



Science Year 2 Curriculum Overview



The Big Picture

In this unit, pupils will be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. They will raise and answer questions that help them to become familiar with the life processes that are common to all living things. Pupils will be introduced to the terms 'habitat' and 'microhabitat'. They will raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other. The children will compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest.

What do we already know?

Knowledge Retrieval:

Children will have some understanding of things that are living and things that are non-living from studying 'Animals including humans' in year 1. They will have also developed some basic knowledge of animals and their habitats from year 1. Children will have looked at the animal groups and where they live and can survive.

Year 2 Science –
Living things and their habitats

Sticky Knowledge:

- Can they match certain living things to the habitats they are found in?
- Can they explain the differences between living and non-living things?
- Can they describe some of the life processes common to plants and animals, including humans?
- Can they decide whether something is living, dead or non-living?
- Can they describe how a habitat provides for the basic needs of things living there?
- Can they describe a range of different habitats?
- Can they describe how plants and animals are suited to their habitat?
- Challenging** – Can they name some characteristics of an animal that help it to live in a particular habitat?
- Can they describe what animals need to survive and link this to their habitat?

Working Scientifically:

- Can they use some science words to describe what they have seen and measured?
- Can they compare several things?
- Can they organise things into groups?
- Can they find simple patterns or associations?
- Challenging** - Can they suggest more than one way of grouping animals and plants and explain their reasons?
- Can they use texts, diagrams, pictures, charts and tables to record their observations?
- Challenging** – Can they use information from books and online to help them find things out?

Key unit objectives

Knowledge

- To sort and classify things that are living, dead, and things that have never been alive.
- To compare the differences between things that are living, dead, and things that have never been alive.
- To know that most living things live in habitats where they are suited.

To describe how different habitats provide the basic needs of different kinds of animals and plants.

To know that both habitats and the animal/plant depend on each other.

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

To construct a simple food chain.

Types of scientific enquiry covered

- Identifying and classifying
- Research
- Pattern seeking

Key vocabulary and understanding for concept connectors

Living, dead, alive,

A **habitat** is the home for an animal or plant.

A **micro-habitat** is a small area that is home for an animal or plant.

food chain, ocean, damp, shade, predator, prey

NC objectives –

Knowledge:

To explore and compare the differences between things that are living, dead, and things that have never been alive

To 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

To identify and name a variety of plants and animals in their habitats, including microhabitats

To 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

Working scientifically:

To ask simple questions and recognising that they can be answered in different ways

To observe closely, using simple equipment

To perform simple tests

To identify and classify

To use their observations and ideas to suggest answers to questions

To gather and record data to help answer questions

Research/scientists/careers:

Rachel Carson (Marine biologist)

William Kirby (Father of modern entomology, the study of insects)



Science Year 2 Curriculum Overview

The Big Picture

This unit will provide pupils with the opportunity to identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). They will think about the properties of materials that make them suitable or unsuitable for particular purposes and they will be encouraged to think about unusual and creative uses for everyday materials.

What do we already know?

Knowledge Retrieval:

Pupils will build on their knowledge of materials from Year 1. They will have an awareness of what a material is and what an object is made from. They will be familiar with materials such as wood, metal, plastic, glass, rock, fabric, elastic and rubber. They will have used adjectives to describe the materials such as hard, shiny, soft, bendy etc.

Year 2 Science – Materials

Sticky knowledge:

- Can they distinguish between an object and the material it is made from?
- Can they identify and name a range of everyday materials?
- Can they describe the simple physical properties of a variety of everyday materials?
- Can they compare and classify a variety of materials based on their simple physical properties?
- Can they explore how the shapes of solid objects can change?
- Can they identify and compare the uses of a range of everyday materials?
- Can they explain how things move on different surfaces?
- Can they explain why a material might be useful for a specific job?
- Challenging** – Can they say which materials are natural or man-made?
- Challenging** – Can they explain why materials are changed by heating/cooling?
- Challenging** – Can they explain how materials are changed by bending/twisting/stretching?

