Year 1 Science Curriculum

Animals

Prior Learning

- Use all their senses in hands-on exploration of natural materials. (Nursery - Humans)
- Name and describe people who are familiar to them. (Reception - Humans)

Common Misconceptions

None identified

Reading Opportunities

Over and Under the pond - Kate Messner
Over and under the snow - Kate Messner
Life - Cynthia Rylant

Vocabulary

head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ear, tongue, clown fish, shark, frogs, salamander, tortoise, lizard, chicken, ostrich, cat, dog, cow, sheep, pig

The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics.

The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat.

Although we often use our fingers and hands to feel objects, the children should understand that we can feel with many parts of our body.

Year 1 - Animals

National Curriculum	Knowledge and key vocabulary	Working scientifically
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.	Identify animals : clown fish, shark, frogs, salamander, tortoise, lizard, chicken, ostrich, cat, dog, cow, sheep, pig.	Be able to ask questions about different animals (such as what something is, how things are similar and different)
		Identify animals by labelling pictures clearly in books
		Compare two different animals from the same group and make careful observations
		Use simple charts (secondary sources) to identify unknown animals.
		Children to complete a description of an animal and label key features on a picture/diagram
Identify and name a variety of animals that are carnivores, herbivores and omnivores.	Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.	Sort animals into groups according to what they eat. Focus on interpreting skills
Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles)	Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them.	Sort animals into groups according to physical characteristics. Focus: setting up and carrying out classification https://pstt.org.uk/unique-resources/taps/?_sft_age_ranges=five-seven&_sft_taps_topics=animals-including-humans (animal classification)
		Research facts about known animals
Identify, name, draw and label the basic parts of the human body and say which part of the human body and say which part of the body is associated with each sense.	Humans have key parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses. Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.	Learn how to label a diagram clearly. Label the main body parts.
		Take measurements of parts of their body.
		Look for patterns e.g. do people with big hands have big feet? Interpret and report findings.
		Use comparative language e.g. biggest, smallest, softest, hardest to describe objets Use their senses to suggest answers to questions.

Plants

Prior Learning

- Plant seeds and care for growing plants. (Nursery – Plants)
- Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants)
- Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Plants)
- Explore the natural world around them. (Reception – Living things and their habitats)
- Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats)
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Common Misconceptions

Some children may think:

- plants are flowering plants grown in pots with colored petals and leaves and a stem
- trees are not plants
- all leaves are green
- all stems are green
- a trunk is not a stem
- blossom is not a flower.

Reading Opportunities

Growing Vegetable Soup - Lois Ehlert
Planting a Rainbow - Lois Ehlert
The Wild Garden - Kathryn O'Galbraith
Oh Say You Can Seed - Bonnie Worth
The Tiny Seed - Eric Carle
How a Seed Grows - (pre school) Helene Jordan

Vocabulary

Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, grass, dandelion, clock, daisy, buttercup, daffodil, bluebell

Year 1 - Plants

National Curriculum Principles	Knowledge and key Vocabulary	Working scientifically
Pupils should be taught to: Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	Growing locally, there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Children to name and identify: grass, dandelion (clock), daisy, buttercup, daffodil, bluebell Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring.	Ask simple question that could lead to scientific enquiry
		Learn how to use simple identification charts
		Use simple identification charts to identify plants by looking at key characteristics.
		Research plant names using seek app. Focus - record results
		Name and identify trees (deciduous and evergreen).
Identify and describe the basic structure of a variety of common flowering plants, including trees	Plants have common parts, but they vary between the different types of plants	Learn how to use magnifying glasses to look closely.
		Record observations by learning how to complete an observational drawing.
		Dissect, identify and name the parts of a plant, petals, flower, leaves, stem and roots. https://pstt.org.uk/unique-resources/taps/?_sft_age_ranges=five-seven&_sft_taps_topics=plants (dig and label plants)
		Identify and name roots, trunk, branches, blossom, fruit, bark, bud and leaves of a tree.
		Observe how different trees change over time
		Compare leaves and flowers from different plants/ trees.

