



Curriculum Guidance

Science Curriculum

Curriculum guidance for years 1 to 6, including learning objectives and whole school curriculum map.

Learning Objectives

These are the learning objectives for Science. There are relatively few objectives and therefore repeatable, avoiding a 'skimming' approach to teaching whereby many objectives are covered, but not necessarily learned. They encapsulate with clarity exactly what it is that the children are going to 'get better at'.

There is an accompanying progression document which offers further standard related detail to understand the breadth and depth of teaching within each objective across years 1 to 6.

Working Scientifically	Biology	Chemistry	Physics
<ul style="list-style-type: none">To work scientifically	<ul style="list-style-type: none">To understand plantsTo understand animals and humansTo investigate living thingsTo understand evolution and inheritance	<ul style="list-style-type: none">To investigate materials	<ul style="list-style-type: none">To understand movement, forces and magnetsTo understand the Earth's movement in spaceTo investigate light and seeingTo investigate sound and hearingTo understand electrical circuits

Whole School Curriculum Map

Although Science is taught discretely, conscious connections are made to the wider curriculum to ensure that content is relevant, and opportunities for application and reasoning are consistently planned for. Each science topic allows for children to carry out a scientific investigation.

In Spring term we become scientists! All year groups explore a science based topic during their thematic lessons as well as their discrete science topic. Where possible the science topic is linked to the thematic topic.



Year Group	Autumn		Spring		Summer	
Year 1	Plants	Animals, including humans	Everyday Materials	Animals, including humans	Plants	Animals, including humans
Year 2	Animals, including humans	Use of everyday materials	Animals, including humans	Living things and their habitats	Plants	Living things and their habitats
Year 3	Animals, including humans	Forces and Magnets	Light	Plants	Plants	Rocks
Year 4	Animals, including humans	Sound	States of Matter	The Water Cycle	Electricity	Living things and their habitats
Year 5	Properties and changes of materials	Properties and changes of materials	Living things and their habitats	Earth and Space	Earth and Space	Forces
Year 6	Evolution and Inheritance	Living things and their habitats	Animals, including humans	Scientific Investigations	Light	Electricity

Year 1

In year 1, children should be taught about seasonal change throughout the year rather than as a stand-alone topic.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Plants:</p> <ul style="list-style-type: none"> - Identify and name the main parts of trees - Identify and name a variety of common trees, including sorting deciduous and evergreen trees 	<p>Animals, including humans:</p> <ul style="list-style-type: none"> - Naming basic parts of the body - Investigating the parts of the body related to each of the five senses <p>Seasonal Changes:</p> <ul style="list-style-type: none"> - Observe changes across the 4 seasons and describe weather associated with the seasons 	<p>Everyday Materials:</p> <ul style="list-style-type: none"> - Distinguish between an object and the material from which it is made - Identify and name a variety of everyday materials - Describe the simple physical properties of a variety of everyday materials - Compare and group together a variety of everyday materials based on their simple physical properties 	<p>Animals, including humans:</p> <ul style="list-style-type: none"> - Identify, name and investigate a variety of common animals - Identify and name a variety of animals as carnivore, herbivore or omnivore <p>Seasonal Changes:</p> <ul style="list-style-type: none"> - Observe changes across the 4 seasons and describe weather associated with the seasons 	<p>Plants:</p> <ul style="list-style-type: none"> - Identify and name the main parts of flowering plants - Identify and name a variety of common and garden plants 	<p>Animals, including humans:</p> <ul style="list-style-type: none"> - Describe and compare the structure of a variety of common animals, labelling different parts of their bodies <p>Seasonal Changes:</p> <ul style="list-style-type: none"> - Observe changes across the 4 seasons and describe weather associated with the seasons

Year 2

In year 2, children should be taught about seasonal change throughout the year rather than as a stand-alone topic.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Animals, including humans:</p> <ul style="list-style-type: none"> - Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene - Find out about and describe the basic needs of animals, including humans for survival (water, food and air) <p>Seasonal Changes:</p> <ul style="list-style-type: none"> - Observe changes across the four seasons more closely, including the changes in day length 	<p>Uses of Everyday Materials:</p> <ul style="list-style-type: none"> - Identify and compare the suitability of a variety of everyday materials for particular uses - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending twisting and stretching 	<p>Animals, including humans:</p> <ul style="list-style-type: none"> - Notice that animals, including humans, have offspring which grow into adults - Use basic descriptions to describe the life cycle of a variety of animals <p>Seasonal Changes:</p> <ul style="list-style-type: none"> - Observe changes across the four seasons more closely, including the changes in day length 	<p>Living things and their habitats:</p> <ul style="list-style-type: none"> - Explore and compare the differences between things that are living, dead and things that have never been alive - Identify that most living things live in habitats to which they are suited 	<p>Plants:</p> <ul style="list-style-type: none"> - 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 <p>Seasonal Changes:</p> <ul style="list-style-type: none"> - Observe changes across the four seasons more closely, including the changes in day length 	<p>Living things and their habitats:</p> <ul style="list-style-type: none"> - Identify and name a variety of plants and animals in their habitats, including microhabitats (minibeasts) - Describe how animals obtain their food from plants and other animals, using simple food chains

