

Science – Progression of Knowledge and Vocabulary

Plants							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>I know...</i>	<u>3- and 4-year-olds</u> - Plant seeds and care for growing plants. - Understand the key features of the life cycle of a plant and an animal. - Begin to understand the need to respect and care for the natural environment and all living things. <u>Children in Reception</u> - Explore the natural world around them. - Describe what they see, hear and feel while they are outside <u>ELGs</u> - Explore the natural world around them, making observations and drawing pictures of animals and plants.	- A variety of common wild and garden plants, including deciduous and evergreen trees. - The basic structure of a variety of common flowering plants, including trees	- Seeds and bulbs grow into mature plants and observe this happening. - Plants need water, light and a suitable temperature to grow and stay healthy.	- Different parts of flowering plants (roots, stem/trunk, leaves and flowers) have different functions - The requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) vary from plant to plant. - Water is transported within plants and how this happens. - Flowers play a part in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			
<i>Key indicators</i>	- Plant seeds and care for growing plants. - Understand the basic features of a simple plant lifecycle. - Name basic parts of a plant e.g., leaf, petal.	- Name trees and other plants they see regularly. - Describe key features of the trees and plants. - Point out trees which lost their leaves and those who keep	- Describe how plants that have grown from seeds and bulbs have developed over time. - Identify plants that grew well in different conditions.	- Explain the function of the parts of a flowering plant. - Describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal and			

		them all year. • Point to and name parts of a plant.	• Spot similarities and differences between bulbs and seeds. • Nurture seeds and bulbs into mature plants identifying the different requirements of different plants.	germination. • Explain methods of pollination and seed dispersal • Draw and label a diagram of a flowering plant to show its parts and their role and method of pollination and seed dispersal.			
<i>Vocabulary</i>	Plant, leaf, stem, flower, grow, rain, sun, water, soil, seed,	Plant, flower, leaves, stem, roots, seed, bulb, bud, blossom, tree, branch, trunk, evergreen, deciduous	Plant, flower, leaves, stem, roots, seed, bulb, bud, germinate	Plant, germinate, pollination, dispersal, filament, anther, petal, stigma, style, ovary, ovule			

Animals including humans							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>I know...</i>	<u>3- and 4-year-olds</u> • Make healthy choices about food, drink, activity and toothbrushing. • Begin to make sense of their own life-story and family's history. • Begin to understand the key features of the lifecycle of a plant and animal <u>Reception</u> • Know and talk about the different factors that support their overall health and wellbeing: regular physical activity, healthy eating, toothbrushing, sensible amounts of 'screen time', having a good sleep routine, being a safe pedestrian. <u>ELGs</u> • Explore the natural world around them, making observations and drawing pictures of animals. • Manage their own basic hygiene and personal needs, including dressing,	• A variety of common animals including fish, amphibians, reptiles, birds and mammals. • A variety of common animals that are carnivores, herbivores and omnivores. • The structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • The basic parts of the human body and which part of the body is associated with each sense.	• Animals, including humans, have offspring which grow into adults. • The basic needs of animals, including humans, for survival (water, food and air) • The importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	• 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. • Humans and some other animals have skeletons and muscles for support, protection and movement.	• The simple functions of the basic parts of the digestive system in humans. • The different types of teeth in humans and their simple functions. • Food chains can be constructed and interpreted to identify producers, predators and prey.	• The changes as humans develop from birth to old age.	• The impact of diet, exercise, drugs and lifestyle on the way their bodies function. • The main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. • The ways in which nutrients and water are transported within animals, including humans.

