

Science Knowledge Progression

Years 1–6



Progression of knowledge:

Year	Increasing expectation	Knowledge emphasis
Year 1	Identify and name; notice similarities/differences; observe closely; begin simple measurement and recording.	Foundational vocabulary for plants, animals, materials, seasons and senses.
Year 2	Describe needs and changes; compare suitability; recognise simple relationships; begin planning simple enquiries.	Living things, habitats, life cycles, plant growth and material properties become connected.
Year 3	Explain simple mechanisms and relationships; use measurements and fair tests more deliberately.	Forces, light, rocks, nutrition and plant reproduction introduce more abstract scientific explanations.
Year 4	Use models and classifications; explain processes; measure accurately; identify variables and use evidence.	Digestion, electricity, states of matter, sound and classification build conceptual depth.
Year 5	Explain systems and cycles; recognise cause/effect; compare evidence; separate and classify substances.	Earth/space, reproduction, material changes and forces require more complex models and reasoning.
Year 6	Synthesize knowledge; explain variation/evolution; use conventional representations; plan, analyse and evaluate enquiries.	Classification, light, electricity and circulation culminate in more independent scientific reasoning.

Year 1

Year 1: the sequence develops knowledge from the previous year while introducing new concepts. The final Making Connections unit is used to revisit, apply and extend learning in an unfamiliar context.

Unit	End-point knowledge: pupils should know/understand	Progression: builds from / leads to	Core vocabulary
Forces and Space: Seasonal changes	Name the four seasons and describe typical weather; recognise seasonal changes in trees and	Builds from EYFS observations of seasons and weather. Establishes observation,	season, weather, spring, summer, autumn, winter,

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	daylight; begin recording temperature/weather data.	comparison and recording as foundations for later Earth/space learning.	daylight, deciduous, evergreen
Materials: Everyday materials	Distinguish an object from the material it is made from; name common materials; describe simple properties such as absorbency, waterproofness and toughness.	Moves from everyday experience to scientific classification by material and property. Prepares pupils to compare material suitability in Year 2.	object, material, wood, metal, plastic, glass, paper, waterproof, absorbent, tough
Animals: Sensitive bodies	Identify basic human body parts and the five senses; link sense organs to what they help us detect; record simple observations and data.	Introduces structured observation and data recording. Provides the human-body foundation for later movement, nutrition and health learning.	body, senses, sight, hearing, smell, taste, touch, eyes, ears, nose, tongue, skin
Animals: Comparing animals	Group animals using observable characteristics; describe similarities and differences; recognise carnivores, herbivores and omnivores.	Extends simple sorting into scientific classification and introduces diet as a characteristic. Prepares for habitats, food chains and classification.	animal, mammal, bird, fish, reptile, amphibian, carnivore, herbivore, omnivore
Plants: Introduction to plants	Identify common wild/garden plants and trees; name plant parts; distinguish deciduous and evergreen trees; recognise seeds/bulbs and that seeds need water.	Establishes plant structure and basic needs. Provides the knowledge base for Year 2 plant growth and Year 3 reproduction.	plant, root, stem, leaf, flower, seed, bulb, deciduous, evergreen
Making Connections: Investigating science through stories	Apply plant and animal knowledge in practical investigations; collect and compare data; identify footprints and diets; design and test an animal home.	Consolidates Year 1 knowledge in new contexts and strengthens observation, comparison, measurement and communication.	observe, compare, measure, data, evidence, classify, investigate

Year 2

Year 2: the sequence develops knowledge from the previous year while introducing new concepts. The final Making Connections unit is used to revisit, apply and extend learning in an unfamiliar context.

Unit	End-point knowledge: pupils should know/understand	Progression: builds from / leads to	Core vocabulary
Living Things: Habitats	Recognise life processes; classify things as alive, dead/once alive or never alive; identify habitats and the	Builds on Year 1 animal groups and plants. Moves from identifying organisms to understanding dependence within habitats.	living, dead, habitat, survive, food chain,

