year 3 explains mechanisms and relationships with greater precision. Plant growing and life cycle observations begin early enough to support Summer 2; plant transport and reproduction are explicitly revisited for Year 3.

Science in Year 4 autumn and early spring

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Autumn 1 **Animals including Humans: Digestion and Food**	Digestive organs have different functions: mouth, oesophagus, stomach and intestines help process food and absorb nutrients. Teeth have different roles. Food chains connect producers, prey and predators and show transfer from food to consumer.	Year 4: explain a labelled digestive model, compare teeth and interpret a food chain. Use observations and reference evidence to justify the explanation. Enquiry: research organ functions and compare a model with the real system, identifying a limitation.	Discuss how anatomical knowledge supports healthcare and why models and ethical research matter. Vocabulary: digestion, oesophagus, intestine, incisor, molar, producer
Autumn 2 **Materials: States of Matter**	Compare solids, liquids and gases by observable behaviour. Heating and cooling can cause melting, freezing, evaporation and condensation. Water changes state in the water cycle; warmer conditions can increase evaporation.	Year 4: classify samples, measure temperature or observe change over time, and explain evaporation and condensation using a diagram. Enquiry: compare evaporation in agreed conditions, identify what is kept the same and use data to support a conclusion.	Connect water cycle observations with the work of weather and climate scientists. Vocabulary: solid, liquid, gas, melt, freeze, evaporate, condense
Spring 1 **Energy: Sound and Vibrations**	Sound is produced by vibrations that travel through a material to the ear. Faster vibrations produce higher pitch; larger vibrations produce greater loudness. Sounds generally become fainter with distance.	Year 4: use a model or observations to explain sound; compare pitch or loudness while controlling an agreed feature. Record measurements or structured observations and identify a pattern. Enquiry: a fair comparison and research into hearing protection.	Explore acoustic design, underwater communication and why some jobs need hearing protection. Vocabulary: vibration, medium, pitch, volume, distance, insulation

Build connections between knowledge and method: body models need accurate labels and stated limits; evaporation and flow comparisons need controlled conditions; habitat work needs useful classification questions; circuits need evidence based diagnosis.

Science in Year 4 late spring and summer

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Spring 2 **Living Things: Classification and Changing Habitats**	Living things can be grouped using observable characteristics. Keys identify organisms through questions. Distinguish vertebrates and invertebrates and flowering and non-flowering plants. Habitat change can help or harm living things.	Year 4: use and complete a classification key, choose useful questions and explain an environmental effect with evidence. Enquiry: compare repeated observations of a local habitat, recording conditions and organisms consistently.	Explain how taxonomists and conservation scientists use classification and evidence. Vocabulary: classify, key, vertebrate, invertebrate, habitat, conservation
Summer 1 **Energy: Electricity and Circuits**	A simple series circuit needs a complete conducting path and a power source. Recognise cells, wires, bulbs, buzzers and switches. An open switch breaks the path; metals are often conductors and materials such as plastic are insulators.	Year 4: build and diagnose low voltage circuits; identify conductors with a controlled comparison and draw a clear labelled diagram. Enquiry: use evidence to explain why a bulb lights or does not light. Use classroom cells, never mains electricity.	Connect inventions and electrical safety with designers' choices of conductors and insulators. Vocabulary: cell, circuit, component, switch, conductor, insulator
Summer 2 **Making Connections: How does the flow of liquids compare?**	Liquids can flow at different rates under the same conditions. Viscosity describes resistance to flow. Temperature, volume, surface and method can affect a flow comparison. This applies states of matter and measurement knowledge.	Year 4: plan a supported flow test with a fixed distance or endpoint; keep temperature, volume and apparatus consistent. Use timed results, compare findings and identify a practical improvement. Enquiry: fair comparison with repeat observations where feasible.	Explore why food or medicine designers consider flow, without assuming a classroom flow test proves absorption or effectiveness. Vocabulary: flow, viscosity, volume, temperature, time, comparison

Build connections between knowledge and method: body models need accurate labels and stated limits; evaporation and flow comparisons need controlled conditions; habitat work needs useful classification questions; circuits need evidence based diagnosis.

