



Plants



In Years 4–6, plants are not taught as a discrete unit but are embedded within wider strands such as habitats, food chains, reproduction, classification and evolution. For this reason, plant sticky knowledge is limited to four carefully chosen facts. This ensures smooth continuity across year groups, avoids unnecessary repetition and supports pupils in retaining key concepts in long-term memory. The focus shifts from learning more facts about plants to applying and deepening existing knowledge within broader biological themes.

Cognitive progression of the “I can” statements:

EYFS – noticing and talking

Year 1 – naming and identifying

Year 2 – describing growth

Year 3 – explaining processes

Year 4 – applying to ecology

Year 5 – comparing reproduction

Year 6 – explaining variation and adaptation

Sticky Knowledge Progression



EYFS

Plants are living things and grow around us.

Plants are important for people and animals.

Big idea: Plants are living and part of our world.



Year 1

Plants have roots, stems, leaves and flowers.

There are different types of plants and trees.

Big idea: Plants have parts and can be grouped.



Year 2

Plants grow from seeds or bulbs.

Plants need water, light and warmth to grow.

Plant parts have jobs.

Big idea: Plants grow and their parts help them survive.



Year 3

Plants move water around their bodies.

Leaves make food.

Flowers help plants reproduce.

Big idea: Plants are living systems that function and reproduce.



Year 4

Plants are producers in food chains.

Plants live in different habitats.

Big idea: Plants are part of ecosystems.



Year 5

Plants can reproduce sexually or asexually.

Big idea: Plants reproduce in different ways.



Year 6

Plants vary within a species.

Plants can be classified and adapted to survive.

Big idea: Plant populations show variation and adaptation.



Animals



The National Curriculum presents animal learning across several units, including *Animals including humans*, *Living things and their habitats*, *Evolution and inheritance* and elements of *life cycles*. Within our curriculum, these statutory requirements are carefully mapped into a coherent **Animals strand** to ensure progression, continuity and long-term retention.

Rather than teaching isolated topics, pupils build a connected understanding of animals over time: what animals are, how they survive, how they function, how they reproduce, how they interact within ecosystems and how populations change through variation and adaptation.

This strand promotes cumulative knowledge, strengthening long-term memory and creating a fluent biological schema from EYFS to Year 6.

Cognitive progression of the “I can” statements:

EYFS – noticing and talking

Year 1 – naming and identifying

Year 2 – describing survival

Year 3 – explaining structure and function

Year 4 – applying to ecosystems

Year 5 – comparing life cycles

Year 6 – explaining variation and adaptation

Sticky Knowledge Progression

EYFS

Animals are living things.

Animals need food and water.

Big idea: Animals are living and have basic needs.

Year 1

Animals can be grouped into fish, amphibians, reptiles, birds and mammals.

Animals have different body parts and skin coverings.

Big idea: Animals have identifiable features and can be grouped.

Year 2

Animals have offspring which grow into adults.

Animals need water, air and food to survive.

Animals live in habitats suited to them.

Big idea: Animals grow and survive in environments that meet their needs.

Year 3

Animals need nutrition to survive.

Humans and some animals have skeletons and muscles for support and movement.

Big idea: Animals have structures and systems that help them function.

Year 4

Animals are part of food chains as predators or prey.

Living things can be grouped using classification keys.

Big idea: Animals exist within ecosystems and can be classified.

Year 5

All living things have a life cycle.

Animals reproduce and different groups have different life cycles.

Big idea: Animals reproduce and develop in different ways.

Year 6

Living things are classified into broad groups based on characteristics.

Offspring vary and adaptations help animals survive.

Big idea: Animal populations show variation and adaptation.



Materials and Matter



The National Curriculum presents materials learning across several units including *Everyday Materials*, *Uses of Materials*, *Rocks*, *States of Matter* and *Properties and Changes of Materials*. In Year 6, material knowledge is applied within the *Light* and *Electricity* units.

Within our curriculum, these statutory requirements are mapped into a coherent **Materials and Matter strand**. This ensures pupils develop a connected understanding of materials: what they are, how their properties determine their uses, how they can change state, and how physical and chemical changes occur. Rather than learning isolated topics, pupils build a cumulative understanding of matter — from identifying materials in EYFS to applying knowledge of material properties within physical systems by Year 6. This strengthens long-term memory and promotes scientific fluency.

Cognitive progression of the “I can” statements:

EYFS – noticing and sorting

Year 1 – naming and identifying

Year 2 – comparing and testing suitability

Year 3 – grouping and describing natural materials

Year 4 – observing and explaining state change

Year 5 – testing, separating and explaining change

Year 6 – applying material properties in physical systems

Sticky Knowledge Progression



EYFS

Objects are made from different materials.

Some materials are better for some jobs than others.

Big idea: Materials have different properties and uses.



Year 1

An object is something you can see or touch.

A material is what an object is made from.

Materials have simple physical properties.

Big idea: Objects are made from materials which have properties.



Year 2

Materials are chosen because of their properties.

Some materials are suitable for particular purposes.

The shape of some solid objects can be changed.

Big idea: Properties determine how materials are used.



Year 3

Rock is a naturally occurring material.

Different rocks have different properties.

Soil is made from broken-down rock and organic matter.

Big idea: Natural materials have different properties and origins.



Year 4

Matter exists as solids, liquids or gases.

Materials can change state when heated or cooled.

Big idea: Materials can change state but remain the same substance.



Year 5

Materials have properties such as hardness, transparency, solubility and conductivity.

Some changes are reversible and some are irreversible.

Big idea: Materials can change physically or chemically.



Year 6

Some materials are transparent, translucent or opaque.

Some materials conduct electricity while others are insulators.

Big idea: Material properties affect how light and electricity behave.



The Human Body



The National Curriculum teaches human biology through the *Animals including Humans* units across Key Stages 1 and 2. This includes body parts and senses, growth and health, nutrition, digestion, life cycles, puberty and the circulatory system.

In our curriculum, this content is organised into a coherent **Human Body strand** so that pupils build a connected understanding of how the body grows, functions and stays healthy.

This strand links with **PSHE and RSE**, which are taught using the *Journey in Love* Catholic scheme. Scientific knowledge about the body is taught within science lessons, while relational and moral understanding is developed through RSE.

Cognitive progression of the “I can” statements:

EYFS – noticing and naming

Year 1 – identifying and linking

Year 2 – describing growth and health

Year 3 – explaining nutrition and movement

Year 4 – explaining digestion

Year 5 – describing life cycles and puberty

Year 6 – explaining circulation and health impact

Sticky Knowledge Progression

EYFS

Humans have different body parts with names.

We have five senses.

Humans need food, water and air to survive.

Big idea: Our bodies help us live and experience the world.

Year 1

Humans are a type of animal.

Humans have five senses linked to specific body parts.

Different body parts have different jobs.

Big idea: Body parts have functions.

Year 2

Animals, including humans, have offspring which grow into adults.

Humans have basic needs: food, water, air and exercise.

Good hygiene helps prevent illness.

Big idea: Humans grow and must care for their bodies.

Year 3

Animals, including humans, need the right types of nutrition.

Food contains nutrients such as carbohydrates, proteins, fats, vitamins and minerals.

Humans have skeletons and muscles for support and movement.

Big idea: The body needs nutrients and structure to function.

Year 4

The digestive system breaks down food into nutrients.

Different types of teeth have different functions.

Nutrients are absorbed into the bloodstream.

Big idea: Digestion provides energy for the body.

