Key Content for Science

Early Years Foundational Knowledge of Science

EYFS:

- Sequence the life cycle of a plant and an animal.
- Notice differences between people.
- Identify the senses used in exploration of natural materials.
- Discuss materials with different properties.
- Identify similarities and differences of different materials.
- Identify differences between materials and changes they notice.
- Discuss different forces they can feel.

Reception:

- Make observations on the natural world around them
- Draw a picture of a plant or animal by looking at the object
- Identify similarities and differences between different environments
- Discuss changes of season
- Discuss changing states of matter

Strand of Science	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge of Science	• Be able to ask simple questions about the world around • Be able to talk about different scientific experiences • Be able to compare materials using correct vocabulary • Be able to use simple scientific measurements • Be able to record basic data from investigations	• Be able to use simple scientific language to explain what is being learnt • Be able to carry out simple tests independently • Be able to use observations to answer scientific questions • Be able to recognise different ways to answer scientific questions • Be able to discuss findings using correct vocabulary	• Be able to discuss different scientific experiences • Be able to set up a simple enquiry • Be able to take accurate measurements in an investigation • Be able to collect and record results from an investigation independently • Be able use correct scientific vocabulary to describe steps to an investigation	• Be able to ask scientific questions about the world around • Be able to discuss ways of grouping • Be able to find patterns and draw conclusions from investigations with support • Be able to begin to identify new questions which arise from an investigation independently • Be able to explain observations made during an investigation	• Be able to select the correct equipment to make measurements • Be able to select appropriate scientific vocabulary and media to support findings • Be able to use different methods to present findings • Be able to discuss important scientific findings over time • Be able to identify what to do next following an investigation	• Be able to use sources sources to support with an investigation • Be able to select appropriate enquiries to answer scientific questions • Be able to set up an investigation independently • Be able to classify by different characteristics • Be able to explain patterns in findings from investigations
Specific Scientific Knowledge						
Humans	• Identify, name, draw and label the basic parts of the human body. • Identify which part of the body is associated with each sense.	• 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 amounts 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	• Identify the different types of teeth in humans and their simple functions. • Describe the simple functions of the basic parts of the digestive system in humans.	• 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 impact of diet, exercise, drugs and lifestyle on the way their bodies function. • Recognise that living

			support, protection and movement.			things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
Animals	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). • Identify and name a variety of common animals that are carnivores, herbivores and omnivores.	• Describe the basic needs of animals, including humans, for survival (water, food and air). • 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 the different sources of food.	• Identify that animals, including humans, need the right types and amounts 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.	• Group living things in a variety of ways • Use classification keys to group a variety of living things in their local and wider environment. • Use classification keys to identify a variety of living things in their local and wider environment. • Use classification keys to name a variety of living things in their local and wider environment. • Interpret a variety of food chains, identifying producers, predators and prey. • Recognise that environments can change and that this can sometimes pose dangers to living things.	• Describe the life process of reproduction in some plants and animals. • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.	• Explain how to classify plants and animals based on specific characteristics. • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. • Classify plants and animals based on specific characteristics.
Plants	• Describe the basic structure of a variety of common flowering plants, including trees. • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	• 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 the different sources of food. • Describe how seeds and bulbs grow into mature plants. • Explain why and how plants need water, light and a suitable temperature to grow and stay healthy.	• Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • Explain 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. • Explain the role that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	• Recognise that environments can change and that this can sometimes pose dangers to living things.	• Describe the life process of reproduction in some plants and animals.	• Explain how to classify plants and animals based on specific characteristics. • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. • Give reasons for classifying plants and animals based on specific characteristics. • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Electricity				● - Identify common appliances that run on electricity. ● ● - Explain the precautions for working safely with 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.		● - Use recognised symbols when representing a simple circuit in a diagram. ● ● - 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.
Materials	● Distinguish between an object and the material from which it is made. ● Describe the simple physical properties of a variety of everyday materials. ● Group together a variety of everyday materials on the basis of their simple properties. ● Identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock.	● Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. ● Explain how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. ● Compare the suitability of a variety of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for	● Compare how things move on different surfaces. ● 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	● 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 differences, similarities or changes related to simple scientific ideas and processes.	● 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. ● Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. ● Know that some materials will dissolve in liquid to form a solution and	

		particular uses.			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. ● 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 of soda.	
Forces			● Compare how things move on different surfaces. ● Recognise that some forces need contact between two objects, but magnetic forces can act at a distance. ● Describe magnets as having two poles. ● Predict whether two magnets will attract or repel each other, depending on which poles are facing. ● Discuss how magnets attract or repel each other and attract some materials and not others.		● 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 ● Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	
Light & Sound			● Explain that they need light in order to see things and that dark is the absence of light. ● Explain how light is reflected from surfaces. ● Explain that shadows are formed when the light from a light source is blocked by a solid object. ● Explain how and why patterns and sizes of shadows change.	● Identify how sounds are made, associating some of them with something vibrating. ● Explain the differences between volume of a sound and the strength of the vibrations that produced it. ● Explain how the pitch of a sound is affected by the object that produced it. ● Recognise that sounds get fainter as the distance from the sound source increases. ● Recognise that vibrations from sounds travel		

				through a medium to the ear.		
Rocks & Space			• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. • Explain that soils are made from rock and organic matter. • Describe in simple terms how fossils are formed when things that have lived are trapped within rock.		• Describe the movement of the Earth and other planets relative to the Sun in the Solar System. • 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. • Describe the movement of the Moon relative to the Earth. • Describe the movement of the Earth and other planets relative to the Sun in the Solar System.	