Science in Year 5 autumn and early spring

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Autumn 1 **Materials: Mixtures and Separation**	Mixtures contain substances that can often be separated by physical methods. Dissolving forms a solution. Sieving, filtering and evaporation suit different mixtures; filtration does not remove a dissolved substance from its solution.	Year 5: select and justify a separation method, record a sequence and explain how it uses properties. Control variables when investigating dissolving rate. Enquiry: a comparative test and a practical separation problem, with measured evidence.	Connect separation techniques with water treatment, food production and laboratory work. Vocabulary: mixture, solution, dissolve, soluble, filter, evaporate
Autumn 2 **Materials: Properties and Changes**	Properties include hardness, solubility, transparency, electrical or thermal conductivity and magnetic response. Some changes are reversible. Burning, rusting and some reactions form new materials and are not easily reversed.	Year 5: use comparative tests to justify a material for a purpose and distinguish changes of state or dissolving from forming new substances. Plan repeat measurements where appropriate and evaluate the method. Enquiry: material testing and observation over time.	Use product design and rust prevention to explain why evidence about materials matters. Vocabulary: conductivity, reversible, irreversible, reaction, rust, evidence
Spring 1 **Forces and Space: Earth and Space**	The Sun is a star; Earth and other planets orbit it. The Moon orbits Earth. Earth's rotation causes day and night and the Sun's apparent movement. Earth's tilt and orbit explain seasonal patterns; models have limits of scale.	Year 5: explain movements using a labelled model, select secondary evidence and compare historical explanations of the Solar System. Use data to describe a pattern; distinguish a model from a scale representation. Enquiry: research and modelling, not a fair test of planets.	Compare evidence behind geocentric and heliocentric ideas; connect modern observations with space scientists. Vocabulary: orbit, rotate, axis, planet, star, satellite, model

Year 5 selects and explains methods with increasing independence. Use separation, material tests, research, observation over time and controlled models to provide varied enquiry approaches. Revisit prior concepts before applying them in Making Connections.

Science in Year 5 late spring and summer

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Spring 2 **Living Things: Life Cycles and Reproduction**	Compare mammal, amphibian, insect and bird life cycles. Sexual reproduction involves joining male and female reproductive cells; asexual reproduction needs one parent. Explore flowering plant reproduction and propagation; include human development and puberty appropriately.	Year 5: compare life cycle diagrams and explain a similarity and difference using evidence. Observe plant propagation over time and research animal life cycles using suitable sources. Enquiry: observation over time, classification and secondary research.	Explain why gardeners use cuttings and how biologists study reproduction and changing habitats. Vocabulary: life cycle, reproduction, pollination, fertilisation, asexual, puberty
Summer 1 **Forces and Space: Unbalanced Forces**	Gravity attracts objects towards Earth. Friction, air resistance and water resistance affect motion. An unbalanced force can change speed or direction; balanced forces do not mean an object must be stationary. Levers, pulleys and gears can change force effects.	Year 5: plan a fair test, identify changed, measured and controlled variables and use repeat readings. Explain a pattern in parachute, friction or mechanism evidence, noting limits. Enquiry: controlled investigation supported by an explanatory model.	Connect Newton and the development of explanations with braking, parachute or aerodynamic design. Vocabulary: gravity, friction, resistance, balanced, unbalanced, mechanism
Summer 2 **Making Connections: Does the size of an asteroid affect the diameter of its crater?**	Impacts can form craters. A drop model can investigate how projectile size relates to crater diameter, but real impacts involve different speeds and materials. With one material, larger projectiles usually also have greater mass.	Year 5: compare projectiles of one material from a fixed height into a consistently prepared surface. Repeat, measure crater diameters and calculate a suitable mean; explain anomalies and the size and mass limitation. Enquiry: controlled model investigation and graphing.	Relate model evidence to planetary scientists' work on impacts; explain what this model cannot establish. Vocabulary: asteroid, impact, crater, diameter, repeat, mean

Year 5 selects and explains methods with increasing independence. Use separation, material tests, research, observation over time and controlled models to provide varied enquiry approaches. Revisit prior concepts before applying them in Making Connections.