Year 5

Humans have a life cycle: baby, child, adolescent, adult and old age.

During puberty, the body changes and develops into an adult body.

In humans, gestation lasts about nine months.

Big idea: Humans grow, develop and reproduce across a life cycle.

Year 6

The circulatory system transports oxygen and nutrients around the body.

The heart pumps blood through blood vessels.

Diet, exercise and lifestyle affect how the body functions.

Big idea: Body systems work together to keep us alive and healthy.



Energy and Forces



Energy and forces are taught across several National Curriculum units including forces and magnets, sound, electricity and light. These areas are organised within the Energy and Forces strand so that pupils gradually build an understanding of how objects move, how forces act on them and how energy is transferred through systems such as light, sound and electricity.

In EYFS and Key Stage 1, energy and forces are not taught as discrete science units. Instead, pupils develop foundational understanding through experiences in subjects such as Design and Technology, PE and everyday observations of the physical world. For this reason, sticky knowledge is limited to four carefully chosen facts in EYFS and KS1. These facts introduce key ideas about movement, pushes and pulls, light and simple electrical devices without prematurely introducing formal scientific terminology.

From Year 3 onwards, pupils study the concepts more formally through physics units. Sticky knowledge increases to eight facts to reflect the greater conceptual depth and the number of statutory units taught. This ensures smooth continuity across year groups and supports pupils in building secure long-term understanding of physical processes.

Cognitive progression of the “I can” statements

EYFS – noticing movement and change

Year 1 – describing simple movement

Year 2 – observing cause and effect

Year 3 – comparing forces and observing patterns

Year 4 – investigating energy transfer

Year 5 – explaining the effects of forces

Year 6 – explaining and modelling physical systems

Sticky Knowledge Progression

EYFS

Things move when we push or pull them.

The Sun gives us light and warmth.

Big idea: Movement and light happen in the world around us.

Year 1

Objects move in different ways.

Pushes and pulls change movement.

Big idea: Movement can be described and controlled.

Year 2

Stronger pushes or pulls cause bigger changes in movement.

Magnets and electricity can make objects move or work.

Big idea: Actions cause changes.

Year 3

Forces are pushes or pulls that affect movement.

Magnets attract some materials and have poles.

Light is needed to see and shadows form when light is blocked.

Big idea: Forces affect movement and light travels in straight lines.

Year 4

Electricity flows in a complete circuit.

Sound is caused by vibrations that travel through materials.

Big idea: Energy can move through systems.

Year 5

Gravity pulls objects towards the Earth.

Resistance forces such as friction, air resistance and water resistance affect motion.

Big idea: Forces act in predictable ways.

Year 6

Light travels in straight lines and allows us to see objects.

Changes in electrical circuits affect how components work.

Big idea: Light and electricity can be explained using scientific models.



Earth and Space



The National Curriculum teaches Earth and Space as a discrete unit in Year 5, where pupils learn about the solar system, the movement of the Earth and Moon and how the Earth's rotation causes day and night. In our curriculum, earlier year groups build simple foundational understanding of the natural world and the sky. Pupils begin by noticing the Sun, Moon, seasons and weather patterns before developing a deeper understanding of the Earth's history and systems. In Year 4, pupils learn about the water cycle in Geography, which links to the Earth systems explored in this strand.

Because the National Curriculum content for Earth and Space focuses mainly on conceptual knowledge rather than scientific enquiry or identification, learning is structured through carefully sequenced sticky facts. Only Year 5 contains the full statutory science unit, while other year groups introduce knowledge that supports pupils' understanding of Earth systems and prepares them for the space unit.

Cognitive progression of the strand

EYFS – noticing natural patterns

Year 1 – observing the sky

Year 2 – recognising seasonal patterns

Year 3 – understanding Earth materials and fossils

Year 4 – understanding Earth systems

Year 5 – explaining the solar system

Year 6 – explaining Earth's history using evidence

Sticky Knowledge Progression

EYFS

The Sun gives us light and warmth.

The Moon can be seen in the sky at night.

Big idea: The sky changes between day and night.

Year 1

The Sun appears in the sky during the day.

Stars can sometimes be seen in the night sky.

Big idea: Objects can be observed in the sky.

Year 2

The weather changes during different seasons.

Day length changes across the year.

Big idea: Earth experiences repeating seasonal patterns.

Year 3

Rocks are part of the Earth.

Fossils provide evidence of life from millions of years ago.

Big idea: The Earth has a long history.

Year 4

Water moves around the Earth in the water cycle.

Water evaporates, condenses and falls as precipitation.

Big idea: Earth systems recycle materials.

Year 5

The Sun is a star at the centre of the solar system.

Eight planets orbit the Sun.

The Earth is a planet that orbits the Sun.

The Moon orbits the Earth.

The Sun, Earth and Moon are approximately spherical.

The Earth rotates on its axis.

The Earth's rotation causes day and night.

The Sun appears to move across the sky because the Earth rotates.

Big idea: Movements of celestial bodies explain day, night and the solar system.

Year 6

Fossils provide evidence of how life and Earth have changed over time.

Evidence from rocks helps scientists understand Earth's past.

Big idea: Scientific evidence helps explain Earth's history.



EYFS – Plants



What I already know 	What I will learn 	
	Sticky Knowledge Plants are living things.	Can you answer this? Is a plant living or not living?
	Trees are plants	Is a tree a plant?
	Some plants have flowers and some do not.	Does every plant have flowers?
	Some plants can be very small and some can be very large.	Can you find a small plant? Can you find a big plant?
	Plants grow in the world around us.	Where can we see plants growing?
	People and animals need plants to survive.	Why are plants important for people and animals?
	We grow some plants for food.	Can you name a plant that we eat?
	We must not eat plants unless an adult a trusted adult says it is safe.	Should we eat a plant if we don't know what it is?

Vocabulary

plant, tree, flower, leaf, root, seed, grow, soil, water, sunlight

Common Misconceptions

- Plants are not alive
- Plants only grow in gardens
- Plants do not need water to live

I can...

I can spot plants in our outdoor area.
I can talk about what I notice about a plant.
I can explore plants using my senses (looking, touching, smelling).
I can sort plants by size (small and large). I can spot plants in our outdoor area.
I can compare two plants and say what is the same and what is different.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

Using information from the data to say what you found out.



Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 1 – Plants



What I already know 	What I will learn 	
	Sticky Knowledge 	Can you answer this? 
Plants are alive like me.	Plants are living things that grow in the natural world.	Are plants living or non-living? (Extension: How do you know?)
	There are many different types of plants, including wild plants, garden plants and trees.	Name three different types of plants.
Trees are plants.	Plants have roots, a stem or trunk, leaves and often flowers.	Can you name the main parts of a plant?
	The stem of a tree is called a trunk.	What is the stem of a tree called?
Some plants have flowers but some plants do not.	Roots take in water from the soil.	What do roots do?
	Leaves make food for the plant.	What do leaves do?
	Some trees keep their leaves all year (evergreen) and some lose them in autumn and grow them again in spring (deciduous).	What is the difference between evergreen and deciduous trees?
	Flowers make seeds which grow into new plants.	Why are flowers important for plants?

Vocabulary

leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, tree, plant, wild plant, garden plant, deciduous, evergreen, names of trees in the local area, names of garden and wild flowering plants in the local area

Common Misconceptions

- Trees are not plants
- All leaves are green
- All plants have flowers
- A trunk is not a stem

I can...