Year 3

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Animals, including humans:</p> <ul style="list-style-type: none"> - Identify that animals, including humans, need the right types and amounts of nutrition and get nutrition from what they eat - Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 	<p>Forces and Magnets:</p> <ul style="list-style-type: none"> - Describe magnets as having two poles and investigate how magnets attract and repel each other depending on these poles - Investigate materials that magnets can attract and group/classify materials based on this - Investigate friction between two surfaces, including how things move on a variety of surfaces 	<p>Light:</p> <ul style="list-style-type: none"> - Recognise that they need light in order to see things and dark is the absence of light - Notice that light is reflected from surfaces - Recognise that light from the sun can be dangerous and how to protect their eyes - Recognise that shadows are formed when light is blocked by a solid object - Investigate how shadow sizes change 	<p>Plants:</p> <ul style="list-style-type: none"> - Identify and describe the functions of the main parts of a variety of flowering plants - Explore the part flowers play in the life cycle of flowering plants, including pollination, seed formation and dispersal 	<p>Plants:</p> <ul style="list-style-type: none"> - Explore the requirements of plants for life and growth and how these vary from plant to plant - Investigate the way in which water is transported within plants 	<p>Rocks:</p> <ul style="list-style-type: none"> - Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties - Recognise that soils are made from rocks and organic matter - Describe in simple terms how fossils are formed

Year 4

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Animals, including humans:</p> <ul style="list-style-type: none"> - Describe the simple functions of the basic parts of the digestive system in humans - Identify the different types of teeth in humans and their functions - Investigate how animal teeth differ to human teeth and relate this to diet - Construct and interpret a variety of food chains, identifying producers, predators and prey 	<p>Sound:</p> <ul style="list-style-type: none"> - Identify that sounds are made when something vibrates - Recognise that vibrations from sounds travel through a medium to the ear - Find patterns between pitch of the sound and the object that made 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 source increases - 	<p>States of Matter:</p> <ul style="list-style-type: none"> - Compare and group materials together based on whether they are solids, liquids or gases - Observe that some materials change state when they are heated or cooled - Measure or research the temperature that changes of state occur in degrees Celsius 	<p>The Water Cycle:</p> <ul style="list-style-type: none"> - Identify the part played by evaporation and condensation in the water cycle - Investigate the relationship between rate of evaporation and temperature 	<p>Electricity:</p> <ul style="list-style-type: none"> - Identify common appliances that run on electricity - Construct simple electrical circuits, identifying and naming its basic parts - Identify whether a bulb will light based on whether it is an open or closed circuit - Recognise that a switch opens or closes a circuit and the effect this has on a bulb - Recognise common electrical conductors or insulators 	<p>Living things and their habitats:</p> <ul style="list-style-type: none"> - Recognise that environments can change and that this can pose dangers to living things - Recognise that living things can be grouped in a variety of ways - Explore and use classification keys to group, identify and name a variety of living things in the local environment

Year 5

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Properties of changes of materials:</p> <ul style="list-style-type: none"> - Compare and group together everyday materials on the basis of their properties - Give reasons based on comparative and fair tests for particular uses of everyday materials 	<p>Properties of changes of materials:</p> <ul style="list-style-type: none"> - Know that some materials will dissolve in a liquid to form a solution and how to recover the substance dissolved - Use knowledge of solids, liquids and gases to separate mixtures including filtering, sieving and evaporating - Investigate reversible and irreversible changes 	<p>Forces:</p> <ul style="list-style-type: none"> - Explain that unsupported objects fall towards the Earth because of gravity - Identify the effects of air and water resistance and friction that act between moving surfaces - Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have greater effect 	<p>Earth and Space:</p> <ul style="list-style-type: none"> - Describe the sun, Earth and moon as approximately spherical bodies - Describe the movement of the Earth and other planets relative to the sun - Investigate other planets in our solar system 	<p>Earth and Space:</p> <ul style="list-style-type: none"> - Describe the movement of the moon relative to the Earth - Use the idea of the Earth's rotation to explain day and night - Investigate the apparent movement of the sun across the sky - Use the idea of the Earth's revolution (orbit) to explain seasons 	<p>Living things and their habitats:</p> <ul style="list-style-type: none"> - Describe the differences in life cycles of a mammal, an amphibian, an insect and a bird - Describe the life process of reproduction in some plants

Year 6

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Evolution and Inheritance:</p> <ul style="list-style-type: none"> - Recognise that living things have changed over time and that fossils provide information about living things that inhabited 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 	<p>Living things and their habitats:</p> <ul style="list-style-type: none"> - Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences - Give reasons for classifying plants on animals based on characteristics 	<p>Animals, including humans:</p> <ul style="list-style-type: none"> - 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 - Describe the way in which nutrients and water are transported within animals, including humans - Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function 	<p>Scientific Investigations/ STEM opportunities</p> <p>Famous Scientists</p> <p>Examples:</p> <ul style="list-style-type: none"> - Isaac Newton - Charles Darwin - Jane Goodall - Marie Curie 	<p>Light:</p> <ul style="list-style-type: none"> - Recognise that light appears to travel in straight lines and use this to explain that objects are seen because they give out or reflect light to the eye - Explain that we see things because light travels from sources to objects to our eyes - Explain why shadows have the same shape as the objects that cast them 	<p>Electricity:</p> <ul style="list-style-type: none"> - Use recognised symbols when representing a simple circuit in a diagram - Compare and give reasons for variations in how components function, including position of on/off switch - Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used