



Working Scientifically - Year 2

Topic: Living things and their habitats

Science Enquiries:

1. Classifying
2. Pattern Seeking

Prior Learning from Y1:

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Plants)
- Identify and describe the basic structure of a variety of common flowering plants, including trees. (Plants)
- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Animals including humans)
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Animals including humans)
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Animals, including humans)
- Observe changes across the four seasons. (Seasonal Changes)

Key Learning in Y2

1. Explore and compare the differences between things that are living, dead, and things that have never been alive.
2. 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.
3. Identify and name a variety of plants and animals in their habitats, including micro-habitats.
4. 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.

Common Misconceptions

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

- an animal's habitat is like its 'home'
- plants and seeds are not alive as they cannot be seen to move
- fire is living
- arrows in a food chain mean 'eats'.

Evidence/Activities to support key learning

- Find a range of items outside that are living, dead and never lived
- Name a range of animals and plants that live in a habitat and micro-habitats that they have studied
- Describe how the features of these animals and plants make them suitable to the habitat
- Describe what the animals eat in a habitat and how the plants provide shelter for them
- *Construct a food chain from given information e.g. in picture books Gruffalo (cross-curricular link - English).*

Evidence/Activities to support science enquiries

- Classify objects found in the local environment

Evidence/Activities to support science skills

- Observe animals and plants carefully by drawing and labelling diagrams.
- Use observations to answer questions

Progression/Future Learning

Year 4:

Living things & their habitat:

- Recognise that living things can be grouped in a variety of ways.
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.
- Recognise that environments can change and that this can sometimes pose dangers to living things.

Animals including humans

- Construct and interpret a variety of food chains, identifying producers, predators and prey.

Topic: Animals including humans

Science Enquiries:

1. Research
2. Observing over time

Prior Knowledge from Year 1 Topic:

- Identify and name a variety of common animals that are carnivores, herbivores and omnivores
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense

Key Learning in Y2

1. Notice that animals, including humans, have offspring which grow into adults.
2. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
3. Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Common Misconceptions

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

- an animal's habitat is like its 'home'
- all animals that live in the sea are fish
- respiration is breathing
- breathing is respiration.

Evidence/Activities to support key learning

- Describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages
- State the basic needs of animals, including humans, for survival
- Explain the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
- *Use diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child (cross-curricular link - English).*
- *Show what they know about looking after a baby/animal by creating a parenting/pet owners' guide (cross-curricular link - English).*

Evidence/Activities to support science enquiries

- Observe animals growing over a period of time e.g. chicks, caterpillars, a baby.
- Research and investigate about germs using glitter hand wash.

Evidence/Activities to support science skills

- Ask people questions and use secondary sources to find out about the life cycles of some animals.
- Ask questions of a parent about how they look after their baby.
- Ask pet owners questions about how they look after their pet.
- Measure/observe how animals, including humans, grow.

Progression/Future Learning

Year 3: Animals including humans

- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.

Year 5: Living things and their habitats

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
- Describe the life process of reproduction in some plants and animals.

Year 6: Animals including humans

- Recognise the impact of diet, exercise, drugs and lifestyle on the way their body functions.

Topic: Use of everyday materials

Science Enquiries:

- Classifying
- Fair Testing

Prior Learning from Year 1 topic:

- 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.
- Describe the simple physical properties of a variety of everyday materials.
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.

Key Learning in Y2

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

Common Misconceptions

Children may think that:

- 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

- Name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use
- Label a picture or diagram of an object made from different materials
- For a given object can identify what properties a suitable material needs to have.
- Sort materials using a range of properties
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Evidence/Activities to support science enquiries

- Classifying different materials.
- Explain using the key properties why a material is suitable or not suitable for a purpose .
- Test the properties of materials for particular uses *e.g. compare the stretchiness of fabrics; test materials for waterproofness to select the most appropriate for a rain hat .*

Evidence/Activities to support science skills

- Notice the a relationship between the type of material and it's use *e.g. plastic is hard and that's why it has lots of uses.*
- Present findings about the different properties of materials *e.g. in a table* and explain their findings.

Progression/Future Learning

Year 3 - Rocks

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks)

Forces & Magnets

- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.

Year 5 - Properties and changes of materials

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

Topic: Plants

Science Enquiries:

- Observing
- Pattern-seeking

Prior Learning from Year 1 Topic:

- 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 trees.

Key Learning in Y2

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

Common misconceptions

Some children may think that:

- plants are not alive as they cannot be seen to move
- seeds are not alive
- all plants start out as seeds
- seeds and bulbs need sunlight to germinate.

Evidence/Activities to support key learning

- Describe how plants that they have grown from seeds and bulbs have developed over time
- Grow plants in 2 different conditions and identify which grew well.

Evidence/Activities to support science enquiries

- Spot similarities & differences between seeds and bulbs.
- Compare plants as they grow.
- Observe seeds and bulbs closely.
- Observe plants as they grow from seeds and bulbs.

Evidence/Activities to support science skills

- Measure plants as they grow from seeds to bulbs.

Progression/Future Learning

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.
- 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
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.