Science Progression Grid

Key skills and Knowledge – Sticky Knowledge

Creswell C of E
Infant and Nursery School

	F1	F2	Y1	Y2
Knowledge **Animals, including humans** **Living things and their habitats (Y2)**	Begin to understand the need to respect and care for all living things. Understand the concepts of growth and change. Understand the key features of the life cycle of an animal.	Know the names of some animals and use the appropriate language to describe what they look, hear and feel like. Know the features of some of these animals and how to draw pictures of them. Understand the effect of the changing seasons on the natural world around them e.g. how animals behave differently as the seasons change.	Identify and name a variety of common animals that are fish, amphibians, reptiles, birds, mammals and invertebrates. Know how to describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Identify which common animals are carnivores, herbivores and omnivores. Know how to take care of animals taken from their local environment and the need to return them safely after study. Know how to identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Know the names of a variety of animals in their habitats, including micro-habitats. 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. Know that animals, including humans, have offspring which grow into adults Know 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. Know the differences between things that are living, dead, and things that have never been alive. Know the basic needs of animals, including humans, for survival (water, food and air) Know the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Plants	Begin to understand the need to respect and care for the natural environment. Understand the concepts of growth, change and decay with natural materials. Understand the key features of the life cycle of a plant. Know how to plant seeds and care for growing plants.	Know how to explore the natural world and how to care for it. Know how to describe what plants they see, hear and feel. Know how to draw pictures of the natural world, including plants.	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 roots, stem,/trunk, leaves and flowers. Know about plants that are growing in their local environment and about the growth of flowers and vegetables they have planted.	Know how seeds and bulbs grow into mature plants. Know the names of a variety of plants in their habitats, including micro-habitats Know about the different plants that grow in their local environment throughout the year. Know how plants need water, light and a suitable temperature to grow and stay healthy. Know about the germination, growth, survival of plants including the process of reproduction i.e. that seeds and bulbs need water to grow but most do not need light.
Seasonal Changes	Know how to describe their observations of the weather and seasonal changes when exploring outdoors.	Understand the effect of changing seasons on the natural world around them e.g. weather, seasonal features	Know how to observe changes across the four seasons, including how to do this safely (not looking directly at the sun). Know how to observe and describe weather associated with the seasons and understand how day length varies.	
Everyday materials and their uses	Know how to describe collections of materials with similar and/or different properties. Know how things work and talk about different forces they can feel. Know about the differences between materials and changes they notice.	Know how to describe what materials they see, hear and feel. Identify and describe some natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.	Know how to 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, and rock. Know the simple physical properties of a variety of everyday materials Know how to compare and group together a variety of everyday materials on the basis of their simple physical properties.	Know the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Know how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Skills	**Ask questions** Demonstrate curiosity about the world around them. **Make predictions** With support & prompting talk about what they think might happen based on their own experiences. **Decide how to carry out an enquiry** Respond to prompts to say what happened to objects, living things or events. **Make measurements** Use senses and simple equipment to explore the world around them, e.g. binoculars, magnifying glasses and magnets. **Record data** Begin to record their ideas e.g. Contribute to a drawing, photograph or labels modelled by an adult. **Present data** With support & prompting talk to an adult about what has been found/found out.	**Ask questions** Demonstrate curiosity about the world around them. **Make predictions** With support & prompting talk about what they think might happen based on their own experiences. **Decide how to carry out an enquiry** Perform simple tests to explore a question or idea suggested to them, with support. **Make measurements** Observe objects, living things, events and the world around them closely, using their senses and simple equipment. With support, begin to make measurements using non-standard units of measure. **Record data** Begin to record their ideas e.g. draw or photograph evidence and label with support. **Present data** Talk to an adult about what has been found/found out. **Answer questions using data** With support, explain why some things occur. **Draw conclusions**	**Ask questions** Ask simple questions stimulated by their exploration of their world. **Make predictions** Respond to suggestions to connect what has been observed with possible further actions or observations. **Decide how to carry out an enquiry** Perform simple tests to explore a question or idea suggested to them. **Make measurements** Observe (objects, living things, events and the world around them) closely, using their senses and simple equipment. Make measurements using non-standard units of measure. **Record data** Present findings in simple templates provided for them or orally. Draw or photograph evidence and label. **Present data** Use simple templates provided to help them answer questions. **Answer questions using data** Respond to suggestions to connect what has been observed with possible further actions or observations. **Draw conclusions** Use their ideas to suggest answers to questions. Say what has changed when observing objects, living things or events.	**Ask questions** Ask simple questions and recognise that they can be answered in a variety of ways. **Make predictions** Use their observations and ideas to make predictions. Use understanding of what has been observed or own experience to predict outcomes of further actions or observations. **Decide how to carry out an enquiry** Identify things to measure or observe that are relevant to the questions or ideas they are investigating using a simple test. Suggest a practical way of how to find things out, or collect data to answer a question or idea they are investigating **Make measurements** Observe closely and use equipment provided for observation and measuring correctly. Make measurements using non-standard and standard units of measure. **Record data** Record findings as drawings, photographs, labelled diagrams, orally, as displays or in simple prepared tables or charts. **Present data** Gather and record data in appropriate ways with increasing independence to help in answering questions. **Answer questions using data** Use understanding of what has been observed or own experience/ideas to answer questions.

