Science Progression of knowledge and Skills

Working Scientifically

		Reception	Year 1	Year 2
Working Scientifically		Ask questions. Answer questions Observe and describe. Identify and sort	Question, answer, observe, observing, equipment, identify, sort, group, compare, differences, similarities, describe, measurements, test, results, secondary sources. **record** – diagram, chart	

Scientific Enquiry

Questioning	Reception	Year 1	Year 2
	Ask simple questions about immediate environment. Demonstrate curiosity about the world and objects around them.	Exploring the world around them and raising their own simple questions. • Recognising there are different types of enquiry (ways to answer a question). • Responding to suggestions of how to answer their questions.	

Scientific Enquiry	**Observe**	**Qualitative** Talk about similarities and differences With support, using their senses to explore the world around them,	**Qualitative and Simple Quantitative** Observe change over time. Use Senses/ equipment. Using their senses to describe, in simple terms, what they notice or what has changed.	**Qualitative and Simple Quantitative** • Measure change **over** time e.g. plant growth. Select equipment. • Using their senses to describe, in simple terms, what they notice or what has changed.
			• Using non-standard units to measure and compare. • Beginning to use standard units to measure and compare. • Beginning to use simple measuring equipment to make approximate measurements. Reading simple numbered scales	
	Classify and Classifying	**Talk and Sort** Use simple scientific criteria.	**Identify and Classify** e.g. familiar plants, animals, materials Grouping based on visible characteristics. Compare and contrast	**Identify and Classify** e.g. living/ dead/ never alive; materials Compare Differences Organising questions to create a simple classification key.
	comparative and fair testing	**Explore** objects/ materials/ living things/ resources designed to model scientific processes.	**Simple comparative tests** e.g. What is the best material for an umbrella?	**Simple comparative tests** e.g. What if plants do not get light and water?
	Predicting & Research	**Listen and respond to stories** about scientific processes/ events/ objects. Adult led research. With support and prompting talk about what they think might happen based on their own experience.	Gathering specific information from one simplified, specified source. Suggesting what might happen, often justifying with personal experience.	**Select information** from a range of given sources. Suggesting what might happen, often justifying with personal experience

	Recordings	**Concrete** context. Create drawings and models of their environment.	**Concrete** context Drawing and labelling simple diagrams.	**Explore** and **create** Drawing and labelling simple diagrams. Drawings and physical models e.g. *habitats.*
	Anaylising and Concluding **Evaluating**	**Explain** simple phenomena: How? Why? With support, explain why somethings occur.	**Describe** what has happened or been observed. Using their results to answer simple questions. Beginning to recognise when results or observations do not match their predictions. Beginning to recognise whether a test is fair or not.	**Explain** why a simple observation occurred. **Evaluate** the effectiveness of observations. Using their results to answer simple questions. Beginning to recognise when results or observations do not match their predictions. Beginning to recognise whether a test is fair or not.

Animals including Humans				
Animals including Humans		**Reception**	**Year 1**	**Year 2**
	Animal/ Human Growth	To know the features of some animals, make observations, and draw pictures of animals. To know the names of some animals and use the appropriate language to describe what they look, hear and feel like. To understand some important processes and changes in the natural world around them, including	To know a variety of common animals (including fish, amphibians, reptiles, birds and mammals)	To understand how living things change, and that animals have offspring that grow into adults. To know which offspring comes from which parent animal. To know the stages in some animal life cycles.

	Animal/Human Structure and function	the seasons and the effect they have on the natural world To understand the key features of the life cycle of an animal and use appropriate to describe them. To know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - tooth brushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian	To know the main body parts of common animals (arms, legs, wings, tails, fins, head, trunk, horns/tusks, shell) To know key parts of the human body (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth). To know the five main senses: sight, smell, hearing, taste and touch To know that eyes are used for sight, the nose is used for smell, ears are used for hearing, the tongue and mouth are used for taste and the skin is used for touch.	
	Health and nutrition		To know that a carnivore is an animal that eats other animals and to give some examples. To know that a herbivore is an animal that eats only plants and to give some examples. To know that an omnivore is an animal that eats both animals and plants, and to give some examples	To know that animals, including humans, need water, food and air to survive. To understand the importance of exercise, a balanced diet and hygiene for humans

	Vocabulary	Human, animal, fish, bird, head, ear, eye, mouth, nose, face, hair, leg, knee, arm, elbow, back, toes, hands, fingers, Animal names – farm animals including babies, wild animals – tiger, lion, elephant, , sea creatures – fish, shark, whale etc	Amphibians, fish, reptiles, mammals, birds. Herbivore, omnivore, carnivore. Head, nose, ear, neck, shoulder, arm, elbow, wrist, hand, back, chest, hip, leg, knee, ankle, foot. Wing, beak, tail, fin. Sight, smell, touch, taste, hearing Sweet, sour, bitter, salty, loud. Quiet, volume, loud.	Survival, water, air, food. Reproduce, adult, baby, offspring, kitten, calf, puppy. Food chain, prey, predator, camouflage, protection. Exercise, hygiene, balanced diet.
Living things and their habitats				
		Reception	**Year 1**	**Year 2**
Living things and their habitats	**Characteristics of living things**	To know some environments that are different to the one in which they live. To know some similarities and differences between the natural world around them and contrasting environments.		To begin to understand some of the life processes, including movement, reproduction, sensitivity, growth, excretion and nutrition. To know the difference between things that are living, dead, and things that have never been alive
	Variation and inheritance			To know a variety of plants and animals and describe some differences