I can identify and name some common wild and garden plants.
I can identify and name some common deciduous and evergreen trees.
I can point to and name the roots, stem (or trunk), leaves and flowers of a plant.
I can describe the basic structure of a flowering plant.

Enquiry Approaches

Comparative / fair testing

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Research

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Year 2 – Plants



What I already know 	What I will learn 	
	Sticky Knowledge 	Can you answer this? 
Plants have roots, a stem (or trunk), leaves and often flowers. Roots take in water from the soil.	Some plants grow from seeds and some grow from bulbs.	Some plants grow from what two things?
	When a seed starts to grow, this is called germination.	What is it called when a seed starts to grow?
	Seeds and bulbs grow into mature plants.	What do seeds and bulbs grow into?
Flowers make seeds which grow into new plants. Plants have roots, a stem (or trunk), leaves and often flowers.	Seeds need water and warmth to germinate.	What do seeds need to germinate?
	Plants need water, light and a suitable temperature to grow and stay healthy.	What three things do plants need to grow and stay healthy?
Roots take in water from the soil.	Roots take in water from the soil.	What is the job of the roots?
	The stem carries water and supports the plant.	What is the job of the stem?
	Flowers turn into seeds so new plants can grow.	What do flowers turn into?

Vocabulary

seed, bulb, germination, seedling, grow, light, water, warmth, soil, healthy, plant growth, conditions, shade, sunlight, temperature

Common Misconceptions

- Seeds are not alive
- Plants only need water to grow
 - All plants start from seeds
- Seeds need sunlight to germinate

I can...

I can describe how seeds and bulbs grow into mature plants.
I can explain what plants need to grow and stay healthy.
I can describe the functions of the roots, stem and leaves.
I can observe and describe changes as a plant grows.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

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Making predictions

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Setting up tests

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Observing and measuring

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Recording data

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Interpreting and communicating results

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Evaluating

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Year 3 – Plants



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Plants grow from seeds or bulbs.	Roots absorb water and nutrients from the soil and anchor the plant.	What are the two main jobs of the roots?
	The stem transports water and nutrients around the plant and supports the leaves and flowers.	What are the two main jobs of the stem?
Seeds and bulbs grow into mature plants.	Water is transported from the roots to the leaves through the stem.	How does water travel from the roots to the leaves?
	Leaves use light, water and carbon dioxide from the air to make food for the plant.	What do leaves use to make food for the plant?
Plants need water, light and a suitable temperature to grow and stay healthy.	Plants need air, light, water, nutrients and space to grow well.	What five things do plants need to grow well?
	Flowers allow plants to reproduce.	What is the job of a flower?
	Pollination happens when pollen is transferred from one flower to another.	What is pollination?
	Pollination leads to fertilisation, which produces seeds that can be dispersed.	What happens after pollination?

Vocabulary

roots, stem, trunk, leaves, flowers, nutrients, transport, pollination, pollen, fertilisation, seed formation, seed dispersal, life cycle, photosynthesis

Common Misconceptions

- Plants get food from the soil
- Plants eat food like animals
- Flowers are just decorative
- Plants only need sunlight to stay warm

I can...

I can describe the functions of roots, stems, leaves and flowers.
I can explain how water is transported within a plant.
I can describe what plants need for life and growth.
I can explain pollination and fertilisation in flowering plants.
I can describe how seeds are formed and dispersed.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

Using information from the data to say what you found out.



Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 4 – Plants



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Leaves use light, water and carbon dioxide from the air to make food for the plant. Flowers allow plants to reproduce.	Plants make their own food and are the start of most food chains.	Why are plants at the start of most food chains?
	Animals, including humans, gain energy by eating plants.	How do animals, including humans, get energy from plants?
	Different plants live in different habitats.	Why do different plants live in different habitats?
Pollination happens when pollen is transferred from one flower to another. Leaves use light, water and carbon dioxide from the air to make food for the plant.	Plants can be grouped and classified.	How can plants be grouped or classified?
Flowers allow plants to reproduce.		

Vocabulary

producer, consumer, food chain, habitat, ecosystem, environment, interdependence, vegetation

Common Misconceptions

- Plants are not part of food chains
- Plants only grow in soil
- Plants do not affect animals

I can...

I can construct and interpret a simple food chain that includes plants.
I can explain why plants are important in food chains.
I can group living things, including plants, in different ways.
I can describe how plants are suited to the habitats in which they live.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

Using information from the data to say what you found out.



Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 5 – Plants



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Plants make their own food and are the start of most food chains.	Flowering plants reproduce sexually through pollination, fertilisation and seed formation.	What are the main stages of sexual reproduction in flowering plants?
	Sexual reproduction produces seeds that grow into new plants.	What does sexual reproduction produce?
	Some plants reproduce asexually without seeds, for example by bulbs, runners or cuttings.	What is asexual reproduction?
Animals, including humans, gain energy by eating plants.	Asexual reproduction produces a new plant that is genetically identical to the parent plant.	How is a plant produced by asexual reproduction different from one produced by sexual reproduction?
Pollination leads to fertilisation, which produces seeds that can be dispersed.		

Vocabulary

reproduction, sexual reproduction, asexual reproduction, pollination, fertilisation, seed dispersal, spores, runners, bulbs, tubers, cuttings

Common Misconceptions

- Plants only reproduce using seeds
- All plants reproduce in the same way
- Seeds are always spread by wind

I can...

- I can describe how flowering plants reproduce sexually.
- I can explain the difference between sexual and asexual reproduction in plants.
- I can give examples of plants that reproduce asexually.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

Using information from the data to say what you found out.



Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 6 – Plants



What I already know 	What I will learn 	
	Sticky Knowledge 	Can you answer this? 
	Living things, including plants, are classified into broad groups based on observable characteristics and similarities and differences.	What characteristics are used to classify living things, including plants, into broad groups?
Flowering plants reproduce sexually through pollination, fertilisation and seed formation. Some plants reproduce asexually without seeds, for example by bulbs, runners or cuttings.	Plants of the same species produce offspring that are similar but not identical.	Do offspring plants look exactly the same as the parent plant?
	Variation in plants can be caused by inherited characteristics or environmental factors.	What can cause variation in plants?
Asexual reproduction produces a new plant that is genetically identical to the parent plant. Flowering plants reproduce sexually through pollination, fertilisation and seed formation	Plants can be adapted to suit the environment in which they live.	What does it mean if a plant is adapted to its environment?
Some plants reproduce asexually without seeds, for example by bulbs, runners or cuttings.		

Vocabulary

classification, species, variation, adaptation, characteristics, environment, survival, evolution

Common Misconceptions

classification, species, variation, adaptation, characteristics, environment, survival, evolution

I can...

I can explain how plants are classified using shared characteristics.
I can describe how offspring plants are similar but not identical to their parents.
I can explain how variation in plants can be caused by inheritance or environment.
I can describe how plants are adapted to their habitats.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

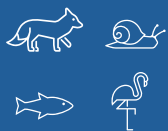
Using information from the data to say what you found out.



Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





EYFS – Animals



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
	Animals are living things.	What are animals?
	Animals need food and water.	What do animals need to live?
	Animals move in different ways.	How do animals move?
	Animals have different body parts.	Where can animals live?
	Some animals are pets and some live in the wild.	Do all animals live in the same place?
	Animals live in different places.	What body parts do animals have?
	Animals grow and change.	Can animals be pets?
	Animals depend on their environment.	Do animals stay the same or do they grow and change?