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	plants/animals within them; construct simple food chains.		producer, consumer, depend
Living Things: Microhabitats	Understand that microhabitats provide conditions and resources for minibeasts; ask questions; carry out simple enquiries and record findings.	Develops Year 1 observation/classification into purposeful scientific enquiry. Prepares pupils for increasingly controlled investigations.	microhabitat, minibeast, enquiry, question, prediction, observe, classify
Materials: Use of everyday materials	Explain that materials are chosen for particular uses because of their properties; investigate stretching, bending, twisting and squashing; compare suitability.	Builds directly on Year 1 material names and properties and adds function/suitability and evidence-based comparison.	suitable, property, flexible, rigid, strong, stretchy, waterproof, material
Animals, including Humans: Life cycles and health	Describe stages in human and animal life cycles; recognise growth and survival needs; understand links between exercise, hygiene, diet and health.	Builds from Year 1 body parts and animal grouping. Establishes life-cycle knowledge before later KS2 work on human development and circulation.	life cycle, offspring, growth, survival, exercise, hygiene, nutrition, healthy
Plants: Plant growth	Identify conditions needed for germination and healthy growth; observe growth over time; understand stages in a plant life cycle; recognise water, light and suitable temperature as important.	Builds from Year 1 plant parts and seed knowledge. Leads to Year 3 plant structure, transport, flowers and reproduction.	germination, seed, bulb, growth, temperature, light, water, life cycle
Making Connections: Plant-based materials	Apply knowledge of material properties to reducing, reusing and recycling; recognise plant-derived materials; test materials for a practical purpose.	Applies Year 2 materials and plant knowledge in a problem-solving context and reinforces selection using evidence.	reduce, reuse, recycle, natural, plant-based, suitable, test, evidence

Year 3

Year 3: the sequence develops knowledge from the previous year while introducing new concepts. The final Making Connections unit is used to revisit, apply and extend learning in an unfamiliar context.

Unit	End-point knowledge: pupils should know/understand	Progression: builds from / leads to	Core vocabulary
Animals: Movement and nutrition	Understand that skeletons support and protect bodies; muscles enable movement; identify major	Develops Year 1 body-part knowledge and Year 2 health understanding into systems and functions.	skeleton, bone, muscle, joint, movement, nutrient, carbohydrate,

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	nutrient groups and the importance of a balanced diet.		protein, fat, vitamin, mineral
Forces and Space: Forces and magnets	Recognise pushes, pulls and twists as forces; understand friction; identify magnetic materials and poles; investigate magnet strength and uses.	Introduces force as a scientific concept, moving beyond everyday descriptions. Prepares for Year 5 balanced/unbalanced forces.	force, push, pull, friction, magnet, magnetic, pole, attract, repel
Materials: Rocks and soil	Describe rocks by observable and physical properties; explain in simple terms how fossils form; understand that soil contains different components and layers.	Extends classification and observation into Earth materials and formation processes. Provides groundwork for later Earth/space learning.	rock, mineral, fossil, sediment, soil, layer, palaeontology, properties
Energy: Light and shadow	Recognise light sources; understand that we need light to see; explain shadows as areas where light is blocked; investigate shadow size/position and reflection.	Builds from simple light/dark experiences into causal explanations. Prepares for Year 6 light travelling and reflection.	light source, dark, shadow, reflection, opaque, transparent, position
Plants: Plant reproduction	Describe key parts of flowering plants and their functions; understand water transport; recognise flowers' role in reproduction; identify seed dispersal methods.	Builds from Years 1–2 plant parts and growth to structure, function and reproduction.	reproduction, flower, pollen, nectar, petal, sepal, pollination, seed dispersal
Making Connections: Does hand span affect grip strength?	Apply knowledge of measurement and variables to investigate a relationship; collect, present and interpret data; use evidence to form a conclusion.	Moves from simple comparative tests to a more explicit relationship between variables and prepares pupils for fair testing in KS2.	variable, measure, data, relationship, conclusion, evidence, enquiry

Year 4

Year 4: the sequence develops knowledge from the previous year while introducing new concepts. The final Making Connections unit is used to revisit, apply and extend learning in an unfamiliar context.