Science in Year 6 autumn and early spring

Cycle B 2026 to 2027 | All three progression strands within the shared or year group topic

Half term and topic	Scientific knowledge and understanding	Working scientifically and evidence	Science in action and vocabulary
Autumn 1 **Living Things: Classifying Big and Small**	Organisms can be grouped by shared characteristics, including plants, animals and microorganisms. Use vertebrate and invertebrate groups and useful distinguishing features. Classification systems organise evidence and can be refined.	Year 6: construct and justify a branching key, evaluate ambiguous questions and classify unfamiliar examples from evidence. Research microorganisms using prepared images or reputable sources. Enquiry: classification and secondary research; avoid culturing unknown microbes.	Explain Linnaeus's contribution and how later evidence has refined classification. Vocabulary: organism, microorganism, classification, species, key, characteristic
Autumn 2 **Energy: Light and Reflection**	Light travels in straight lines through a uniform medium. We see sources when light reaches our eyes and other objects when reflected light reaches them. Mirrors change light's direction; straight line travel helps explain shadows and periscopes.	Year 6: use ray diagrams and controlled observations to explain reflection or shadow shape and size. Justify a method, use accurate measurements and evaluate the evidence. Enquiry: model and test a light path or periscope design.	Connect reflection with optical designers, communication and inventions. Vocabulary: ray, reflect, source, luminous, mirror, periscope
Spring 1 **Living Things: Evolution and Inheritance**	Fossils show that living things have changed over time. Offspring inherit characteristics but vary. Inherited variation can affect survival and reproduction; populations can change across generations. Individuals do not evolve because they decide to adapt.	Year 6: compare fossil and organism evidence, distinguish observation from inference and justify an explanation of adaptation. Identify limits of models and sources. Enquiry: secondary research and pattern seeking across a range of evidence.	Compare contributions from Darwin, Wallace and Anning; explain how evidence and scrutiny strengthen explanations. Vocabulary: fossil, inheritance, variation, adaptation, evolution, generation

Year 6 justifies methods and evaluates how far evidence supports a claim. Use secondary evidence where direct investigation is unsuitable. Maintain the distinction between a classroom model or comparison and a conclusion about all organisms, all circuits or product safety.

Science in Year 6 late spring and summer

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Spring 2 **Energy: Circuits, Batteries and Switches**	With the same components, increasing supply voltage usually increases bulb brightness or buzzer loudness within equipment ratings. Adding identical cells in series increases supply voltage. Use recognised circuit symbols and explain how opening a switch breaks the conducting path.	Year 6: design a low voltage comparison with a suitable control, record standard circuit diagrams and justify an explanation using results. Evaluate limitations and use findings to propose a further test. Enquiry: comparative and fair testing.	Explain why electricians use shared symbols and how switches support safe design. Vocabulary: voltage, cell, series, circuit symbol, switch, component
Summer 1 **Animals including Humans: Circulation and Health**	The heart pumps blood through vessels. Blood transports oxygen, nutrients and other substances; lungs, digestion and circulation interact. Exercise, diet, medicines and other drugs affect body function. Heart rate is beats per minute and changes with activity.	Year 6: interpret a circulatory model and use repeat pulse readings or supplied data to explain a pattern. Separate evidence from an unsupported health claim; consider variation and fairness in comparisons. Enquiry: pattern seeking, research and suitable observations over time.	Connect developing explanations of circulation with medical collaboration, stethoscopes and evidence based health advice. Vocabulary: heart, artery, vein, blood, oxygen, nutrient, pulse
Summer 2 **Making Connections: Are some sunglasses safer than others?**	Sunglasses can transmit different amounts of visible light and ultraviolet radiation. Darker lenses do not necessarily give better UV protection. A classroom comparison investigates transmission under limited conditions, not certified product safety.	Year 6: justify a comparison using an appropriate UV sensor or indicator and controlled exposure; repeat and compare with product information. Explain uncertainty, source quality and limits before judging the claim. Never test by looking at the Sun or shining UV at eyes or skin.	Evaluate advertising claims and explain why standards and suitable evidence matter when assessing protection. Vocabulary: ultraviolet, transmit, indicator, control, reliability, claim

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