	Answer questions using data With support, begin to explain why some things occur. **Draw conclusions** With support, talk about what they have found out or what they think might happen next.	With support, talk about what they have found out or what they think might happen next/ change based on their own experiences.		**Draw conclusions** Respond to suggestions to identify some evidence needed to answer a question.
Vocabulary	**Natural world** Natural, grow, change, decay, **Animals** Life-cycle hen, chick, egg, baby **Plants** Bark, leaves, seeds, rocks, pebbles, shells, **Materials and Processes** Object, material, Properties - Waterproof, strong/weak, dense/less dense, hard/soft. Materials - Bubble wrap, foil, plastic, fabric, paper, straw, sticks, bricks, metal, glass. Magnifying glass, binoculars, magnet, Sink, float, push, pull, stretch, bend, snap, Cooking, cooling, heating, melting, Light, dark, shadows, I wonder if…	**Natural world** Natural, wild, wildlife, native. **Animals** Body parts e.g. backbone, skeleton, soft body, shell. Predator, prey. Nocturnal. Adult/parent, baby. Lifecycle - Egg, caterpillar, pupa, butterfly. Birds (owl, duck), insects/bugs/ minibeasts (e.g. ladybird, woodlouse, bee, wasp, spider, tarantula, earthworm, snail, locust, cricket, millipede, butterfly, caterpillar), fish, reptiles (snake, tortoise, gecko), amphibians, mammals (mouse, shrew, vole, hare, fox). **Plants** Grow , Lifecycle - roots, shoots, stem, leaves, buds, flower Water, light, warmth, temperature, soil, compost British Autumn fruits and vegetables (e.g. apples, pears, beetroot, carrots, potatoes,	**Animals, including humans** Examples of mammals, fish, reptiles, birds and amphibians (pets) Carnivore, herbivore, omnivore. Head, neck, arms, elbows, legs, knees, face, ears, nose, eyes, hair, mouth, teeth, hands, sense, seeing, hearing, touching tasting, smelling. **Plants** Deciduous and evergreen trees and examples of these common to Britain (e.g. oak, ash, sycamore, horse chestnut, elder, pine, hawthorn, holly, yew, lime, cherry, birch, beech, willow). Examples of common British plants, e.g. daffodil, primrose, bluebell, tulip, snowdrop, dandelion, crocus, rose, wild garlic, cow parsley, foxglove, ivy, buttercup, poppy, lavender. Bulb, roots, stem, leaves, flower (blossom), petals, fruit, roots, seeds, trunk, branches, stem Tally Species **Everyday materials** Object, material, properties	**Animals, including humans** Survival, water, air, food, Reproduction, growth, adult, baby, offspring, kitten, calf, puppy Exercise, balanced diet (food groups) hygiene **Plants** Water, light, temperature, growth Germination, reproduction, healthy **Everyday materials and their uses** Wood, metal, plastic, glass, brick, rock, paper, cardboard. Properties Translucent Squashing, bending, twisting, stretching, **Living things and their habitats** Living, dead Habitat, microhabitat, woodland, seashore, ocean, pond, desert, rainforest Energy, food chain, predator, prey

		butternut squash, sweetcorn, cauliflower). **Materials and processes** Ice – melting, Sound – vibrations, light/dark, transparent, shadow, magnet, attract, repel, float, sink Bread - Mix, knead, prove, rise. **Weather and seasons** – Spring (growth, baby animals) – Summer – Autumn (Harvest) – Winter – Sun, rain, wind, snow, ice, frost, sleet, hail. – Cold/warm/hot Day length, day light. Adapted, hibernate, migrate.	Wood, plastic, glass, paper, water, metal, rock, brick, fabric, elastic, foil, rubber, wool, clay, cardboard Hard/soft, bendy/not bendy, rough/bumpy/smooth, stretchy/ squashy/brittle/stiff/rigid, shiny/ dull, waterproof/not waterproof, absorbent/not absorbent, opaque/transparent, absorbent **Seasonal changes** Spring, Summer, Autumn, Winter, equinox, sun, sunrise, day, light Moon, sunset, night, dark Weather, wet, dry, wind Temperature, hot, cold, thermometer, degrees Celsius	
Books	**We're Going on a Bear Hunt** (habitats) **Jasper's Beanstalk** (growing) Three Little Pigs (materials) **The Very Hungry Caterpillar** (life-cycles) Squirrel's Autumn Search One Snowy Night	The Gruffalo (habitats) Leaf man Percy the Park keeper. It starts with a seed – Webber Knowles Ferdy and the falling leaves – Julia Rawlinson **Rosie's Walk** **Farmer Duck** Mr Gumpy's outing	It starts with a seed Tiny seed A first book of nature Seasons come, seasons go **Can't you sleep little bear**	Jack and the Beanstalk
Resources	Interesting natural environments for children to explore outdoors.	Plants and mini-beasts in outdoor environment. Collections of materials e.g. - Bubble wrap, foil, plastic, fabric,	Plants in and around school (wild and garden flowers, trees in woodland) Seeds and beans, Bean diary. Weather station	Plants in and around school (wild and garden flowers, trees in woodland) Seeds and bulbs Everyday materials

	Collections of natural materials to investigate and talk about. E.g. contrasting pieces of bark, different types of leaves and seeds, different types of rocks, different shells and pebbles from the beach. Seeds and bulbs so children observe growth and decay over time e.g. observe an apple core going brown and mouldy over time. Help children to care for animals and take part in first-hand scientific explorations of animal life cycles, such as caterpillars or chick eggs. Equipment to support these investigations e.g. magnifying glasses or a tablet with a magnifying app. Mechanical equipment for children to play with and investigate e.g. wind-up toys, pulleys, sets of cogs with pegs and boards.	paper, straw, sticks, bricks, metal, glass. Seeds and bulbs so children observe growth and decay over time. Equipment to support these investigations e.g. magnifying glasses or a tablet with a magnifying app. Mechanical equipment for children to play with and investigate e.g. wind-up toys, pulleys, sets of cogs with pegs and boards.	Small world animals Life-cycle jigsaws Everyday materials Magnifying glasses Egg timers	Magnifying glasses Egg timers