	going to the toilet and understanding the importance of healthy food choices.						
<i>Key indicators</i>	- Explore the natural world around them. - Make simple observations about animals and explain why some things occur. - They can explore basic lifecycles of animals.	- Name a range of animals which includes animals from each of the vertebrate groups. - Describe the key features of named animals. - Label key features on a picture or diagram. - Write descriptively about an animal. - Describe what a range of animals eat. - Compare and classify animals.	- Describe how animals change as they get older. - Explain what humans and other animals need to survive. - Describe how to keep clean and healthy. - Show a good understanding of the food plate and understands 'a healthy balanced diet'. - Understands the effect of exercise on the body.	- Name the nutrients found in food and understand that we need to eat the right types of food to give us the correct amount of these nutrients. - Name some bones that make up the skeleton giving examples that support, help them move or provide protection. - Describe how muscles and joints help them to move. - Give similarities and differences between skeletons.	- Sequence and the main parts of the digestive system on a human outline. - Describe what happens in each part of the digestive system. - Demonstrate journey of food through body. - Point to three different types of teeth in their mouth and talk about what each is used for. - Can explain teeth in animals and if they are carnivores, herbivores or omnivores.	- Explain the changes that takes place in boys and girls during puberty. - Explain how a baby changes physically as it grows and what it is able to do.	- Draw a diagram of the circulatory system, label the parts and annotate it to show what the parts do. - Explain the positive and negative effects on diet, exercise, drugs and lifestyle on the body.
<i>Vocabulary</i>	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, heart,	Carnivore, omnivore, herbivore, amphibian, reptile, bird, mammal, fish, insect, minibeast, vertebrate, ears, head, eyes, nose, hands, skin, mouth, sweet, sour, bitter, salty	Carnivore, omnivore, herbivore, offspring, lifecycle, diet, exercise, hygiene, germ, medicine, reproduce.	Vertebrate, bones, skeleton, spine, muscle, healthy, spine, muscle, healthy, exercise, balanced diet	Digestive system, organ, oesophagus, stomach, intestine, rectum, incisor, canine, premolar, molar, producer, consumer, predator, prey, carnivore, herbivore, omnivore	Lifecycle, mammal, gestation period, foetus, puberty, reproduction	Heart, blood vessels, blood, veins, arteries, capillaries, oxygen, lungs, carbon dioxide

Living Things and their Habitats (Including Evolution and Inheritance)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>I know...</i>	<u>3- and 4-year-olds</u> - Understand the key features of the life cycle of a plant and an animal. - Explain similarities and differences between life in this country and other countries, drawing on knowledge from stories, non-fiction texts and maps. - Begin to understand the need to respect and care for the natural environment and all living things. <u>Reception</u> - Explore the natural world around them. - Describe what they see, hear and feel while they are outside. - Recognise different environments to the one in which they live. <u>ELGs</u> - Explore the natural world around them, making observations and drawing pictures of animals & plants. - Know similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.	- A variety of common animals including fish, amphibians, reptiles, birds and mammals. - A variety of common animals that are carnivores, herbivores and omnivores. - The structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) <i>Animals Including Humans</i>	- The differences between things that are living, dead, and things that have never been alive. - Most living things live in habitats to which they are suited and how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other - A variety of plants and animals in their habitats, including microhabitats - How animals obtain their food from plants and other animals, using the idea of a simple food chain, and different sources of food.		- Living things can be grouped in a variety of ways. - How to use classification keys to group, identify and name a variety of living things in the local environment. - Environments can change and that this can sometimes pose dangers to living things.	- The differences in the lifecycles of a mammal, an amphibian, an insect and a bird. - The life processes of reproduction in some plants and animals.	- Living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. - Reasons for classifying plants and animals based on specific characteristics
			- Animals, including humans, have offspring which grow into adults. <i>Animals Including Humans</i> - Most living things live in habitats to which they are suited and how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other <i>Living Things and their Habitats</i>	How fossils are formed when things that have lived are trapped within a rock. <i>Rocks and Soils</i>	- Environments can change and that this can sometimes pose dangers to living things. <i>Living Things and Their Habitats</i>		- Living things produce offspring of the same kind that vary and aren't identical to their parents. - Animals and plants are adapted to suit their environment and adaptation may lead to evolution. - Living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