Vocabulary

animal, pet, wild animal, baby animal, grow, food, water, habitat, living, young

Common Misconceptions

- Animals only live on farms or in zoos
- All animals are big animals like dogs or cows
- Baby animals are a different type of animal

I can...

I can talk about animals I know.
I can name some animals that live in different places.
I can describe what an animal looks like.
I can say what animals need to live.
I can sort animals into simple groups.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

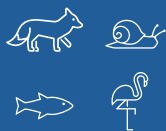
Using information from the data to say what you found out.



Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 1 – Animals



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Animals are living things. 	Animals can be grouped into fish, amphibians, reptiles, birds and mammals.	What are the five main animal groups?
	Animals have different body parts.	What body parts do animals have?
Animals need food and water to survive.	Animals have different skin coverings such as fur, feathers and scales.	What different skin coverings can animals have?
	Some animals eat plants (herbivores).	What is a herbivore?
Animals have different body parts.	Some animals eat other animals (carnivores).	What is a carnivore?
	Some animals eat both plants and animals (omnivores).	What is an omnivore?
	Animals can be identified by their features.	How can animals be identified?
	Animals are living things	Are animals living things?

Vocabulary

animal, mammal, bird, fish, reptile, amphibian, herbivore, carnivore, omnivore, body parts, head, legs, wings, tail, fur, feathers, scales

Common Misconceptions

- Humans are not animals
- All animals have four legs
- Fish are the only animals that live in water
- Insects are not animals

I can...

I can identify and name animals in the five main groups.
I can identify carnivores, herbivores and omnivores.
I can describe how animals are similar and different.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Pattern-seeking

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Enquiry Skills

Asking questions

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Making predictions

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Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

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Recording data

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Interpreting and communicating results

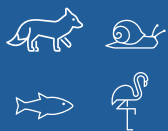
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Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 2 – Animals



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Animals are living things. 	Animals have offspring which grow into adults.	What happens to animal offspring as they grow?
	Animals need water, air and food to survive.	What do animals need to survive?
Animals can be identified by their features.	Exercise, diet and hygiene help humans stay healthy.	Why are exercise, diet and hygiene important?
	Living things can be living, dead or never alive.	What is the difference between living, dead and never alive?
Some animals eat plants (herbivores), some eat other animals (carnivores) and some eat both (omnivores).	Animals live in habitats suited to them.	What is a habitat?
	A habitat provides food, water and shelter.	What does a habitat provide?
	A food chain shows how animals get their food.	What does a food chain show?
	Animals depend on other living things in a habitat.	Why do animals depend on other living things?

Vocabulary

living, dead, never alive, habitat, microhabitat, shelter, food chain, producer, consumer, predator, prey, survive, environment

Common Misconceptions

- A habitat is just an animal's house
- Animals can live anywhere
- Food chains start with animals
- Arrows in food chains mean "eats" rather than "energy passes to"

I can...

I can identify and name animals in the five main groups.
I can identify carnivores, herbivores and omnivores.
I can describe how animals are similar and different.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Observation over time

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Pattern-seeking

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Enquiry Skills

Asking questions

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Making predictions

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Setting up tests

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Observing and measuring

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Recording data

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Interpreting and communicating results

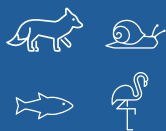
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Evaluating

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Year 3 – Animals



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Animals need water, air and food to survive.	Animals need nutrition to survive.	Why do animals need nutrition?
	Different foods provide different nutrients.	What do different foods provide?
	Animals cannot make their own food and must eat other living things to get energy.	Can animals make their own food?
Animals have offspring which grow into adults.	Humans and some animals have skeletons.	Do all animals have skeletons?
	Skeletons support and protect the body.	What do skeletons do?
Animals cannot make their own food.	Muscles work with skeletons to help movement.	How do muscles help movement?
	Teeth are adapted to different diets.	How are teeth adapted to different diets?
	Nutrients help the body grow and stay healthy.	Why are nutrients important?

Vocabulary

habitat, ecosystem, environment, food chain, producer, consumer, predator, prey, depend, survive, shelter, nutrients, muscle, skeleton, nutrition, nutrients

Common Misconceptions

- Humans are not animals.
- All animals have skeletons like humans.
- Plants are not part of food chains.
- Animals do not depend on plants to survive.

I can...

I can identify the main bones in a skeleton.
I can explain the function of muscles and skeletons.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

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Enquiry Skills

Asking questions

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Making predictions

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Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

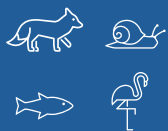
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Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 4 – Animals



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Animals cannot make their own food.	Living things can be grouped using classification keys.	How can living things be grouped?
	Animals can be consumers, predators or prey.	What is a predator?
	Food chains show how energy moves through living things.	What does a food chain show?
Animals need nutrition to survive.	Animals live in habitats suited to them.	Why do animals live in particular habitats?
	Environments can change naturally.	How can environments change naturally?
Animals live in habitats suited to them.	Humans can change environments.	How can humans change environments?
	Changes in habitats affect animals.	How do habitat changes affect animals?
	Different living things are found in different habitats.	Why are different living things found in different habitats?

Vocabulary

classification, classification key, habitat, environment, producer, predator, prey, food chain, energy, consumer, suited, natural change, human impact

Common Misconceptions

- Food chains start with animals.
- Predators are always bigger than their prey.
 - Animals can live in any habitat.
- All changes to habitats are caused by

I can...

I can use a classification key to identify animals.
I can construct a food chain.
I can identify producers, predators and prey

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Observation over time

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Pattern-seeking

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Observing and measuring

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Recording data

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Interpreting and communicating results

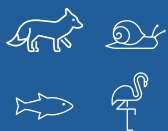
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Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 5 – Animals



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Animals have offspring which grow into adults.	All living things have a life cycle.	What do all living things have?
	Mammals give birth to live young.	How do mammals reproduce?
	Birds reproduce by laying eggs.	How do birds reproduce?
All living things have a life cycle.	Amphibians lay eggs in water and often undergo metamorphosis.	How do amphibians reproduce and develop?
	Insects have life cycles that may include metamorphosis.	What is metamorphosis?
Animals live in habitats suited to them.	Most animals reproduce sexually and require a male and a female.	How do most animals reproduce?
	Fertilisation happens when the male and female cells join to begin a new life.	What is fertilisation?
	Different animals care for their young in different ways.	How do animals care for their young?

Vocabulary

life cycle, reproduction, offspring, mammal, amphibian, insect, bird, fish, metamorphosis, fertilisation, growth, development

Common Misconceptions

- All animals reproduce in the same way
- Baby animals always look exactly like adults
- All animals lay eggs

I can...

I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
I can explain how animals reproduce.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

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Pattern-seeking

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Problem-solving

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Enquiry Skills

Asking questions

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Making predictions

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Setting up tests

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Observing and measuring

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Interpreting and communicating results

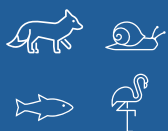
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Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 6 – Animals



What I already know 	What I will learn	
	Sticky Knowledge	Can you answer this? 
Living things can be grouped using classification keys.	Living things are classified into broad groups based on characteristics.	How are living things classified into broad groups?
	Animals can be divided into vertebrates and invertebrates.	What is the difference between vertebrates and invertebrates?
Most animals reproduce sexually and require a male and a female.	Vertebrates are grouped into fish, amphibians, reptiles, birds and mammals.	What are the five vertebrate groups?
	Offspring are similar but not identical to their parents.	Are offspring identical to their parents?
All living things have a life cycle	Variation can be inherited or environmental.	What can cause variation?
	Adaptations help animals survive.	What is an adaptation?
	Natural selection occurs when helpful traits are passed on.	What is natural selection?
	Fossils provide evidence for evolution.	How do fossils provide evidence for evolution?

