Progression of Teaching and Learning in Scientific Knowledge

Overall progression across KS1 & KS2

	Reception & Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically							
Biology	ELG Understanding the world The World		Living things & their habitats		Living things & their habitats	Living things & their habitats	Living things & their habitats
	ELG Understanding the world The World	Plants	Plants	Plants			
	ELG Understanding the world The World	Animals including humans	Animals including humans	Animals including humans	Animals including humans	Animals including humans	Animals including humans
							Evolution and inheritance
Chemistry	ELG Understanding the world The World ELG Expressive arts and design Exploring and using media and materials	Everyday materials	Uses of everyday materials	Rocks	States of matter	Properties & changes of materials. Changes that form new materials.	
Physics		Light	Sound	Light	Sound		Light
				Forces and magnets	Electricity	Forces	Electricity
	ELG Understanding the world The World	Seasonal Changes				Earth and space	

KS1 Science Assessment Framework:

Science content

The pupil can:
• name and locate parts of the human body, including those related to the senses [year 1], and describe the importance of exercise, a balanced diet and hygiene for humans [year 2]
• describe the basic needs of animals for survival and the main changes as young animals, including humans, grow into adults [year 2]
• describe the basic needs of plants for survival and the impact of changing these and the main changes as seeds and bulbs grow into mature plants [year 2] • identify whether things are alive, dead or have never lived [year 2]
• describe and compare the observable features of animals from a range of groups [year 1]
• group animals according to what they eat [year 1], describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships [year 2]
• describe seasonal changes [year 1]
• name different plants and animals and describe how they are suited to different habitats [year 2]
• distinguish objects from materials, describe their properties, identify and group everyday materials [year 1] and compare their suitability for different uses [year 2].

		EYFS	Year 1	Year 2
Biology	Living things and their habitats	Understanding the world The World Explore the natural world around them, making observations and drawing pictures of animals and plants; • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	N/A	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 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.
	Plants	ELG Understanding the world The World	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.
	Animals including humans	ELG Understanding the world The World	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 (inc pets). Identify, name, draw and label the basic parts of a human body and say which part of the body is associated to 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.
	Evolution and Inheritance		N/A	N/A
Chemistry	Materials	ELG Understanding the world The World Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. ELG Expressive arts and design Exploring and using media and materials: Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function	IDENTIFYING EVERYDAY MATERIALS 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, 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.	THE USES OF EVERYDAY MATERIALS Identify and compare the suitability of variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Physics	Sound and Light		LIGHT Observe and name a variety of sources of light, including electric lights, flames and the sun.(Source unknown?) Associate shadows with a light source being blocked by something. (Taken from Y3)	SOUND Observe and name a variety of sources of sound, noticing that we hear with our ears.(Source unknown?) Recognise that sounds get fainter as the distance from the sound source increases.(Taken from Y4)
	Forces, Magnets and Electricity		N/A	N/A
	Seasons and Space	ELG Understanding the world The World Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.	N/A

KS2 Science Assessment Framework:

Science content

The pupil can:
• name and describe the functions of the main parts of the digestive [year 4], musculoskeletal [year 3] and circulatory systems [year 6]; and describe and compare different reproductive processes and life cycles in animals [year 5]
• describe the effects of diet, exercise, drugs and lifestyle on how the body functions [year 6]
• name, locate and describe the functions of the main parts of plants, including those involved in reproduction [year 5] and transporting water and nutrients [year 3]
• use the observable features of plants, animals and micro-organisms to group, classify and identify them into broad groups, using keys or other methods [year 6]
• construct and interpret food chains [year 4]
• describe the requirements of plants for life and growth [year 3]; and explain how environmental changes may have an impact on living things [year 4]
• use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved [year 6]; and describe how fossils are formed [year 3] and provide evidence for evolution [year 6]
• group and identify materials [year 5], including rocks [year 3], in different ways according to their properties, based on first-hand observation; and justify the use of different everyday materials for different uses, based on their properties [year 5]
• describe the characteristics of different states of matter and group materials on this basis; and describe how materials change state at different temperatures, using this to explain everyday phenomena, including the water cycle [year 4]
• identify and describe what happens when dissolving occurs in everyday situations; and describe how to separate mixtures and solutions into their components [year 5]
• identify, with reasons, whether changes in materials are reversible or not [year 5]
• use the idea that light from light sources, or reflected light, travels in straight lines and enters our eyes to explain how we see objects [year 6], and the formation [year 3], shape [year 6] and size of shadows [year 3]
• use the idea that sounds are associated with vibrations, and that they require a medium to travel through, to explain how sounds are made and heard [year 4]
• describe the relationship between the pitch of a sound and the features of its source; and between the volume of a sound, the strength of the vibrations and the distance from its source [year 4]
• describe the effects of simple forces that involve contact (air and water resistance, friction) [year 5], that act at a distance (magnetic forces, including those between like and unlike magnetic poles) [year 3], and gravity [year 5]
• identify simple mechanisms, including levers, gears and pulleys, that increase the effect of a force [year 5]
• use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it; and use recognised symbols to represent simple series circuit diagrams [year 6]
• describe the shapes and relative movements of the Sun, Moon, Earth and other planets in the solar system; and explain the apparent movement of the sun across the sky in terms of the Earth's rotation and that this results in day and night [year 5].

		Year 3	Year 4	Year 5	Year 6
Biology	Living things and their habitats	N/A	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	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life processes or reproduction in some plants and animals (overlap with year 3 plants)	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 Give reasons for classifying plants and animals based on specific characteristics
	Plants	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers (Covered in Y1&2) 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 lifecycle of flowering plants, including pollination, seed formation and seed dispersal.	N/A	N/A	N/A
	Animals including humans	Identify that animals, including humans, need the right types of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Diet and nutrition (Overlap year 2. In year 3 much more in depth about food groups and how body uses carbs etc 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 a 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 (Overlaps with Yr2)	Describe the changes as humans develop to old age (Overlap with yr4 humans PSHE)	Identify the main parts of the 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
	Evolution and Inheritance	N/A	N/A	N/A	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
Chemistry	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.	Compare and group materials together according to whether they are solids, liquids or gases (T1) 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 (T1) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature (T6)	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 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 an 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 of new materials, and that this kind of change is not usually reversible including changes associated with burning and the action of acid on bicarbonate soda	N/A
Physics	Sound and Light	LIGHT Understand 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 form a light source is blocked by an opaque object. (Just Recap - Moved to year 1) Find patterns in the way that the size of shadows change.	SOUND 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 the strength of the vibrations that produced it Recognise that sounds get fainter as the distance from the sound source increases. (Just Recap - Moved to year 2)	N/A	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 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, Magnets and Electricity	Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance.	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	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	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 switches

		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	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. (Link with yr2 materials)	Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	Use recognized symbols when representing a simple circuit in a diagram
	Seasons and Space	N/A	N/A	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.	N/A