

Progression of Substantive Knowledge in Science

Progression of knowledge	Nursery	EYFS	Y1	Y2	Y3	End of KS1 Assessment Framework statements
	I know and...	I know and...	I know and...	I know and...		
Plants	Understand 'why' questions like: 'Why do you think the caterpillar got so fat?' Can use all my senses in hands-on exploration of natural materials. Can explore how things work. Plant seeds and care for growing plants. Understand key features of a life cycle of a plant and an animal.	understand the key features of the life cycle of a plant and an animal. understand the effect of the changing seasons on the natural world around me. about similarities and differences in relation to places, objects, materials and living things.	Can Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen. Can describe the basic structure of a variety of common plants including roots, stem, leaves and flowers.	Can observe and describe how seeds and bulbs grow into mature plants. Can describe how plants need water, light and the right temperature to grow and stay healthy.	•Identify and describe 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.	• Name different plants and animals. • Describe how plants and animals are suited to different habitats • Describe the basic needs of plants for survival and the impact of changing these. • Describe the main changes as seeds and bulbs grow into mature plants.
Animals, including humans	can make healthy choices about food, drink, activity and toothbrushing.	understand the key features of the life cycle of a plant and an	can identify and name common animals including fish, amphibians, reptiles, birds and mammals.	can understand that animals, including humans, have offspring (babies) which grow into adults.	•Identify that animals, including humans, need the right types	• Group animals according to what they eat.

	can begin to understand the need to respect and care for the natural environment. can explore collections of materials with similar/different properties. understand key features of a life cycle of a plant and an animal.	animal. understand the effect of the changing seasons on the natural world around me. I know about similarities and differences in relation to places, objects, materials and living things. Understand about similarities and differences in relation to places, objects, materials and living things.	can identify and name common animals that are carnivores, herbivores and omnivores. can describe and compare the structure of common animals (fish, amphibians, reptiles, birds and mammals, including pets) by how they look and how they move. can Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	can understand and describe the basic needs of animals, including humans, for survival (water, food and air). can describe the importance of exercise, eating the right amounts of different types of food, and hygiene (being clean).	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.	• Name different plants and animals. • Describe how different plants and animals are suited to different habitats. • Name and locate parts of the human body, including those related to the senses. • Describe the importance of exercise, a balanced diet and hygiene for humans. • Describe the basic needs of animals for survival. • Describe the main changes as young animals, including humans, grow into adults. • Describe and compare the observable features of
--	--	--	--	--	---	---

						animals from a range of groups.
Everyday Materials and their uses	can talk about the differences between materials and changes they notice	can understand the effect of the changing seasons on the natural world around me. can describe similarities and differences in relation to places, objects, materials and living things.	can understand the difference between an object and the material from which it is made. can identify and name everyday materials, including wood, plastic, glass, metal, water, and rock. can describe the simple physical properties of a variety of everyday materials. can compare and group together a variety of everyday materials on the basis of their simple physical properties.	can identify and compare how different materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard are used because of their properties. can describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		• Distinguish objects from materials • Describe the properties of materials. • Identify and group everyday materials. • Compare the suitability of everyday materials for different uses.
Seasonal Change	can talk about what they see, using a wide vocabulary. Understand 'why' questions.	can understand the effect of the changing seasons on the natural world around me.	can observe changes across the four seasons. can observe and describe the weather within the seasons and how the length of the day's change.			• Describe seasonal changes

Living Things and their Habitats	can begin to understand the need to respect and care for the natural environment.	talk about similarities and differences in relation to places, objects, materials and living things.		can explore and compare the differences between things that are living, dead, and things that have never been alive. can 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 (including mini-beast habitats in school). can identify and name different plants and animals in their habitats, including micro-habitats (including mammals, birds, mini-beasts). can describe how animals get their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food		• Identify whether things are alive, dead or have never lived. • Describe how animals get their food from other animals and/or from plants and use simple food chains to describe these relationships. • Name different plants and animals and describe how they are suited to different habitats
---	--	---	--	--	--	---

				(including humans, other mammals, birds, mini-beasts).		
Vocabulary	Bulbs, seeds, plants, flowers, soil, cress, Autumn, Winter, Spring, Summer, trees, leaves, conkers, season, body, head, eyes, mouth, ears, nose, arms, legs, hands, feet, tummy, fingers, toes, hair, baby, toddler, child, adult, materials, float, sink, strong, bend, twist, bumpy, shiny, dull, water, ice, melt, freeze, hot, cold, Earth, Sun, Moon, Stars, planet, habitat, sea, woodland, forest, ocean, desert, African animals, caterpillar, ladybird, beetle, fly, wasp, bee, woodlouse, minibeast, cow, pig, chicken, duck, horse, goat, donkey ,cat, dog, calf, piglet, chick, duckling, foal, kitten, puppy, magnets.	Leaf, flower, blossom, petals, fruit, berry, roots, seed, buds, bulb, trunk, branches, stem, evergreen, deciduous, garden plants, wild plants Amphibians, birds, fish, mammals, reptiles, carnivores, herbivore, omnivore, feathers, scales, fur, beak, tail, wing, claw, fin, paws, hooves, teeth, mouth senses, sight, hearing, touch, taste, smell, head, body, neck, ear, mouth, shoulder, hand, fingers, leg, foot, thumb, eye, nose, knee, toes, teeth, elbow, skin, tongue Seasons, spring, summer, autumn, winter, weather, windy, sunny, overcast, snowy, rain, temperature, sun, sunrise, sunset, day length	Observation, grow, compare, record, seedling, shoots, light, shade, sun, warm, cool, water, space, healthy, bulb, germinate, life-cycle Living, dead, never alive, alive, suited, suitable, basic needs, habitats, micro-habitats, food, water, air, survive, survival, food chain, shelter, woodland, conditions, desert, damp, shade, sunny, wet, dry, hot, cold. Offspring, reproduce, growth, toddler, baby, child, teenager, adult, old person, names of babies (eg chick/hen, kitten/cat), survive, survival, water, food, exercise, heartbeat, breathing, hygiene, germs, disease, food types (eg meat, fish, vegetables, bread, pasta, dairy)	Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower. Photosynthesis Energy Growth Carbon dioxide, Oxygen Sugar material, nutrients, nutrition, carbohydrates, protein, fats, vitamins, minerals, water, fibre, skeleton, bones, joints, endoskeleton, exoskeleton, hydrostatic skeleton, vertebrates, invertebrates, muscles, contract, relax,		

		Object, material, wood, plastic, glass, metal, rubber, wool, clay, card/cardboard, paper, fabric, brick, rock, elastic, foil, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, floppy waterproof/not waterproof, absorbent, see-through, not see-through (opaque)	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard. Properties of materials as Year 1 plus opaque, transparent, translucent, reflective, non-reflective, flexible, rigid. Shape, push/pushing, pul/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching		
--	--	---	---	--	--