Vocabulary

classification, vertebrate, invertebrate, characteristics, species, variation, adaptation, environment, survival

Common Misconceptions

- Animals adapt because they want to
- All animals in a species are identical
- Bigger animals are always stronger or better adapted

I can...

I can classify living things into broad groups.
I can give reasons for how living things are grouped.
I can explain how adaptations help survival.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

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Identifying, grouping and classifying

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Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

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Making predictions

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Setting up tests

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Observing and measuring

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Recording data

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Interpreting and communicating results

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Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





EYFS – Materials and Matter



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
	Objects are made from different materials.	What are objects made from?
	Some materials are better for some jobs than others.	Are some materials better for some jobs than others?
	Materials can feel different.	How can materials feel?
	Some materials are hard and some are soft.	Are all materials hard?
	Some materials are rough and some are smooth.	Can materials be rough or smooth?
	Some materials are strong and some are weak.	Are some materials strong and some weak?
	Some materials float and some sink.	Do all materials float?
	Materials can change when heated or cooled.	What can happen to materials when they are heated or cooled?

Vocabulary

material, wood, plastic, metal, glass, water, rock, hard, soft, smooth, rough, bendy, stretchy

Common Misconceptions

- Objects and materials are the same thing
- All materials are hard
- Materials are only things you can build with

I can...

I can talk about the materials I see around me.
I can describe how materials feel.
I can sort materials into groups by what I notice.
I can say why a material might be good for a job.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Observation over time

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Evaluating

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Year 1 – Materials and Matter



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Objects are made from different materials. Materials can feel different.	An object is something you can see or touch.	What is an object?
	A material is what an object is made from.	What is a material?
Materials can feel different.	Objects can be made from more than one material.	Can objects be made from more than one material?
	Common materials include wood, plastic, metal, glass, water and rock.	Can you name some common everyday materials?
Some materials are better for some jobs than others. Objects are made from different materials.	Materials have simple physical properties.	What are some simple physical properties of materials?
	Materials can be described using words such as hard, soft, shiny and rough.	How can materials be described?
	Materials can be compared and grouped by their properties.	How can materials be grouped?
	The same material can be used to make different objects.	Can the same material be used to make different objects?

Vocabulary

object, material, wood, plastic, metal, glass, rock, water, fabric, rubber, hard, soft, rough, smooth, shiny, dull, waterproof, absorbent

Common Misconceptions

- Objects and materials mean the same thing
- Rock is only an object, not a material
 - All shiny materials are metal
 - Materials only have one property

I can...

I can identify the material an object is made from.
 I can name a variety of everyday materials.
 I can describe simple physical properties of materials.
 I can compare and group materials based on their properties.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Year 2 – Materials and Matter



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
Materials have simple physical properties. Materials can be compared and grouped by their properties.	Materials are chosen because of their properties.	Why are materials chosen for particular uses?
	Some materials are suitable for particular purposes.	What makes a material suitable for a job?
Objects can be made from more than one material. Materials have simple physical properties.	More than one material may be suitable for the same job.	Can more than one material be suitable for the same job?
	The shape of some solid objects can be changed.	How can the shape of some solid objects be changed?
Materials can be compared and grouped by their properties.	Materials can be squashed, bent, twisted or stretched.	What does squashing, bending, twisting or stretching mean?
	Changing shape does not change the material itself.	Does changing the shape change the material itself?
	Materials can be tested to compare their suitability.	How can materials be tested?
	Properties make materials useful or unsuitable.	Why do properties make materials useful or unsuitable?

Vocabulary

material, properties, suitable, unsuitable, waterproof, absorbent, flexible, rigid, bend, stretch, twist, squash, shape, purpose

Common Misconceptions

- Materials can only be used for one purpose
- Hard materials cannot change shape
- The shape of an object tells you what material it is
- Only soft materials can be bent or stretched

I can...

I can compare materials to decide if they are suitable for a purpose.
I can identify properties that make a material suitable or unsuitable.
I can show how the shape of some solid objects can be changed.
I can explain how materials can be bent, twisted, squashed or stretched.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

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Year 3 – Materials and Matter



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
Materials have simple physical properties. Materials can be compared and grouped by their properties.	Rock is a naturally occurring material.	What is rock?
	There are different types of rock with different properties.	Are all rocks the same?
	Rocks can be hard or soft.	Can rocks be hard or soft?
Materials are chosen because of their properties. Materials have simple physical properties.	Rocks may absorb water.	Do all rocks absorb water?
	Soil is made from broken-down rock and organic matter.	What is soil made from?
Materials can be compared and grouped by their properties.	The type of rock affects the type of soil formed.	How does rock type affect soil?
	Some rocks contain fossils.	Do some rocks contain fossils?
	Fossils were formed millions of years ago.	How were fossils formed?

Vocabulary

rock, stone, pebble, boulder, grain, crystal, layers, soil, fossil, sediment, organic matter, absorb, texture

Common Misconceptions

- All rocks are hard
- Soil and compost are the same
- Fossils are just old bones
- Rocks are not materials

I can...

can compare and group rocks using their physical properties.
I can describe how fossils are formed.
I can observe and describe how soil is made from rock and organic matter.
I can use scientific vocabulary to talk about rock properties.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

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Identifying, grouping and classifying

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Problem-solving

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Enquiry Skills

Asking questions

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Making predictions

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Evaluating

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Year 4 – Materials and Matter



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Materials have simple physical properties. Materials can be compared and grouped by their properties.	Matter exists as solids, liquids or gases.	What are the three states of matter?
	A solid keeps its shape and has a fixed volume.	What is a solid?
Materials can be squashed, bent, twisted or stretched. Materials have simple physical properties.	A liquid has a fixed volume but changes shape.	What is a liquid?
	A gas has no fixed shape or volume.	What is a gas?
Materials can be compared and grouped by their properties.	Melting is a change from solid to liquid.	What is melting?
	Freezing is a change from liquid to solid.	What is freezing?
Materials can be compared and grouped by their properties.	Evaporation and boiling change a liquid into a gas.	What is evaporation?
	Condensation changes a gas into a liquid.	What is condensation?

Vocabulary

solid, liquid, gas, state, melting, freezing, boiling, evaporation, condensation, temperature, water cycle

Common Misconceptions

- Liquids have no weight
- Gases are not matter
- Water disappears when it evaporates
- Melting and dissolving are the same

I can...

I can name and describe solids, liquids and gases.
I can observe and describe changes of state.
I can use my observations to explain melting, freezing, evaporation or condensation.
I can relate changes of state to heating or cooling.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

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Evaluating

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Year 5 – Materials and Matter



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Matter exists as solids, liquids or gases.	Materials have properties such as hardness, transparency and conductivity.	What properties can materials have?
	Some materials dissolve in liquids to form solutions.	What does soluble mean?
	Insoluble materials do not dissolve and may form sediment.	What does insoluble mean?
Melting is a change from solid to liquid.	Mixtures can be separated by filtering, sieving or evaporation.	How can mixtures be separated?
	Dissolving is usually a reversible change.	What is a reversible change?
Evaporation changes a liquid into a gas.	Changes of state are reversible changes.	Are changes of state reversible?
	Some changes form new materials and are irreversible.	What is an irreversible change?
	Burning and rusting are examples of irreversible changes.	What is conductivity?

