Southbury Primary School

Science Skills Progression

National Curriculum statements in red are from other linked topics in same year.

EYFS	Key Stage One	Key Stage Two
In EYFS science is taught through Understanding the World, Expressive Arts and Design and Physical Development Health and SelfCare. The children are encouraged to investigate how things work and about living things in their local environment and the wider world.	**Working Scientifically in KS1** During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions.	**Working Scientifically in year 3 and 4** During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers for Science gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. **Working Scientifically in year 5 and 6** During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and 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.

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Plants						
Reception	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
<u>Understanding the World:</u> Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. Can talk about some of the things they observe such and plants. Developing an understanding of growth, decay and changes over time. Can make observations of plants and explain why some things occur and talk about changes.	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees.	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. Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, 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 part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats) Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 – Living things and their habitats) Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)	Describe the life process of reproduction in some plants and animals. (Y5 – Living things and their habitats)	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. (Y6 - Living things and their habitats) Give reasons for classifying plants and animals based on specific characteristics. (Y6 – Living things and their habitats)

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Living things and their habitats						
<u>Understanding the World:</u> Children know about similarities and differences in relation to places objects, materials and living things. They talk about the features of their own Immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants) Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) Identify and name a variety of common Animals including fish, amphibians, reptiles, birds and mammals. (Y1 – Animals including humans) Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) Observe changes across the four seasons. (Y1 – Seasonal change)	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 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 microhabitats. 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. Notice that animals, including humans, have offspring which grow into adults. (Y2 – Animals including humans)	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans)	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 and based on similarities and differences, including microorganism, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.

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Animals including humans						
<u>Understanding the World</u> Children can talk about some of the things they have observed such as animals Shows care and concern for living things and the environment Shows some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health. Children know the importance for good health of physical exercise and a healthy diet and talk about ways to keep healthy and safe.	Identify and name a variety of common Animals including fish, amphibians, reptiles, birds and mammals. 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 (fish, amphibians, reptiles, birds and mammals, 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. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other 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. Construct and interpret a variety of food chains, identifying producers, predators and prey.	Describe the changes as humans develop to old age. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) Describe the life process of reproduction in some plants and animals. (Y5 – Living things and their habitats)	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. (Y6 - Living things and their habitats) Give reasons for classifying plants and animals based on specific characteristics. (Y6 – Living things and their habitats)

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Evolution and inheritance						
		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. (Y2 - Living things and their habitats) Notice that animals, including humans, have offspring which grow into adults. (Year 2 – Animals including Humans)	Describe in simple terms how fossils are formed when things that have lived are trapped within rocks. (Y3 Rocks)	Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)		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.
Seasonal changes						
<u>Understanding the World:</u> Develop an understanding of growth and changes over time. They talk about the features of their own Immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes	Observe changes across the four seasons. Observe and describe Weather associated with the seasons and how day length varies.		Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)		Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. (Y5 - Earth and space)	

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Materials						
<u>Understanding the World:</u> Children talk about why things happen and how things work. Looks closely at similarities, differences and change. They are familiar with basic scientific concepts such as floating, sinking experimentation.	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.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks) Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets)	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 or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Recognise some common conductors and insulators, and associate metals with being good conductors (Y4 – Electricity)	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), & response to magnets. Know that 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 Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation pf new material and this kind of change is usually irreversible.	

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Rocks						
	Distinguish between an object and the material from which it is made. (Y1 – Everyday materials) Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 – Everyday materials) Describe the simple physical properties of a variety of everyday materials. (Y1 – Everyday materials) Compare and group together a variety of Everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.			Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Y6 – Evolution and inheritance)

Light						
	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) Observe change across the four seasons. Observe and describe Weather associated with the seasons and how day length varies. (Y1 – Seasonal Changes)		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 an opaque object. Find patterns in the way that the size of shadows change.			Recognise 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 eye. 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. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Forces						
		Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 Uses of everyday materials)	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		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller	

			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.		force to have a greater effect.	
Sound						
	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)			Identify how sounds are made, associating some of them with Something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. 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						
	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. (Y1 – Materials)	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Materials)		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.	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets (Y5 – Materials)	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.

Earth and space						
	Observe changes across the four seasons. (Y1 – Seasonal changes) Observe and describe Weather associated with the seasons and how day length varies. (Y1 – Seasonal changes)				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.	