



Working Scientifically - Year 1

Topic: Animals including humans

Science Enquiries:

1. Classifying
2. Pattern Seeking

Prior Learning from EYFS:

- Children can make observations about animals and plants

Key Learning in Y1

1. Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
2. Identify and name a variety of common animals that are carnivores, herbivores and omnivores.
3. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).
4. Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

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, they **should understand that we can feel with many parts of our body.**

Common Misconceptions

Children may think these things prior to the start of the topic:

- Only four-legged mammals, such as pets, are animals
- Humans are not animals
- Insects are not animals
- All 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group
- Amphibians and reptiles are the same.

Evidence/Activities to support key learning

- Name and describe range of animals from each of the vertebrate groups e.g. *a lion has a large mane; a fish has scale skin and fins.*
- Label key features of animals on a diagram
- *Write a description about an animal (cross-curricular link: English)*
- List what an animal eats
- *During a PE lesson, follow instructions involving different parts of the body (cross-curricular link: PE)*
- Label different parts of the body on a diagram
- Explore objects using the 5 different sense

Evidence/Activities to support science enquiries

- Classify animals according to a range of features
- Classify animals according to what they eat
- Identify animals by matching them to named images
- Look for patterns between people e.g. *do people with big hands have big feet?*
- Classify people according to their features

Evidence/Activities to support science skills

- Observe animals from each of the 5 vertebrate groups e.g. *using pictures, children can list the similarities and differences between the groups.*
- Observe different parts of the body e.g. *hands, legs, fingers, toes*

Progression/Future Learning

- **Year 2: Living things & their habitat:**
Describe 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.
- **Year 6: Living things and their habitat:**
Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.
- Give reasons for classifying plants and animals based on specific characteristics.

Topic: Everyday materials

Science Enquiries:

1. Classifying
2. Fair Testing

Prior Knowledge from EYFS:

- Children know about similarities and differences in relation to places, objects, materials and living things.

Key Learning in Y1

1. Distinguish between an object and the material from which it is made.
2. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.
3. Describe the simple physical properties of a variety of everyday materials.
4. Compare and group together a variety of everyday materials on the basis of their simple physical properties.

Common Misconceptions

Children may think these things prior to the start of the topic:

- 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.

Evidence/Activities to support key learning

- Label a picture or diagram of an object made from different materials
- Describe the properties of different materials
- Compare the properties of different materials

Evidence/Activities to support science enquiries

- Sort objects and materials using a range of properties *e.g. colour, texture, type of materials*
- Discuss an appropriate method for testing an object for a particular property *e.g. children can think of different ways to test if something is hard or soft*
- Classify objects made of one material in different ways *e.g. a group of object made of metal.*
- Classify the different ways one type of object made from a range of materials *e.g. a collection of spoons made of different materials.*
- Classify materials based on their properties.

Evidence/Activities to support science skills

- Ask questions about properties of different materials, during investigations e.g. *“Which cloth is the most absorbent?”*
- Use simple equipment to test the properties of different materials

Progression/Future Learning

Year 2: Uses of everyday materials

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Topic: Seasonal Changes

Science Enquiries:

- Observing over time

Prior Learning from EYFS:

- Children can explain why some things occur and talk about changes.
- Children can talk about the features of their own immediate environment.
- Children can explain how environments might be different from one another.

Key Learning in Y1

1. Observe changes across the four seasons
2. Observe and describe weather associated with the seasons and how day length varies.
3. Understand that changes in weather causes many other changes e.g. *numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.*

Common Misconceptions

Children may think that:

- 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.

Evidence/Activities to support key learning

- Naming the four seasons and identifying when in the year they occur
- Describe weather in different seasons over a year
- Explain that days are longer (in time) in the summer and shorter in the winter
- Describe other features that change through the year e.g. *leave falling off a tree in autumn; flowers blooming in spring.*
- *Make a weather forecast video; write seasonal poetry; create seasonal artwork (cross curricular links with art, ICT and English).*

Evidence/Activities to support science enquiries

- Observe and record how:
 - a. the weather regularly changes throughout the year
 - b. how plants + animals change across the seasons

Evidence/Activities to support science skills

- n/a

Progression/Future Learning

Year 3 - Light

- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes

Year 5 - Earth & Space

- Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.

Topic: Plants

Science Enquiries:

- Classifying
- Pattern-seeking
- Research

Prior Learning from EYFS:

- Children can make observations of animals and plants.

Key Learning in Y1

1. Identify and name a variety of common, wild and garden plants, including deciduous and evergreen trees.
2. Identify and describe the basic structure of a variety of common flowering plants, including trees.
3. Understand that plants have common parts, but they vary between the different types of plants.

Common misconceptions

Some children may think that:

- 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.

Evidence/Activities to support key learning

- Name trees and other plants that they see regularly.
- Describe some of the key features of these trees and plants *e.g. the shape of the leaves, the colour of the flower/blossom*
- Point out trees which lost their leaves and those that kept them the whole year .
- Identify and name the parts of a plant, recognising that they are not always the same *e.g. leaves and stems may not be green*

Evidence/Activities to support science enquiries

- Compare two leaves, seeds, flowers etc.
- Classify leaves, seeds, flowers etc. using a range of characteristics *e.g. flowers have petals;*
- Find out which plants grow in different parts of the world.

Evidence/Activities to support science skills

- Observe and draw leaves, seeds, flowers etc.
- Identify plants by matching them to named images.
- Observe and record how plants change over a period of time.

Progression/Future Learning

Year 2 - plants

- Observe and describe how seeds and bulbs grow into mature plants.
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Year 2 - Living things & their habitats

Identify and name a variety of plants and animals in their habitats, including microhabitats.

Year 3 - Plants

- Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.
- Investigate the way in which water is transported within plants.