Vocabulary

properties, hardness, transparency, soluble, insoluble, dissolve, solution, mixture, filter, sieve, evaporate, reversible, irreversible, conductor, insulator

Common Misconceptions

- Dissolving means a substance disappears
 - All changes can be reversed
 - Insoluble substances dissolve slowly
 - Only liquids can be solutions

I can...

I can compare materials based on properties like hardness, transparency and conductivity.
 I can carry out simple tests to see if something will dissolve.
 I can separate mixtures by filtering, sieving or evaporation.
 I can explain why some changes are reversible and some are irreversible.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

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Problem-solving

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Enquiry Skills

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Making predictions

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Year 6 – Materials and Matter



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Materials have properties such as hardness, transparency and conductivity.	Some materials are transparent, translucent or opaque depending on how much light they let through.	What is the difference between transparent, translucent and opaque materials?
	Some materials are electrical conductors and allow electricity to pass through them, while others are insulators.	What is the difference between a conductor and an insulator?
Some rocks contain fossils.	The properties of materials determine how they are used in electrical circuits and for controlling light.	How do material properties affect how they are used in circuits and with light?
	Fossils provide evidence about materials and living things from millions of years ago.	How do fossils provide evidence about materials and living things from the past?

Vocabulary

material properties, particle, structure, conductivity, insulation, transparency, magnetism, durability, suitability

Common Misconceptions

- Materials always keep the same properties
- Heavier materials are always stronger
 - Insulators stop energy completely
 - All metals conduct electricity equally

I can...

I can explain how the properties of materials affect how light behaves (e.g., transparent vs opaque).
 I can identify materials that are electrical conductors and materials that are insulators.
 I can explain how material properties influence how electrical circuits work.
 I can use scientific language accurately when talking about materials in physical systems.

Enquiry Approaches

Comparative / fair testing

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Research

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Observation over time

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EYFS - The Human Body



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
	Humans have different body parts with names.	What are some parts of the human body called?
	We have five senses: sight, hearing, smell, taste and touch.	What are the five senses?
	Our eyes help us see.	Which body part helps us see?
	Our ears help us hear.	Which body part helps us hear?
	Our nose helps us smell.	Which body part helps us smell?
	Our tongue helps us taste.	Which body part helps us taste?
	Our skin helps us feel.	Which body part helps us feel?
	Humans need food, water and air to survive.	What do humans need to survive?

Vocabulary

body, head, arms, legs, hands, feet, eyes, ears, nose, mouth, see, hear, smell, taste, touch

Common Misconceptions

- We only use our eyes to explore the world
 - All body parts do the same job
- People's bodies are all exactly the same

I can...

I can name parts of my body.
I can use my senses to explore the world.
I can talk about what keeps my body healthy.

Enquiry Approaches

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Research

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Year 1 - The Human Body



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
Humans have different body parts with names.	Humans are a type of animal.	What type of animal are humans?
	The human body has parts such as head, neck, arms, elbows, legs and knees.	Can you name some main parts of the human body?
We have five senses: sight, hearing, smell, taste and touch.	The five senses are sight, hearing, smell, taste and touch..	What are the five senses?
	The eyes are used for seeing.	Which body part is used for seeing?
Humans need food, water and air to survive.	The ears are used for hearing.	Which body part is used for hearing?
	The nose is used for smelling.	Which body part is used for smelling?
	The tongue is used for tasting.	Which body part is used for tasting?
	The skin is used for touching and feeling	Which body part is used for touching?

Vocabulary

head, neck, arms, elbows, legs, knees, face, eyes, ears, nose, mouth, tongue, skin, senses, sight, hearing, smell, taste, touch

Common Misconceptions

- We only feel using our hands
- Eyes work in complete darkness
- Each sense is only linked to one body part

I can...

- I can identify and name body parts.
- I can identify the five senses.
- I can say which body part is linked to each sense.

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Year 2 - The Human Body



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
Humans are a type of animal.	Animals, including humans, have offspring which grow into adults.	What happens to animals, including humans, as they grow?
	Humans begin life as babies.	Where do humans begin life?
Different parts of the body have different jobs.	Humans grow and change as they get older.	How do humans change as they get older?
	Humans need food, water and air to survive.	What do humans need to survive?
Humans need food, water and air to survive.	Exercise helps keep our bodies healthy.	Why is exercise important?
	Good hygiene helps prevent illness.	Why is hygiene important?
	The body needs the right types of food to stay healthy.	Why does the body need the right types of food?
	Shelter protects humans from extreme heat and cold.	Why do humans need shelter?

Vocabulary

offspring, baby, child, adult, growth, survival, food, water, air, exercise, healthy, hygiene, germs

Common Misconceptions

- Humans do not change as they grow
 - Exercise only affects muscles
- Washing hands is not important if they look clean
- Healthy means only eating fruit and vegetables

I can...

I can describe the basic needs of humans.
I can explain how exercise and hygiene help us stay healthy.
I can describe how humans grow into adults.

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Year 3 - The Human Body



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Humans need food, water and air to survive.	Animals, including humans, need nutrition to survive.	Why do animals, including humans, need nutrition?
	Food contains nutrients such as carbohydrates, proteins, fats, vitamins and minerals.	What are some nutrients found in food?
	Carbohydrates provide energy.	What do carbohydrates provide?
The body needs the right types of food to stay healthy.	Protein helps growth and repair.	What does protein help with?
	Humans have a skeleton.	Do humans have a skeleton?
Exercise helps keep our bodies healthy.	The skeleton protects organs and supports the body.	What does the skeleton do?
	Humans have muscles.	Do humans have muscles?
	Muscles work with the skeleton to help the body move.	How do muscles and the skeleton work together?

Vocabulary

nutrition, nutrients, carbohydrates, protein, vitamins, minerals, fibre, skeleton, bones, muscles, joints, support, protection, movement

Common Misconceptions

- Humans make their own food
- Muscles move the body on their own
 - Bones do not move
 - Fat is always bad for you

I can...

I can describe the main nutrients in food.
I can explain why animals need nutrition.
I can identify the role of the skeleton and muscles.

Enquiry Approaches

Comparative / fair testing

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Year 4 - The Human Body



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
Food contains nutrients such as carbohydrates, proteins, fats, vitamins and minerals.	Digestion is the process of breaking down food.	What is digestion?
	Food is broken down in the mouth, stomach and intestines.	Where is food broken down in the body?
Carbohydrates provide energy.	The small intestine absorbs nutrients into the bloodstream.	Where are nutrients absorbed into the bloodstream?
	The large intestine absorbs water.	What happens in the large intestine?
Protein helps growth and repair.	Humans have four types of teeth: incisors, canines, premolars and molars.	What are the four types of teeth?
	Incisors cut food.	What do incisors do?
	Canines tear food.	What do canines do?
	Molars and premolars grind food.	What do molars and premolars do?

Vocabulary

digestive system, digestion, mouth, saliva, oesophagus, stomach, small intestine, large intestine, nutrients, teeth, incisor, canine, molar, chew, swallow

Common Misconceptions

- Digestion only happens in the stomach
 - Food stays in the stomach
 - All teeth do the same job
 - Food turns straight into waste

I can...

I can describe the main parts of the digestive system.
I can identify the different types of teeth and their functions.
I can explain how nutrients are absorbed.