Working scientifically:

- Can they carry out a simple fair test?
- Can they explain why it might not be fair to test two things?
- Can they say whether things happened as they expected?
- Can they suggest how to find things out?
- Can they organise materials into groups?
- Can they find simple patterns or associations?
- Challenging** - Can they suggest more than one way of grouping materials and explain their reasons?
- Can they measure using simple equipment?
- Challenging** – Can they use information from books and online to help them find things out?

NC objectives – Year 2

Knowledge:

To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses

To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Working scientifically: KS1

To ask simple questions and recognising that they can be answered in different ways

To observe closely, using simple equipment

To perform simple tests

To identify and classify

To use their observations and ideas to suggest answers to questions

To gather and record data to help answer questions

Key unit objectives

To identify everyday materials including wood, metal, plastic, glass, brick, rock, paper, cardboard.

To know what is a solid and what is a liquid.

To identify and compare the uses of a range of materials? (wood, metal, plastic, rock, paper, brick)

To compare the sustainability of materials for particular uses.

To know the shapes of solid objects can be changed by squashing, bending, twisting, stretching.

To know about people who have developed new useful materials.

To explain how things move on different surfaces.

Types of scientific enquiry covered

- Identifying and classifying
- Research
- Comparison tests
- Fair tests

Key vocabulary and understanding for concept connectors

Materials such as: **wood, metal, plastic, rock, glass, paper, cardboard**

A **material** is what something is made from.

A **property** of a material is how we describe it. such as: **solid, soft, bendy, hard, shiny, see through, waterproof.**

solid, liquid,

twisting, squashing, bending, stretching,

Research/scientists/careers:

John Dunlop – Inventor of tyres

Charles Macintosh – Inventor of waterproof material



Science Year 2 Curriculum Overview

The Big Picture

In this unit, pupils will build on their animals knowledge from Year 1. They will be introduced to the basic needs of animals for survival and the processes of reproduction and growth in animals. The focus will be on questions that help pupils to recognise growth, not to understand how reproduction occurs.

What do we already know?

Knowledge Retrieval:

The children will be able to name and identify some common animals and they will know the structure of these. They will know which animals are usually kept as pets and how these can be looked after. They will be aware of animal diets and will be able to give examples of herbivores, omnivores and carnivores.

Sticky knowledge:

- Can they describe what animals need to survive?
- Can they explain that animals grow and reproduce?
- Can they explain why animals have offspring?
- Can they describe the simple life cycle of some living things? (e.g. egg, chick, chicken)
- Can they explain the basic needs of animals?

Challenging – Can they explain that animals reproduce in different ways?

Working Scientifically:

- Can they organise things into groups?
- Can they find simple patterns or associations?
- Can they identify animals and plants by a specific criteria, e.g. lay eggs or not; have feathers or not?

Challenging - Can they suggest more than one way of grouping animals and plants and explain their reasons?

Can they use texts, diagrams, pictures, charts and tables to record their observations?

Challenging - Can they use information from books and online to help them find things out?

Year 2 Science – Animals

NC objectives – Year 2

Knowledge:

- To notice that animals have offspring which grow into adults
- To find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

Working scientifically:

- To ask simple questions and recognising that they can be answered in different ways
- To observe closely, using simple equipment
- To perform simple tests
- To identify and classify
- To use their observations and ideas to suggest answers to questions
- To gather and record data to help answer questions

Key unit objectives

- To know that animals have offspring which grow to adults.
- To know that animals need water, food and air to survive.
- To describe basic needs of animals for survival.
- To know how animals, adapt to suit their environment
- To name and identify some animal offspring.

Working Scientifically:

- To organise things into groups?
- To find simple patterns or associations?
- To identify animals and plants by a specific criteria, e.g. lay eggs or not; have feathers or not?
- To use texts, diagrams, pictures, charts and tables to record their observations?
- To use information from books and online to help them find things out?

Types of scientific enquiry covered

- Identifying and classifying
- Research

Key vocabulary and understanding for concept connectors

environment, predator, prey, adult, survive

An animal's **offspring** is their young (child).

To **adapt**, means to change.

