



SCIENCE

Progression Map



Science Progression of Skills Map

EYFS

Key Stage 1

Lower Stage 2

Upper Key Stage 2

By the end of Reception, children will be taught to:

- Explore the natural world around them.
- Make observations of the world around them.
- Identify similarities and differences from their observations.
- Share their experiences of the world around them.

By the end of Year 2, children will be taught to:

- ask simple questions and recognise that they can be answered in different ways.
- observing closely, using simple equipment.
- perform simple tests.
- identify and classify.
- use their observations and ideas to suggest answers to questions.
- gather and record data to help in answering questions.

By the end of Year 4, children will be taught to:

- ask relevant questions and use different types of scientific enquiries to answer them.
- set up simple practical enquiries, comparative and fair tests.
- make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gather, record, classify and present data in a variety of ways to help in answering questions.
- record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions;
- use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- identify differences, similarities or changes related to simple scientific ideas and processes.
- use straightforward scientific evidence to answer questions or to support their findings.

By the end of Year 6, children will be taught to:

- plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- use test results to make predictions to set up further comparative and fair tests.
- report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;
- identifying scientific evidence that has been used to support or refute ideas or arguments.

Work scientifically



Science Knowledge Progression Map

	EYFS	Key Stage 1	Lower Stage 2	Upper Key Stage 2
Animals including Humans	By the end of Reception, children will be taught to: ● Observe and name a variety of common animals from their local environment. ● Make observational drawings of animals from their local environments. ● Sort and classify animals according to their features. ● Name the basic parts of the human body. ● Understand what the five senses are and which body part is linked to which sense. ● Match animals with their offspring and name the adult and their young.	By the end of Year 2, children will be taught to: ● Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. ● Identify and name a variety of common animals that are carnivores, herbivores and omnivores. ● Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets). ● Identify name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. ● Notice that animals, including humans, have offspring which grow into adults.	By the end of Year 4, children will be taught to: ● Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat. ● Identify that humans and some animals have skeletons and muscles for support, protection and movement. ● Describe the simple functions of the basic parts of the digestive system in humans. ● Identify the different types of teeth in humans and their simple functions.	By the end of Year 6, children will be taught to: ● Describe the changes as humans develop to old age. ● Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. ● Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. ● Describe the ways in which nutrients and water are transported within animals, including humans.



Science Knowledge Progression Map

Plants

EYFS

By the end of Reception, the children will be taught:

- Name some common plants and trees from their immediate locality.
- Identify and name the parts of a simple plant.
- Plant seeds and bulbs and observe their growth into mature plants.
- Care for plants and understand that they need water and light to grow.
- Develop the vocabulary to name common plants and to describe their features.

Key Stage 1

By the end of Year 2, children will be taught to:

- Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen.
- Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.
- Observe and describe how seeds and bulbs grow into mature plants.
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Lower Stage 2

By the end of Year 4, children will be taught to:

- Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers.
- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.
- Investigate the way in which water is transported within plants.
- Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Upper Key Stage 2

By the end of Year 6, children will be taught to:

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Science Knowledge Progression Map

Living Things and Their Habitats

EYFS

By the end of Reception, the children will be taught:

- Sort things that are living, dead or have never been alive.
- Name some different habitats in their locality and identify some features of these habitats.
- Observe and identify some creatures which live in local habitats.
- Observe and identify some plants and trees which grow in local habitats.
- Understand the diet of some creatures that live in local habitats.
- Observe and name a variety of common animals from other environments.
- Develop the vocabulary to describe and name some plants and animals within local and other habitats.

Key Stage 1

By the end of Year 2, children will be taught to:

- Explore and compare the differences between things that are living, that are dead and that have never been alive.
- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other.
- Identify and name a variety of plants and animals in their habitats, including micro-habitats.
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Lower Stage 2

By the end of Year 4, children will be taught to:

- Recognise that living things can be grouped in a variety of ways.
- Explore and use classification keys.
- Recognise that environments can change and that this can sometimes pose dangers to specific habitats.
- Construct and interpret a variety of food chains, identifying producers, predators and prey.