Enquiry Approaches

Comparative / fair testing

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Research

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Year 5 - The Human Body



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Animals, including humans, have offspring which grow into adults.	Humans have a life cycle from birth to old age.	What are the stages of the human life cycle?
	All humans begin life as babies.	Where does human life begin in the life cycle?
	Babies grow into children, then adolescents, then adults.	Why are babies dependent on adults?
Humans grow and change as they get older.	Adults can have offspring.	How do humans grow from infancy to adulthood?
	During puberty, the body changes and develops into an adult body.	What happens to the body during puberty?
The body changes as it grows.	Babies are dependent on adults for survival.	What can adults do that children cannot?
	The gestation period for humans is about 9 months.	What is the gestation period in humans?
	Humans change physically as they grow and age.	How do humans change as they age?

Vocabulary

life cycle, baby, infancy, child, adolescent, adult, old age, growth, development, puberty, gestation

Common Misconceptions

- Humans stop changing once they are adults
- All people grow and develop at the same rate
 - Growth only happens in childhood
- Babies are independent when they are born

I can...

I can describe the stages of the human life cycle.
I can explain what happens during puberty.
I can describe the process of reproduction in humans.

Enquiry Approaches

Comparative / fair testing

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Research

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Year 6 - The Human Body



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
	The circulatory system transports oxygen and nutrients around the body.	What does the circulatory system do?
	The heart pumps blood around the body.	What does the heart do?
	Blood travels through arteries, veins and capillaries.	What do arteries, veins and capillaries carry?
	The lungs add oxygen to the blood and remove carbon dioxide.	What do the lungs do to the blood?
	Oxygen is needed for respiration in cells.	Why is oxygen important for the body?
	Diet affects how well the body functions.	How does diet affect the body?
	Exercise strengthens the heart and muscles.	How does exercise affect the body?
	Drugs and harmful substances can damage the body.	How can harmful substances affect the body?

Vocabulary

circulatory system, heart, blood vessels, blood, oxygen, nutrients, pulse, lungs, transport, lifestyle, exercise

Common Misconceptions

- Blood is blue inside the body
- The heart stores blood rather than pumps it
 - Exercise only affects muscles
 - The lungs pump blood

I can...

I can identify the main parts of the circulatory system.
I can explain how blood transports oxygen and nutrients.
I can explain how lifestyle choices affect the body.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Observation over time

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Pattern-seeking

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EYFS - Energy and Forces



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
	Things move when we push or pull them.	What can make things move?
	Some things move faster when we push harder.	What happens if we push something harder?
	The Sun gives us light and warmth.	What gives us light and warmth?
	Some objects need batteries to make them work.	What do some objects need to make them work?

Vocabulary

push, pull, move, stop, fast, slow, heavy, light, roll, slide

Common Misconceptions

- Objects move by themselves
- Bigger pushes do not change how things move
- Only people can make things move

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

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Year 1 - Energy and Forces



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
Things move when we push or pull them.	Objects can move in different ways (roll, slide, spin, bounce).	What are some ways objects can move?
	A push or a pull can make an object start or stop moving.	What can make an object start or stop moving?
	Magnets can make some objects move without touching them.	What can magnets do to some objects?
Some things move faster when we push harder.	Light helps us to see things.	What helps us to see things?
The Sun gives us light and warmth.		

Vocabulary

push, pull, movement, direction, speed, roll, slide, spin, stop, start

Common Misconceptions

- A push and a pull are the same
- Objects only move when touched
- Heavier objects always move faster

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Year 2 - Energy and Forces



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
Objects can move in different ways (roll, slide, spin, bounce).	A bigger push or pull makes a bigger change in movement.	What happens when we push or pull something harder?
	Objects may move differently on different surfaces.	Why might objects move differently on different surfaces?
A push or a pull can make an object start or stop moving.	Some objects stick to magnets and some do not.	What happens when a magnet is placed near some objects?
	Some appliances use electricity to make light, sound or movement.	What can electricity make appliances do?
Magnets can make some objects move without touching them.		

Vocabulary

movement, surface, push, pull, direction, speed, change, force, bend, stretch

Common Misconceptions

- Smooth surfaces always stop movement
- Rough surfaces always make things move faster
- Forces only happen when objects move

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

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Pattern-seeking

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Year 3 - Energy and Forces



What I already know	 What I will learn	
	Sticky Knowledge	Can you answer this? 
A bigger push or pull makes a bigger change in movement.	A force is a push or a pull.	What is a force?
	Forces can make objects move, stop, speed up or change direction.	What can forces do to objects?
Objects may move differently on different surfaces.	Friction is a force between two surfaces.	What is friction?
	Magnetic forces act at a distance.	What is special about magnetic forces?
Some objects stick to magnets and some do not.	Magnets attract some metals and have two poles.	What are the main features of magnets?
	Like poles repel and unlike poles attract.	What happens when different magnet poles face each other?
	We need light to see and darkness is the absence of light.	Why do we need light to see things?
	Shadows are formed when light is blocked and change size depending on the position of the light source.	How are shadows formed and why do they change size?

Vocabulary

light, light source, reflection, shadow, opaque, transparent, translucent, magnet, magnetic, poles, attract, repel, force

Common Misconceptions

- The moon is a light source
- Shadows contain details of objects
 - All metals are magnetic
- Magnets must touch to work

I can...

I can compare how objects move on different surfaces.
I can group materials based on whether they are attracted to a magnet.
I can predict whether two magnets will attract or repel.
I can investigate how the size of shadows changes.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



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Year 4 - Energy and Forces



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
Some appliances use electricity to make light, sound or movement.	Many appliances use electricity to work.	What do many appliances use to work?
	A complete circuit is needed for electricity to flow.	What is needed for electricity to flow in a circuit?
	A switch opens and closes a circuit.	What does a switch do in a circuit?
A force is a push or a pull.	Metals are good electrical conductors.	Which materials are good electrical conductors?
	Sound is made by vibrations.	How are sounds made?
Magnetic forces can act at a distance.	Sound travels through materials but not through a vacuum.	How does sound travel to our ears?
	The volume of a sound depends on the strength of the vibrations.	What affects how loud a sound is?
	Sound becomes quieter as it travels further from the source.	What happens to sound as it travels further from the source?

Vocabulary

electricity, circuit, cell, wire, bulb, switch, buzzer, complete circuit, conductor, insulator, vibration, sound, pitch, volume

Common Misconceptions

- Electricity is stored in wires
- A circuit works even if it is not complete
- Louder sounds travel faster
- Sound is made by objects, not vibrations

I can...

- I can identify how sounds are made by vibrations.
- I can find patterns between the pitch of a sound and the object that produced it.
- I can find patterns between the volume of a sound and the strength of the vibrations.
- I can build a simple series electrical circuit.
- I can predict whether a bulb will light in a circuit.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Identifying, grouping and classifying

Making observations to name, sort and organise items.



Problem-solving

Applying prior scientific knowledge to find answers to problems.



Enquiry Skills

Asking questions

Asking questions that can be answered using a scientific enquiry.



Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

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Recording data

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Interpreting and communicating results

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Evaluating

Reflecting on the success of the enquiry approach and identifying further questions for enquiry.