Research/scientists/careers:

Dr Kelly Blacklock (Veterinary Surgeon)



Science Year 2 Curriculum Overview

The Big Picture

Pupils will build on their knowledge of humans from Year 1. They will be introduced to the basic needs of humans and the importance of exercise and nutrition. They will also be introduced to the processes of growth in humans.

What do we already know?

Knowledge Retrieval:

The children will have built up a basic knowledge of the human body and they will be able to name simple body parts which can be seen. The children will know the 5 senses and will be able to name the body parts associated to the 5 senses.

Sticky knowledge:

- Can they describe what humans need to survive?
- Can they explain that humans grow and reproduce (in simple terms)?
- Can they explain that humans start off as baby's and grow into adults?
- Can they explain the basic needs of humans?
- Can they describe why exercise and a balanced diet are important for humans?

Working Scientifically:

- Can they carry out a simple fair test?
- Can they explain why it might not be fair to test two things?
- Can they say whether things happened as they expected?
- Can they suggest how to find things out?
- Can they use prompts to find things out?
- Challenging** - Can they say whether things happened as they expected and if not, why not?
- Can they organise things into groups?
- Can they find simple patterns or associations?
- Can they use texts, diagrams, pictures, charts and tables to record their observations?
- Can they measure using simple equipment?
- Challenging** – Can they use information from books and online to help them find things out?



Year 2 Science – Humans

NC objectives – Year 2

Knowledge:

- To notice that humans, have offspring which grow into adults
- To find out about and describe the basic needs of humans, for survival (water, food and air)
- To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

Working scientifically:

- To ask simple questions and recognising that they can be answered in different ways
- To observe closely, using simple equipment
- To perform simple tests
- To identify and classify
- To use their observations and ideas to suggest answers to questions
- To gather and record data to help answer questions

Key unit objectives

- To know that humans have offspring which grow to adults.
- To know and describe basic needs of humans for survival.
- To describe the importance of exercise, food and hygiene.
- To name the food groups and to understand what a balanced diet is.
- To know how to keep myself healthy and the importance of hygiene.

Working scientifically

- To carry out a simple fair test?
- To explain why it might not be fair to test two things?
- To say whether things happened as they expected?
- To suggest how to find things out?
- To use prompts to find things out?
- To organise things into groups?
- To find simple patterns or associations?
- To use texts, diagrams, pictures, charts and tables to record their observations?
- To measure using simple equipment?
- To use information from books and online to help them find things out?

Types of scientific enquiry covered

- Identifying and classifying
- Pattern seeking
- Fair tests
- research

Key vocabulary and understanding for concept connectors

- Growth
- Adult
- Baby
- Toddler
- Child
- Teenager
- Exercise
- Healthy

Research/scientists/careers:

- Yann Le Meur – Sports scientist
- Elizabeth Garrett Anderson (First English woman to qualify as a doctor)



Science Year 2 Curriculum Overview

The Big Picture

In this unit, pupils will explore and use the local environment throughout the year to observe how plants grow. Pupils will be introduced to the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants. Pupils will explore how seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them.

What do we already know?

Knowledge Retrieval:

The children will build upon their knowledge of plants from Year 1. They will be able to identify and name a variety of common wild and garden plants. The children will be aware of the meaning of deciduous and evergreen trees. The children will be able to identify and describe the basic structure of a variety of common flowering plants, including trees.

Sticky knowledge:

- Can they describe what plants need to survive?
- Can they describe how seeds and bulbs grow into plants?
- Can they describe what a plant needs to grow and stay healthy?
- Can they explain that plants grow and reproduce?
- Challenging** – Can they describe what plants need to survive and link it to where they are found?
- Challenging** – Can they explain that plants grow and reproduce in different ways?

Working Scientifically:

- Can they talk about what they see to help them answer questions?
- Can they compare several things?
- Can they say whether things happened as they expected?
- Can they suggest how to find things out?
- Can they organise things into groups?
- Can they find simple patterns or associations?
- Can they use texts, diagrams, pictures, charts and tables to record their observations?
- Challenging** – Can they use information from books and online to help them find things out?