Key indicators	- Explore the natural world and make observations. - Recognise animal habitats. - Understand how to look after animals and the environment including habitats. - Begin to explore where they live and compare to other places in the world e.g., weather, climate.		- Find a range of items which are dead, living or never alive. - Name plants or animals which live in different habitats and micro habitats. - Talk about the features of an animal or plant and how they are suited to the habitat. - Talk about what an animal eats. - Construct a food chain.		- Name living things in a range of habitats, giving key features that helped identify them. - Give examples of how an environment may change both naturally and due to human impact. - Use classification keys to identify unknown plants and animals.	- Describe the lifecycles of mammals, amphibians and insects using diagrams. - Describe similarities and differences between life cycles.	- Give examples of animals in the five vertebrate groups and some of the invertebrate groups. - Give characteristics of the five vertebrate groups and some invertebrate groups. - Give examples of flowering and non-flowering plants. - Use classification keys to identify unknown plants and animals. - Create classification keys. - Give characteristics that explain why an animal belongs to a particular group.
Vocabulary			Habitat, biome, microhabitat, living, dead, never alive, life process, food chain, organism, food source		Classification, vertebrate, invertebrate, cold-blooded, warm-blooded, exoskeleton, creature, habitat, hibernate, migrate, amphibian, reptile, mammal, fish, bird, endangered	Life cycle, fertilises, reproduce, sexual reproduction, asexual reproduction, live young, metamorphosis, gestation, runners, bulbs, cuttings, plantlets	- Explain the process of evolution. - Give examples of how plants and animals are suited to their environment - Give examples of how an animal or plant has evolved over time. - Give examples of things that lived millions of years ago and the fossil evidence to support this.
							- Organism, microorganism, fungus, bacteria, virus, fish, amphibian, insect, reptile, bird, arachnid, mollusc, vertebrate, invertebrate, classification - Offspring, adapted, survival, environment, evolution, variance, inherited, genetics, characteristics, species

Materials (Including Rocks & Soils and States of Matter)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>I know...</i>	<u>3- and 4-year-olds</u> - Use all their senses in hands-on exploration of natural materials. - Explore collections of materials with similar and/or different properties - Talk about the differences between materials and changes they notice. <u>Reception</u> - Explore the natural world around them. - Describe what they see, hear and feel while they are outside. <u>ELGs</u> - Understand some important processes and changes in the natural world around them, including changing states of matter.	- The difference between an object and the material from which it is made. - A variety of everyday materials, including wood, plastic, glass, metal, water, and rock. - The simple physical properties of a variety of everyday materials. - Everyday materials can be compared and grouped together based on their simple physical properties.	- The suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. - How the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	<u>Rocks and Soils</u> - Different kinds of rocks can be compared and grouped together on the basis of their appearance and simple physical properties. - How fossils are formed when things that have lived are trapped within a rock. - Soils are made from rocks and organic matter	<u>States of Matter</u> - Materials can be compared or grouped together based on whether they are solids, liquids or gases. - Some materials change state when they are heated or cooled, and the temperature at which this happens in degrees Celsius - The part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	- Materials can be compared and grouped together based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets. - Some materials will dissolve in liquid to form a solution, and how to recover a substance from a solution. - How knowledge of solids, liquids gases help decide how mixtures might be separated, including through filtering, sieving and evaporating. - The reasons for the particular uses of everyday materials, including metals wood and plastic. - That dissolving, mixing and changes of state are reversible changes. - Some changes result in the formation of new materials and this kind of change is not usually	

						reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
<i>Key indicators</i>	• Talk about simple similarities and differences between two materials and how materials change in terms of shape, size and texture. • Describe materials using basic scientific words. • Explore how things work. • Group and classify materials using their properties.	• Label a picture or diagram of an object made from different materials. • Describe the properties of materials. • Sort materials using their properties.	• Name an object, say what material it is made from, identify properties and make a link between property and use. • Describe the actions used to change the shape of an object.	• Name some types of rock and give physical features of each. • Explain how a fossil is formed. • Explain that soils are made from rocks and contain living/dead matter. • Classify rocks in a range of ways using scientific vocabulary. • Test properties of rocks.	• Name properties of solids, liquids and gases. • Give everyday examples of melting and freezing and how their melting points vary. • Explain what affects how quickly a solid melts. • Give everyday examples of evaporation and condensation and explain how to speed up or slow down evaporation. • Describe the water cycle. • Give reasons to justify why something is a solid liquid or gas.	• Explain everyday uses of material and suggest appropriate material for a purpose. • Explain what dissolving is, giving examples. • Name equipment used for filtering and sieving. • Use knowledge of liquids, gases and solids to suggest how materials can be recovered from solutions or mixtures by evaporation, filtering or sieving. • Describe simple reversible and non-reversible changes to materials, giving examples.	
<i>Vocabulary</i>	Wet, dry, shiny, dull, bendy, stiff, squashy, hard/soft, lumpy, wrinkly. Smooth, rough.	Hard, soft, stretchy, brittle, shiny, dull, squashy, rough, smooth, bendy, waterproof, absorbent, transparent, opaque, wood, metal, plastic, glass, rock, water	Materials, suitability, properties, waterproof, shock absorbent, reflective, squash, bend, twist, stretch, push, pull, squeeze, wood, brick, plastic, metal, glass, paper, cardboard, fabric, rubber, stone	Magma, lava, sediment, permeable, impermeable, durable, acidity, fossil, soil, igneous, sedimentary, metamorphic	Matter, particles, solid, gas, liquid, evaporation, condensation, temperature, Celsius, melting, freezing	Solid, liquid, gas, soluble, conductor, filtering, evaporation, condensation, reversible, irreversible, sieving, filtering, evaporation, boiling, condensation, distillation, solution, solvent	

Forces (Including Seasonal Changes and Earth and Space)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>I know...</i>	3- and 4-year-olds - Explore and talk about different forces they can feel. Reception - Explore the natural world around them. - Describe what they see, hear and feel while they are outside.	<u>Seasonal Changes</u> - Changes across the four seasons. - Weather associated with the seasons and how day length varies. The simple physical properties of a variety of everyday materials. <i>(Materials)</i>	The suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for uses. <i>(Materials)</i>	- How things move on different surfaces - Some forces need contact between two objects, but magnetic forces can act at a distance. - How magnets attract or repel each other and attract some materials and not others. - Everyday materials can be compared or grouped together on the basis of whether they are attracted to a magnet and identify some magnetic materials. - Magnets have two poles. - Two magnets will attract or repel each other, depending on which poles are facing.		- Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - The effects of air resistance, water resistance and friction that act between moving surfaces. - Some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Earth and Space - The movement of the Earth and other planets, relative to the sun in the solar system. - The movement of the moon relative to the Earth. - The Sun, Earth and Moon are approximately spherical bodies. - Earth rotation explains day and night due to the apparent movement of the sun across the sky.	
<i>Key indicators</i>	Play with a range of toys of varying sizes made of different materials and fit	Name four seasons and identify when in the year they occur.		Give examples of forces in everyday life.		Demonstrate the effect of gravity acting on an unsupported object.	

	them together in different ways such as twisting, pushing, slotting or magnetism. Manipulate playdough in different ways.	- Observe and describe weather in different seasons. - Describe days as being longer in summer and shorter in winter.		- Use results to describe how objects move on different surfaces. Name a range of magnets and show how the poles attract and repel. - Draw diagrams using arrows to show the attraction and repulsion between the poles of magnets. - Know some metals are not magnetic.		- Give examples of friction, water resistance and air resistance. - Give examples of when it is beneficial to have high or low friction, water resistance, and air resistance. - Demonstrate how pulleys, levers and gears work.	
	- Describe the weather outside and suggest what they might wear and what they might see. - Comment on the environment e.g., the leaves have fallen off the tree, there is a puddle. - Understand the effect of changing seasons on the natural world around them.					- Show using diagrams the movement of the Earth and moon. - Explain the rotation of the Earth and how this causes night and day. - Explain evidence gathered about the position of shadows in terms of movement of the Earth.	
Key Vocabulary	Push, pull, twist, stretch, turn, open, lift, squeeze, pinch, flick, tap.	Weather, sunny, rainy, windy, snowy, seasons, winter, summer, spring, autumn, sun, sunrise, sunset, day length		Force, push, pull, contact force, non-contact force, attract, repel, poles, magnetism, friction, magnet		Forces, gravity, mass, gravitational pull, weight, resistance, friction, gear, lever, pulley	
	Snow, wind, rain, sun, day, night, stormy, cloudy, hot, cold, foggy				Planets, celestial, spherical, solar system, rotates, axis, galaxy, hemisphere, orbit, lunar, revolve		