Year 5 - Energy and Forces



What I already know 	What I will learn 	
	Sticky Knowledge	Can you answer this? 
A force is a push or a pull.	Gravity is a force that pulls objects towards the Earth.	What does gravity do?
	Air resistance and water resistance are forces that oppose motion.	What are air resistance and water resistance?
Forces can make objects move, stop, speed up or change direction.	Friction is a force between two surfaces in contact.	What is friction?
	The size of a force can affect how an object moves.	How can the size of a force affect movement?
Friction is a force between two surfaces.	Mechanisms such as levers, pulleys and gears increase the effect of a force.	What do mechanisms such as levers, pulleys and gears do?
	A smaller force over a longer distance can produce a larger force.	How can a small force produce a larger force?
	Unsupported objects fall because of gravity.	Why do unsupported objects fall to the ground?
	Forces can act through direct contact or at a distance.	How can forces act on objects?

Vocabulary

force, gravity, air resistance, water resistance, friction, mechanism, lever, pulley, gears, effect, motion

Common Misconceptions

- Heavier objects fall faster because they are heavier
- Forces only happen when objects touch
 - Air has no effect on movement
- Bigger objects always experience more force

I can...

I can investigate how air resistance, water resistance or friction affect movement.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

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Pattern-seeking

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Enquiry Skills

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Year 6 - Energy and Forces



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Many appliances use electricity to work.	Light travels in straight lines.	How does light travel?
	We see objects when light enters our eyes.	How do we see objects?
A complete circuit is needed for electricity to flow.	Objects are seen when they reflect light into our eyes.	Why can we see objects that are not light sources?
	Shadows have the same shape as the object that blocks the light.	Why do shadows have the same shape as the object that blocks the light?
Light is needed for us to see and shadows form when light is blocked.	Adding more cells increases the brightness of a bulb.	What happens when more cells are added to a circuit?
	Voltage affects how components function in a circuit.	How does voltage affect components in a circuit?
	Changes in a circuit affect the brightness of bulbs and the volume of buzzers.	How can changes in a circuit affect bulbs or buzzers?
	Circuit diagrams use recognised symbols.	What are used to represent components in circuit diagrams?

Vocabulary

light rays, reflection, straight line, shadow, circuit diagram, symbol, voltage, current, brightness, resistance

Common Misconceptions

- Light bends around objects naturally
- We see because our eyes send out light
- Bigger batteries always make bulbs brighter
- Electricity travels instantly without a circuit

I can...

I can explain how light travels from a light source to our eyes.
I can explain why shadows have the same shape as the object that blocks the light.
I can explain how changes in a circuit affect the brightness of bulbs or buzzers.
I can draw a circuit diagram using recognised symbols.

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Observation over time

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Pattern-seeking

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Problem-solving

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Enquiry Skills

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- EYFS – Earth and Space



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
	The Sun gives us light and warmth.	What gives us light and warmth?
	The Moon can be seen in the sky at night	What can we see in the sky at night?

Vocabulary

sun, moon, stars, sky, day, night, light, dark

Common Misconceptions

- The sun disappears at night
- The moon makes its own light
- Stars only come out at night

Enquiry Approaches

Comparative / fair testing
 Changing one variable to see its effect on another, whilst keeping all others the same.

Research
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Observation over time
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Pattern-seeking
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Enquiry Skills

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Making predictions
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Year 1 – Earth and Space



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
The Sun gives us light and warmth.	The Sun appears in the sky during the day.	When do we see the Sun in the sky?
	Stars can sometimes be seen in the night sky.	What can sometimes be seen in the sky at night?
Light helps us see things.		
The Moon can be seen in the sky at night.		

Vocabulary

season, spring, summer, autumn, winter, weather, day length, sunlight, temperature, rain, wind

Common Misconceptions

- Seasons are caused by the sun moving further away
- Every day has the same length
- Weather is the same everywhere

Enquiry Approaches

Comparative / fair testing

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Research

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Year 2 – Earth and Space



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
The Sun appears in the sky during the day.	The weather changes during different seasons.	What happens to the weather during different seasons?
	Day length changes across the year.	What happens to the length of the day during the year?
Stars can sometimes be seen at night.		
The weather changes during the year.		

Vocabulary

weather, climate, temperature, hot, cold, rain, sun, wind, environment, change

Common Misconceptions

- Weather and climate are the same
- The weather is the same all over the world
- Cold weather means there is no sun

Enquiry Approaches

Comparative / fair testing

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Research

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Observation over time

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Pattern-seeking

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Year 3 – Earth and Space



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
Rocks are naturally occurring materials found on Earth.	Rocks are part of the Earth.	What are rocks part of?
	Fossils provide evidence of life from millions of years ago.	What do fossils give us evidence of?
Some rocks contain fossils.		
Materials have different physical properties.		

Vocabulary

sun, light source, daylight, shadow, reflection, Earth, sky

Common Misconceptions

- The sun is not a light source
- The sun turns off at night
 - Shadows are objects
- Light only comes from bulbs

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

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Observation over time

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Pattern-seeking

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Making predictions

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Year 4 – Earth and Space



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
	Water moves around the Earth in the water cycle.	What moves water around the Earth?
Rocks and fossils are found in the Earth.	Water evaporates, condenses and falls as precipitation.	What are the three main stages of the water cycle?
Water can change state when heated or cooled.		
Light is needed for us to see things.		

Vocabulary

water cycle, evaporation, condensation, precipitation, clouds, water vapour, temperature, rain, snow

Common Misconceptions

- Water disappears when it evaporates
 - Clouds are made of smoke
 - Rain comes from holes in clouds

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

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Making predictions

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Observing and measuring

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Year 5 – Earth and Space



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
The Sun gives us light and warmth.	The Sun is a star at the centre of the solar system.	What is the Sun?
	Eight planets orbit the Sun.	How many planets orbit the Sun?
Light travels from a light source to our eyes.	The Earth is a planet that orbits the Sun.	What does the Earth orbit?
	The Moon orbits the Earth.	What does the Moon orbit?
Day and night are caused by the Earth facing towards or away from the Sun.	The Sun, Earth and Moon are approximately spherical.	What shape are the Sun, Earth and Moon?
	The Earth rotates on its axis.	What does the Earth rotate on?
	The Earth's rotation causes day and night.	What causes day and night?
	The Sun appears to move across the sky because the Earth rotates.	Why does the Sun appear to move across the sky?

Vocabulary

Earth, Sun, Moon, solar system, planet, orbit, rotation, axis, day, night, year, gravity, spherical

Common Misconceptions

- The Sun moves around the Earth
- Day and night happen because the Sun disappears
- The Moon produces its own light
- The Earth is flat

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

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Problem-solving

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Enquiry Skills

Asking questions

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Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



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Observing and measuring

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Year 6 – Earth and Space



What I already know	What I will learn	
	Sticky Knowledge	Can you answer this?
	Fossils provide evidence of how life and Earth have changed over time.	What do fossils provide evidence of?
Fossils provide evidence of life from millions of years ago.	Evidence from rocks helps scientists understand Earth's past.	How do scientists learn about Earth's past?
Rocks and fossils are found in the Earth.		
Living things have changed over time.		

Vocabulary

fossil, extinct, evolution, evidence, Earth history, millions of years, sediment, layers

Common Misconceptions

- Fossils are just old bones
- Humans lived at the same time as dinosaurs
- All fossils are from animals
- The Earth has always looked the same

Enquiry Approaches

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Research

Using secondary sources of information to answer scientific questions.



Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Pattern-seeking

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Enquiry Skills

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Making predictions

Using prior knowledge to suggest what will happen in an enquiry.



Setting up tests

Deciding on the method and equipment to use to carry out an enquiry.



Observing and measuring

Using senses and measuring equipment to make observations about the enquiry.



Recording data

Using tables, drawings and other means to note observations and measurements.



Interpreting and communicating results

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Evaluating

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