				To name a variety of habitats, including woodland, ocean, rainforest and seashore. To know that a habitat is the environment where an animal or plant lives/ grows, because it provides what they need to survive. To know that a microhabitat is a very small habitat (e.g. stones, logs and leaf litter) To know that living things depend upon each other (e.g. for food, shelter.) To understand that a food chain can be used to show how animals obtain food from eating either plants and/or other animals.
	Habitats		To name a variety of habitats- pond, woodland (Part of school environment)	
	Vocabulary	Animals habitats - Garden, wood, desert, jungle, polar, sea, pond, woodland.	Life cycle, pond, living (Introduced in year 1 to engage with school pond)	Living things & their habitats Living, dead, habitat, microhabitat, woodland, meadow, hedgerow, pond alive, camouflage, carnivore, classify, coastal, dead, depend, diet, energy, excretion, food chain, growth, habitat, herbivore, life process, mammal, movement, nutrition, ocean,

				omnivore, prey, rainforest, sensitivity, shelter, woodland.
Materials				
		Reception	**Year 1**	**Year 2**
Materials	**Identifying and naming**	To know how to describe what materials they see, hear, and feel. To identify and describe some natural processes and changes including freezing and melting, floating and sinking, sound, light and creating shadows, and magnets.	To know that objects are items or things. To know that a material is what an object is made from. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Properties and uses.	
	Properties and uses		To know that property refers to how a material can be described. To describe the physical properties of a variety of everyday materials. To understand that materials can be grouped based on their physical properties	To know why objects are made from materials and to give examples of their suitability. To know that one material can be used for a range of purposes (and to give examples.) To know that different materials can be used for the same purpose (and to give examples.) To know why certain materials are unsuitable for particular objects. Change

	Change			To know that a force must be applied to change the shape of a solid object. To know that solid objects can be squashed, bent, twisted or stretched To know that different solid objects may take a different amount of force to change shape
	Vocabulary	Object, material, float, sink, melting, freezing, light, dark, magnet, attract, repel, loud, quiet, push, pull, soft, shiny, rough, smooth	**Everyday materials** wood, plastic, glass, paper, metal, rock. Hard, soft, rough, smooth, shiny, dull, bendy, stiff	**Everyday materials and their uses** Brick, fabric, elastic, foil. Property, solid, waterproof, absorbent, opaque, transparent, squash, bend, flexible, twist, stretch push, pull, roll, slide, bounce. Bend, fabric, flexible, glass, material, metal, object, plastic, property, pull, push, record, rock, squash, suitable, wood.

Plants				
Plants		**Reception**	**Year 1**	**Year 2**
	Plant structure and function	To know how to explore the natural world and how to care for it. To know the features of some plants, make observations, and draw pictures of plants. To know the names of some plants and use the appropriate language to describe what they look, smell and feel like.	To know a variety of common plants, and how they differ. To know that deciduous trees lose their leaves seasonally, but evergreen trees do not. To know the basic structure (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem) of a variety of common plants, including flowering plants and trees.	
	Plant growth and needs		To begin to understand how plants grow and change over time.	To know that seeds and bulbs grow into seedlings by producing roots and shoots. To know that seedlings grow into mature plants by developing parts, that may include stems/trunks, leaves, flowers and fruits. To know that seeds need water to germinate. To know that plants need water, light and a suitable temperature for growth and health.

	Vocabulary	Grow, lifecycle, roots, stem, buds, leaves, flower, bulb, water, light, soil, compost, tree, trunk, branch	Deciduous, evergreen, tree, leaf, flower (blossom), petals, fruit, bulb, seed, roots, stem, trunk, branches, lifecycle.	Growth, germinate, light, temperature, lifecycle.
Seasonal Changes	**Seasonal Changes**			
	Observations & facts **(Forces of nature)**	To know how to describe what they see, hear and feel while they are outside. To understand the effect of changing seasons on the natural world around them. To understand some important processes and changes in the natural world around them, including the seasons	To know the name and order of the four seasons; spring, summer, autumn and winter. To know that it is unsafe to look directly at the Sun. To know weather associated with the four seasons and how it changes (in the UK). To understand that day length varies across the four seasons, with fewer daylight hours in the winter and more in the summer.	
	Vocabulary	Spring, summer, autumn, winter, dark, light, day, night, sun, rain, wind, hot, cold.	**Seasonal change** season, spring, summer, autumn, winter, month, year, day, night, sun, moon, light, dark, weather, symbol, deciduous tree, evergreen tree, temperature, sunrise, sunset, thermometer.	