Unit	End-point knowledge: pupils should know/understand	Progression: builds from / leads to	Core vocabulary
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Animals including Humans: Digestion and food	Describe the main stages and organs of digestion; explain the roles of teeth; use food chains to identify producers, predators and prey.	Builds on Year 3 nutrition and animal needs, moving to a named body system and more connected explanations.	digestion, digestive system, oesophagus, stomach, intestine, teeth, producer, predator, prey
Energy: Electricity and circuits	Recognise common electrical appliances; construct simple circuits; understand the role of components, switches, conductors and insulators; investigate bulb brightness.	Introduces formal circuit concepts and practical construction, preparing for the more abstract current/voltage work in Year 6.	electricity, circuit, cell, battery, switch, conductor, insulator, component
Materials: States of matter	Describe solids, liquids and gases; explain melting, freezing, evaporation and condensation; understand the water cycle.	Develops the idea of material properties into particle/state change concepts and links physical change to the water cycle.	solid, liquid, gas, melting, freezing, evaporation, condensation, water cycle
Energy: Sound and vibrations	Understand that sound is produced by vibrations and travels through materials; investigate volume, distance, pitch and sound insulation.	Builds a causal model of sound and introduces more precise relationships between variables.	sound, vibration, wave, pitch, volume, insulation, distance
Living Things: Classification and changing habitats	Group living things using shared characteristics; use classification keys; classify vertebrates/invertebrates and plants; explain how habitats change through natural and human causes.	Extends Year 1–2 grouping and habitats into systematic classification and environmental change.	classification, vertebrate, invertebrate, key, habitat, environment, adaptation
Making Connections: How does the flow of liquids compare?	Apply knowledge of states/material properties to compare liquids; plan and carry out an enquiry; analyse, conclude, evaluate and present findings.	Revisits Year 4 knowledge and expects a more complete scientific enquiry cycle.	flow, viscosity, measure, variable, results, conclusion, evaluate, evidence

Year 5

Year 5: the sequence develops knowledge from the previous year while introducing new concepts. The final Making Connections unit is used to revisit, apply and extend learning in an unfamiliar context.

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Unit	End-point knowledge: pupils should know/understand	Progression: builds from / leads to	Core vocabulary
Materials: Mixtures and separation	Recognise mixtures; use sieving, filtering and evaporation to separate substances; understand soluble/insoluble substances, solutions and dissolving.	Builds on Year 4 states of matter and physical changes and applies these ideas to practical separation.	mixture, dissolve, soluble, insoluble, solution, filter, sieve, evaporate, residue
Materials: Properties and changes	Compare material properties such as hardness, transparency and conductivity; understand that some changes are reversible and others form new substances; investigate dissolving and changes.	Deepens Year 4 material/state knowledge and introduces stronger distinction between physical and chemical change.	property, conductivity, hardness, transparency, reversible, irreversible, dissolve, reaction
Forces and Space: Earth and space	Use models of the Solar System; describe movements of Earth, Moon and planets; explain day/night and relate apparent movement of the Sun to Earth's rotation.	Builds on Year 1 seasonal/daylight observations and develops a model-based explanation of Earth and space.	Solar System, planet, orbit, rotation, axis, Earth, Moon, Sun, day, night
Living Things: Life cycles and reproduction	Compare life cycles of plants and animals; understand sexual reproduction and, at an appropriate level, asexual reproduction; relate reproduction to survival.	Builds on Year 2 life cycles and Year 3 plant reproduction, extending to comparison and reproductive processes.	life cycle, reproduction, sexual, asexual, offspring, fertilisation, gestation
Forces and Space: Unbalanced forces	Explain gravity, air resistance and water resistance; distinguish balanced and unbalanced forces; explain how forces affect motion and investigate variables.	Builds directly on Year 3 forces/magnets and develops forces into quantitative and causal explanations.	gravity, force, balanced, unbalanced, resistance, air resistance, water resistance, motion
Animals: Human timeline	Order human growth from birth to old age; describe physical and developmental changes, including puberty; understand gestation and compare animal gestation periods.	Builds on Year 2 human life cycles and extends the detail and use of data to describe growth and development.	development, puberty, gestation, adolescence, adulthood, growth, life expectancy
Making Connections: Asteroid size and impact crater	Apply knowledge of forces and space to investigate whether asteroid size affects crater diameter; identify variables, gather evidence and explain findings.	Synthesises Year 5 space and forces knowledge and applies it to an unfamiliar investigation.	asteroid, crater, impact, variable, evidence, diameter, model, conclusion

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Year 6

Year 6: the sequence develops knowledge from the previous year while introducing new concepts. The final Making Connections unit is used to revisit, apply and extend learning in an unfamiliar context.