Materials

Prior Learning

- Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials)
- Explore collections of materials with similar and/or different properties. (Nursery - Materials, including changing materials)
- Talk about the differences between materials and changes they notice. (Nursery - Materials, including changing materials)

Common misconceptions

Some children may think:

- only fabrics are materials
- only building materials are materials
- only writing materials are materials
- the word 'rock' describes an object rather than a material
- 'solid' is another word for hard.

Reading Opportunities

The Three Little Pigs - various authors
The Great Paper Caper - Oliver Jeffers
Sheep to Jumper - Fiona Macdonald

Vocabulary

Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, foil, card/cardboard, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through

Year 1 - Materials

National Curriculum Principles	Knowledge and key Vocabulary	Working Scientifically
Distinguish between an object and the material	All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. .	Children to label photographs of different materials inc. wood, metal, plastic, glass, fabric, stone and paper.
		Children to sort objects according to what they are made of
To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock		Children to name a variety of objects and the materials they are made from using simple tables
		Children to interpret and report why different objects are made from different materials.
To describe the simple physical properties of a variety of everyday materials	Materials can be described by their properties e.g. shiny, stretchy, rough etc Some materials e.g. plastic can be in different forms with very different properties.	Observe and describe the properties of materials.
		Compare and group materials based on simple physical properties.
Compare and group together a variety of everyday materials on the basis of their simple physical properties		Plan a comparative test - what is the best materials for…..https://pstt.org.uk/unique-resources/taps/?_sft_age_ranges=five-seven&_sft_taps_topics=materials (umbrella planning)
		Carry out a comparative test

Seasonal Change

Prior Learning

- Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans)
- Explore the natural world around them. (Reception – Seasonal changes)
- Describe what they see, hear and feel whilst outside. (Reception – Seasonal changes)
- Understand the effect of changing seasons on the natural world around them. (Reception – Seasonal changes)

Common Misconceptions

Some children may think:

- it always snows in winter
- it is always sunny in the summer
- there are only flowers in spring and summer
- it rains most in the winter.

Reading Opportunities

Tree: seasons come, seasons go by Patricia Hapegarty and Britta Teckentrup
Tidy by Emily Gravett
The fox in the dark by Alison Green and Deborah Allwright
Snowballs by Lois Ehlers
Lila and the secret of rain by David Conway and June Daly
Little cloud by Anne Booth and Sarah Mazzini
Storm (also other titles called sun, rain and snow) by Sam Usher
A year in nature by Hazel Maskell and Eleanor Taylor

Vocabulary

weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length

Year 1 - Seasonal Change

National Curriculum Principles	Knowledge and key Vocabulary	Working Scientifically
Pupils should be taught to observe changes across the four seasons	Name the four seasons - Spring, Summer Autumn and Winter, and when in the year they occur. Know what weather is and recognise rain, sun, cloud, snow, hail, wind, sleet, thunder, lightning.Know which weather is associated with which season. Know what would you wear in each season and what you would do. Recognise that the change in weather may cause other changes e.g. number of mini beasts found outside, seed and plant growth, leaves on trees and types of clothes worn by people.	Observe the weather regularly throughout the year Record weather information in tables and charts. Interpret the weather data to answer a specific enquiry questions e.g. is there more rain in autumn or spring? Observe and explain what clothes people wear in each season Enquiry question - how do trees change during the year? Focus: planning how to answer question.
Observe and describe weather associated with the four seasons and how day length varies	The weather changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again.	Observe sunrise and sunset times at different times of year using clocks. Focus : record in tables

Working Scientifically in Years 1 and 2

Asking questions
Children develop their ability to ask questions, such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen.
The children answer questions developed with the teacher often through a scenario.

Observing
Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. They begin to take measurements, initially by comparisons, then using non-standard units.

Plan and carry out simple tests
Plan as a class with the teacher and start to contribute their own ideas
The children are involved in planning how to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.
The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.

Identify and classify
Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. • They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.

Gather and record data
The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. • They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. • They classify using simple prepared tables and sorting rings.

Interpret and report
Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.
The children recognise ‘biggest and smallest’, ‘best and worst’ etc. from their data.

Working Scientifically Skills

Science Enquiry Types

- Comparative and fair testing
- Research
- Observation over time
- Pattern seeking
- Identifying and classifying
- Problem solving