Upper Key Stage 2

By the end of Year 6, children will be taught to:

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
- Describe the life process of reproduction in some plants and animals.
- Describe how living things are classified into broad groups according to common observable characteristics.
- Give reasons for classifying plants and animals based on specific characteristics.



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Evolution & Inheritance	By the end of Reception, the children will be taught:	By the end of Year 2, children will be taught to:	By the end of Year 4, children will be taught to:	By the end of Year 6, children will be taught to: ● Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. ● Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. ● Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.



Science Knowledge Progression Map

Everyday Materials & States of Matter

EYFS

By the end of Reception, children will be taught to:

- Observe and describe changes in some materials.
- Sort and name a variety of objects made from different materials.
- Explore and observe the properties of some everyday materials.
- Explore and change the shape and consistency of some everyday materials.
- Develop the vocabulary to describe the properties of and the changes, in everyday materials.

Key Stage 1

By the end of Year 2, children will be taught to:

- Distinguish between an object and the material from which it is made.
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.
- Describe the simple physical properties of a variety of everyday materials.
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
- Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses.

Lower Stage 2

By the end of Year 4, children will be taught to:

- Rocks and Soils**
 - Compare and group together different kinds of rocks on the basis of their simple, physical properties.
 - Relate the simple physical properties of some rocks to their formation (igneous or sedimentary).
 - Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.
 - Recognise that soils are made from rocks and organic matter.
- States of Matter**
 - Compare and group materials together, according to whether they are solids, liquids or gases.
 - Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics.
 - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Upper Key Stage 2

By the end of Year 6, children will be taught to:

- Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal), and response to magnets.
- Understand how some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.



Science Knowledge Progression Map

EYFS

Key Stage 1

Lower Stage 2

Upper Key Stage 2

Movement, Forces and Magnets

By the end of Year 2, children will be taught to:

By the end of Year 4, children will be taught to:

- Compare how things move on different surfaces.
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.
- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

By the end of Year 6, children will be taught to:

- Magnets**
- Describe magnets as having two poles.
 - Predict whether two magnets will attract or repel each other, depending on which poles are facing.
- Forces**
- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
 - Identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces.
 - Understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect.



Science Knowledge Progression Map

	EYFS	Key Stage 1	Lower Stage 2	Upper Key Stage 2
Light and Sound		By the end of Year 2, children will be taught to:	By the end of Year 4, children will be taught to: ● Recognise that they need light in order to see things and that dark is the absence of light. ● Notice that light is reflected from surfaces. ● Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. ● Recognise that shadows are formed when the light from a light source is blocked by a solid object. ● Find patterns in the way that the size of shadows change. ● Identify how sounds are made, associating some of them with something vibrating. ● Recognise that vibrations from sounds travel through a medium to the ear.	By the end of Year 6, children will be taught to: ● Understand that light appears to travel in straight lines. ● Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. ● Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes. ● Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. ● Find patterns between the pitch of a sound and features of the object that produced it. ● Find patterns between the volume of a sound and the strength of the vibrations that produced it. ● Recognise that sounds get fainter as the distance from the sound source increases.



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Electricity		By the end of Year 2, children will be taught to:	By the end of Year 4, children will be taught to: ● Identify common appliances that run on electricity. ● Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. ● Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. ● Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. ● Recognise some common conductors and insulators, and associate metals with being good conductors.	By the end of Year 6, children will be taught to: ● Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. ● Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. ● Use recognised symbols when representing a simple circuit in a diagram.



Science Knowledge Progression Map

Earth & Space Seasonal Changes

EYFS

By the end of Reception, children will be taught to:

- Identify and name the four seasons of the year.
- Observe and discuss the changes in the natural world within each season.
- Observe and discuss the differences in the weather across the seasons.
- Identify the weather associated with each season.

Key Stage 1

By the end of Year 2, children will be taught to:

- Observe changes across the four seasons.
- Observe and describe weather associated with the seasons and how day length varies.

Lower Stage 2

By the end of Year 4, children will be taught to:

Upper Key Stage 2

By the end of Year 6, children will be taught to:

- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.
- Describe the movement of the Moon relative to the Earth.
- Describe the Sun, Earth and Moon as approximately spherical bodies.
- Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.