Energy (Including Light, Sound and Electricity)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<i>I know...</i>	0-3 Explore materials with different properties. 3- and 4-year-olds Play instruments with increasing control to express their feelings and ideas. ELGs Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture form and function.	- The simple physical properties of a variety of everyday materials. <i>(Materials)</i> - Everyday materials can be compared and grouped together based on their simple physical properties. <i>(Materials)</i> - The basic parts of the human body and which part of the body is associated with each sense. <i>(Animals Including Humans)</i>	- The suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. <i>(Materials)</i> - How the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <i>(Materials)</i>	- We need light in order to see things and that dark is the absence of light. - Light is reflected from surfaces. - Light from the sun can be dangerous and that there are ways to protect our eyes. - Shadows are formed when the light source is blocked by a solid object. - Patterns in the way the size of the shadows change	- How sounds are made, associating some of them with something vibrating. - Vibrations from sounds travel through a medium to the ear. - Patterns between pitch of a sound and features of the object that produced it. - Patterns between volume of a sound and the strength of the vibrations that produced it. - Sound gets fainter as the distance from the sound source increases. - Common appliances that run on electricity. - A simple series electrical circuit consists of cells, wires, bulbs, switches and buzzers. - Whether or not a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery - A switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. - Some common conductors and insulators, and associate metals with being good conductors.	- Materials can be compared and grouped together based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets. <i>(Materials)</i> - Earth rotation explains day and night due to the apparent movement of the sun across the sky. <i>(Earth & Space)</i>	- Light travels in straight lines. - Objects are seen because they give out or reflect light into the eye. - We see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. - Shadows have the same shape as the object that casts them. - The brightness of a lamp or the volume of a buzzer is associated with the number and voltage of cells used in the circuit. - How components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. - Recognised symbols when representing a simple circuit in a diagram.

<i>Key Indicators</i>	different noises with musical instruments and express using different terms such as loud, quiet, beat, vibrate. • Show skills in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movement or new images.			describe dark as the absence of light. • Know it is dangerous to look at the sun. • Define transparent, translucent and opaque. • Describe how shadows are formed.	• Describe different types of objects producing different sounds and that the sound is produced by vibration in the object. • Describe sounds travelling through different mediums such as air, water, metal. • Recognise that sounds get fainter as the distance from the sound source increases. • Explain what happens when you strike a drum or pluck a string. • Demonstrates how to increase/decrease pitch and volume.		• Can describe with diagrams how light travels in straight lines, either from sources or reflected from other objects into our eyes. Can describe with diagrams how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape.
<i>Vocabulary</i>	Smell, sound, sight, see, look,			Light, Source, Dark, Transparent, Translucent, Opaque, Shiny, Matt, Shadow, Reflect	Vibration, Sound waves, Source, Volume, Amplitude, Pitch, Ear, Soundproof, Eardrum, Sound Electricity, Circuit, Bulb, Mains, Plug, Buzzer, Wire, Motor, Cell, Battery, Conductor, Insulator, Current, Appliance		Explain how a circuit operates to achieve operations, such as control a light with different brightnesses or make a motor go faster or slower • Make circuits to solve problems such as a quiet and a loud burglar alarm. Light, Source, Reflection, Visible, Spectrum, Prism, Shadow, Opaque, Translucent, Transparent, Refraction Circuit, Symbol, Cell, Battery, Current, Amps, Voltage, Resistance, Electrons