Unit	End-point knowledge: pupils should know/understand	Progression: builds from / leads to	Core vocabulary
Living Things: Classifying big and small	Use increasingly formal classification; distinguish vertebrates/invertebrates; classify plants and micro-organisms using shared characteristics; understand the contribution of Linnaeus.	Builds on Year 1–4 classification and habitats, culminating in a more systematic model of biological classification.	classification, species, vertebrate, invertebrate, microorganism, taxonomy, Linnaeus
Energy: Light and reflection	Explain that light travels in straight lines; explain how we see objects; investigate reflection and shadows; use mirrors and models such as a periscope.	Builds on Year 3 light/shadows and develops a more complete model of light travelling and reflection.	light ray, reflection, reflective, shadow, opaque, mirror, periscope
Living Things: Evolution and inheritance	Recognise variation; distinguish inherited characteristics from environmental influences; explain adaptation and natural selection at an age-appropriate level; use evidence for evolution.	Builds on classification, reproduction and adaptation ideas from earlier years and introduces change in populations over time.	variation, inheritance, adaptation, natural selection, evolution, characteristic, offspring
Energy: Circuits, batteries and switches	Represent circuits using conventional diagrams; understand current and resistance at an age-appropriate level; explore batteries/voltage and effects on components.	Builds directly on Year 4 circuit construction and extends from making circuits to representing and explaining them.	circuit, symbol, current, resistance, voltage, cell, battery, component, switch
Animals, including Humans: Circulation and health	Describe the heart, blood and blood vessels; explain circulation; investigate heart rate and exercise; understand factors affecting health.	Builds on Year 2 health, Year 3 nutrition and Year 4 digestion to form a connected model of human body systems and health.	circulatory system, heart, blood, artery, vein, vessel, pulse, heart rate, health
Making Connections: Are	Plan and conduct a full enquiry about sunglasses; gather and analyse data; evaluate evidence; apply	Culminates the progression by integrating light, measurement,	UV, radiation, protection, filter, evidence, variable,

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some sunglasses safer than others?	knowledge of light and eye safety to a real-world question.	variables, evidence, analysis, evaluation and communication.	analyse, evaluate, conclusion
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Knowledge progression by scientific strand

Strand	Progression across Years 1–6	Overall development
Plants	Y1: identify plants, parts and trees → Y2: conditions for growth and life cycles → Y3: structure, transport, flowers and seed dispersal → Y5: plant reproduction compared with animal reproduction.	The concept moves from naming/observing to explaining function and reproduction.
Animals including humans	Y1: body parts, senses and animal groups → Y2: life cycles and healthy living → Y3: skeletons, muscles and nutrition → Y4: digestion and teeth → Y5: human development → Y6: circulation and health.	Knowledge becomes increasingly systemic: individual features → needs → body systems → interactions between systems and health.
Living things and habitats	Y1: grouping animals → Y2: habitats, food chains and microhabitats → Y4: classification and habitat change → Y6: systematic classification, microorganisms and evolution.	Classification progresses from observable characteristics to formal systems and evolutionary relationships.
Materials	Y1: identify materials and simple properties → Y2: suitability and changing shape → Y4: states and changes → Y5: mixtures, separation, properties and changes.	Pupils move from describing materials to explaining behaviour and selecting separation/change processes.
Forces	Y3: pushes, pulls, friction and magnets → Y5: gravity, resistance and balanced/unbalanced forces → Y5 Making Connections: apply forces to impact craters.	The concept develops from everyday forces to causal models and application in investigations.
Light and sound	Y3: light sources, shadows and reflection → Y4: vibration, sound travel, pitch and volume → Y6: light rays, seeing and reflection.	Ideas are revisited with increasing precision, from observable effects to explanatory models.
Earth and space	Y1: seasons, weather and daylight → Y5: Solar System, Earth/Moon movements and day/night → Y5 impact investigation.	Observation of patterns develops into model-based explanation.

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Working scientifically	Y1: observe, compare, sort and record → Y2: ask questions and plan simple tests → Y3: measure variables and draw conclusions → Y4: use models, keys and full enquiries → Y5: control variables and interpret evidence → Y6: independently plan, analyse, evaluate and communicate.	This is a deliberate increase in independence, precision, evidence use and evaluation.
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