Year 2 Science – Plants

NC objectives – Year 2

Knowledge:

- To observe and describe how seeds and bulbs grow into mature plants
- To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

Working scientifically:

- To ask simple questions and recognising that they can be answered in different ways
- To observe closely, using simple equipment
- To perform simple tests
- To identify and classify
- To use their observations and ideas to suggest answers to questions
- To gather and record data to help answer questions

Key unit objectives

- To observe and describe how bulbs grow into mature plants.
- To know plants need water, light and warmth to grow.
- To know what happens to plants if they lack a vital need.
- To know the parts of a tree and their functions.
- To know how plants germinate.

Planting

- sweet peas (seed),
- hyacinth (bulb)
- Investigate seed germination with/without...

Working scientifically

- To talk about what they see to help them answer questions?
- To compare several things?
- To say whether things happened as they expected?
- To suggest how to find things out?
- To organise things into groups?
- To find simple patterns or associations?
- To use texts, diagrams, pictures, charts and tables to record their observations?
- To use information from books and online to help them find things out?

Types of scientific enquiry covered

- Identifying and classifying
- Research
- Pattern seeking
- Changes overtime

Key vocabulary and understanding for concept connectors

Evergreen trees stay green all year.
Deciduous trees lose their leaves in Autumn.

The parts of a tree – **roots, trunk, branches, leaves.**

Bulb, seed, grow, observe, warmth

Germination - when a plant grows from a seed.

Research/scientists/careers:

- Angie Burnett (Plant Biologist who grows plants and sees how they react to different conditions that make it more difficult for them to grow)
- Daniel Solander (Botanist who worked with Joseph Banks on Captain Cook's voyage around the World)

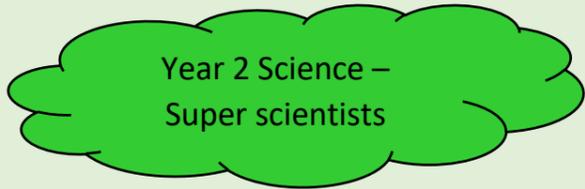


Science Year 2 Curriculum Overview



The Big Picture

Children will have built up an understanding of science over the year. This time allows the teacher to identify and fill any gaps that may still be present. The 'super scientists' topic allows the children time to use their creative side and come up with their own scientific enquiry-based questions and allows them the time to plan and investigate these ideas. The whole topic is child centred and allows the children to have fun whilst learning the fundamental skills working scientifically.



Sticky knowledge:

Working Scientifically:

Observing closely:

- Can they talk about what they see, touch, smell, hear or taste to help them answer questions?
- Can they use some science words to describe what they have seen and measured?
- Can they compare several things?

Challenging – Can they suggest ways of finding out through listening, hearing, smelling, touching and tasting?

Performing tests:

- Can they carry out a simple fair test?
- Can they explain why it might not be fair to test two things?
- Can they say whether things happened as they expected?
- Can they suggest how to find things out?
- Can they use prompts to find things out?

Challenging - Can they say whether things happened as they expected and if not, why not?

Identifying and classifying:

- Can they organise things into groups?
- Can they find simple patterns or associations?
- Can they identify animals and plants by a specific criteria, e.g. lay eggs or not; have feathers or not?

Challenging - Can they suggest more than one way of grouping animals and plants and explain their reasons?

Recording findings:

- Can they use texts, diagrams, pictures, charts and tables to record their observations?
- Can they measure using simple equipment?

Challenging – Can they use information from books and online to help them find things out?

NC objectives – Key Stage 1

Working scientifically:

- To ask simple questions and recognising that they can be answered in different ways
- To observe closely, using simple equipment
- To perform simple tests
- To identify and classify
- To use their observations and ideas to suggest answers to questions
- To gather and record data to help answer questions

Types of scientific enquiry covered

- Identifying and classifying
- Pattern seeking
- Comparative tests
- Observations over time
- research

Key vocabulary and understanding for concept connectors

Prediction – Where you say what you think will happen.

Change, measure

Equipment – What we use.

Conclusion

Research

Research/scientists/careers:

Linked to children's interests and ideas.