



Subject Content and Endpoints – Science

Early Years

Subject Content and End Points

Foundation Stage

All pupils in the EYFS are taught science as an integral part of the play-based learning covered during the academic year.

There are four guiding principles which should shape practice in early years settings:

- Every child is a unique child, who is constantly learning and can be resilient, capable, confident and self-assured
- Children learn to be strong and independent through positive relationships
- Children learn and develop well in enabling environments, in which their experiences respond to their individual needs and there is a strong partnership between practitioners and parents and/or carers
- Children develop and learn in different ways and at different rates.

There are three characteristics of effective teaching and learning which are:

- Playing and exploring - children investigate and experience things, and 'have a go'
- Active learning - children concentrate and keep on trying if they encounter difficulties, and enjoy achievements
- Creating and thinking critically - children have and develop their own ideas, make links between ideas, and develop strategies for doing things.

All science objectives within the EYFS are underpinned by the following three prime areas outlined in the Statutory framework for the early years foundation stage:

- Communication and language
- Physical development
- Personal, social and emotional development

There are four specific areas through which the three prime areas are strengthened and applied:

- Literacy
- Mathematics
- Understanding the world
- Expressive arts and design

The science curriculum in EYFS focuses on the specific area of 'Understanding the world' which involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.

EYFS End Point:

By the end of Foundation 2, pupils will know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. This will prepare children to readily access the Key Stage 1 curriculum.

Key Stage 1

Subject Content and End Points

Key Stage 1 Science end points – statements from the Teacher assessment frameworks at the end of key stage 2 document

Working Scientifically

The pupils can, using appropriate scientific language from the National Curriculum for England:

- Ask their own questions about what they notice
- Use different types of scientific enquiry to gather and record data, using simple equipment where appropriate, to answer questions:
 - Observing changes over time
 - Noticing patterns
 - Grouping and classifying things
 - Carrying out simple comparative tests
 - Finding things out using secondary sources of information
 - Communicate their ideas, what they do and what they find out in a variety of ways.

Knowledge

The pupil can:

- Name and locate parts of the human body, including those related to the senses [Year 1], and describe the importance of exercise, a balanced diet and hygiene for humans [Year 2]
- Describe the basic needs of animals for survival and the main changes as young animals, including humans, grow into adults [Year 2]
- Describe the basic needs of plants for survival and the impact of changing these and the main changes as seeds and bulbs grow into mature plants [Year 2]
- Identify whether things are alive, dead or have never lived [Year 2]
- Describe and compare the observable features of animals from a range of groups [Year 1]
- Group animals according to what they eat [Year 1], describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships [Year 2]
- Describe seasonal changes [Year 1]
- Name different plants and animals and describe how they are suited to different habitats [Year 2]

Distinguish objects from materials, describe their properties, identify and group everyday materials [Year 1] and compare their suitability for different uses [Year 2]

Key Stage 2

Subject Content and End Points

Key Stage 2 Science end points – statements from the Teacher assessment frameworks at the end of key stage 2 document

Working Scientifically

- Describe and evaluate their own and others' scientific ideas related to topics in the National Curriculum (including ideas that have changed over time), using evidence from a range of sources
- Ask their own questions about the scientific phenomena that they are studying, and select the most appropriate ways to answer these questions, recognising and controlling variables where necessary (i.e. observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources)
- Use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate
- Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Draw conclusions, explain and evaluate their methods and findings, communicating these in a variety of ways
- Raise further questions that could be investigated, based on their data and observations.

Knowledge

The pupils can:

- Name and describe the functions of the main parts of the digestive [Year 4], musculoskeletal [Year 3] and circulatory systems [Year 6]; and describe and compare different reproductive processes and life cycles in animals [Year 5]
- Describe the effects of diet, exercise, drugs and lifestyle on how the body functions [Year 6]
- Name, locate and describe the functions of the main parts of plants, including those involved in reproduction [Year 5] and transporting water and nutrients [Year 3]
- Use the observable features of plants, animals and micro-organisms to group, classify and identify them into broad groups, using keys or other methods [Year 6]
- Construct and interpret food chains [Year 4]
- Describe the requirements of plants for life and growth [Year 3]; and explain how environmental changes may have an impact on living things [Year 4]
- Use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved [Year 6]; and describe how fossils are formed [Year 3] and provide evidence for evolution [Year 6]
- Group and identify materials [Year 5], including rocks [Year 3], in different ways according to their properties, based on first-hand observation; and justify the use of different everyday materials for different uses, based on their properties [Year 5]
- Describe the characteristics of different states of matter and group materials on this basis; and describe how materials change state at different temperatures, using this to explain everyday phenomena, including the water cycle [Year 4]
- Identify and describe what happens when dissolving occurs in everyday situations; and describe how to separate mixtures and solutions into their components [Year 5]
- Identify, with reasons, whether changes in materials are reversible or not [Year 5]
- Use the idea that light from light sources, or reflected light, travels in straight lines and enters our eyes to explain how we see objects [Year 6], and the formation [Year 3], shape [Year 6] and size of shadows [Year 3]
- Use the idea that sounds are associated with vibrations, and that they require a medium to travel through, to explain how sounds are made and heard [Year 4]
- Describe the relationship between the pitch of a sound and the features of its source; and between the volume of a sound, the strength of the vibrations and the distance from its source [Year 4]
- Describe the effects of simple forces that involve contact (air and water resistance, friction) [Year 5], that act at a distance (magnetic forces, including those between like and unlike magnetic poles) [Year 3], and gravity [Year 5]
- Identify simple mechanisms, including levers, gears and pulleys, that increase the effect of a force [Year 5]
- Use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it; and use recognised symbols to represent simple series circuit diagrams [Year 6]
- Describe the shapes and relative movements of the Sun, Moon, Earth and other planets in the solar system; and explain the apparent movement of the sun across the sky in terms of the Earth's rotation and that this results in day and night [Year 5].