

Mundeford Community Infants School



SUBJECT MAPPING - SCIENCE

The National Curriculum says:

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

In order to achieve this by the end of Key Stage One at Mundeford Infant School:

Pupils will develop scientific knowledge and conceptual understanding of living things and their habitats, plants and seasonal change, animals and materials. They will develop understanding of the nature, processes and methods of science through different types of enquiry that help them to answer questions about the world around them. Children are equipped with scientific knowledge required to understand the uses and implications of science, today and for the future.

How do we bring this to life?

- Learning garden – focussing on plants and seasonal changes and weather, mini-beasts and their habitats, hibernation of animals
- Both whole class sessions and through relevant project focus in PWR
- Through collaborative learning, enabling children to explore their thoughts and ideas with a partner and/or small group as well as the whole class
- Recognising British Science Week, STEM ambassadors and educational visits to enhance children's science capital
- Practical and hands-on investigative experiences to support purposeful project outcomes

Knowledge Acquiring – explore, find out, discover, research, understand

Children will explore the world around them and raise their own questions. They will experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions.

Through project-based opportunities children will use simple features to compare objects, materials and living things and will begin to decide how to sort and group them, observe changes over time and begin to notice patterns and relationships. Children will ask people questions and use simple secondary sources to find answers.

They use simple measurements and equipment to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. Children will record and communicate their findings in a range of age appropriate ways beginning to use simple scientific language.

Through the Learning Garden opportunities children will observe and talk about changes in the weather and the seasons and begin to explore animal habitats. They will also observe how different plants grow and be introduced to the different requirements for growth and survival. Children will understand that all living things have certain characteristics that are essential for keeping them alive and healthy. Children will learn to identify key materials and explore their properties including their suitability of everyday uses.

Skills Development – problem solve, justify, reason, evaluate, practise

Projects are constructed to facilitate scientific investigations that support children in using new knowledge and skills to realise successful outcomes. Through project learning children will develop a deeper understanding of living things and a range of animal habitats. Using their scientific knowledge children will apply their developing skills to make predictions and draw conclusions.

Sequence of Learning – When and how do we facilitate this learning for a Scientist in our school?

Reception	Year 1	Year 2
<p>Children in Reception will begin to explore the natural world around them.</p> <p>In the project “Autumn and Harvest” children walk around the local area, observing seasonal change, collecting Autumnal objects and use these across the curriculum as part of the continuous provision.</p> <p>As part of “Crash Bang Boom” children will begin to develop their skills in working scientifically as part of their science wow day and ongoing activities including growing salt crystals and cress to observe changes. Children will make observations as part of whole class experiments and through discussion with adults will begin to draw conclusions. Through junk modelling and exploratory play the children will begin to explore properties of materials including floating and sinking, and test whether it is waterproof. The children will select appropriate materials for a particular purpose according to their properties.</p> <p>In “Around the World” children will begin to explore similarities and differences between the natural world around them and those of children in other countries.</p> <p>In the “Animal Adventures” project children will begin to develop an understanding of habitats through minibeast homes, the school pond environment and the farm. Children will observe changes in the life cycle of tadpoles and butterflies.</p>	<p>In the project “Dinosaur Rumpus”, children will be introduced to identifying and classifying dinosaurs and common animals dependent upon whether they are omnivores, carnivores or herbivores. Children will deepen and develop their knowledge and understanding of and apply the key vocabulary of omnivores, carnivores or herbivores during the “English Country Garden” project work in the Summer term.</p> <p>In the project “Autumn and Harvest” the children will record their observations of seasonal change through observational drawing and poetry.</p> <p>As part of “Shake, Rattle and Roll” children will build on their knowledge and experiences of materials from Reception through naming and categorising. Children will apply this knowledge through their Design and Technology work in creating their preschool toy. In “The Troll” children will extend and apply their knowledge of properties of materials through testing in order to construct bridges.</p> <p>In “English Country Garden” the children will identify and name a variety of common garden and wild plants within our local environment. Children will begin to use appropriate scientific vocabulary to describe and label to create their non-fiction book. In continuous provision the children will plant a bean and apply their</p>	<p>Children in Year Two will apply their knowledge of properties of materials in a river-crossing problem solving activity when learning about Brunel in the “Brilliant Britain” project. Through a range of exploratory activities children will investigate how materials can be changed through different processes, for example twisting, squashing, bending and stretching. Children will apply their knowledge of the properties of materials and their suitability for different uses in designing houses for the Great Fire of London.</p> <p>In the project “Food Glorious Food” children will develop their understanding of basic needs of animals, including humans, to grow and be healthy including exercise, hygiene and nutrition. They will apply this knowledge to inform healthy choices when writing menus for their restaurant. Children will design and perform simple tests so that they can ask and answer questions about keeping their bodies fit and healthy. This will include gathering and recording data, using observations and recognising that questions can be answered in different ways. Children will learn about how they have changed since birth and consider how these changes will further develop into adulthood. They will further explore how this process relates to other common animals.</p>

<p>Learning Garden: Children will enjoy monthly visits to the learning garden where they will have the opportunity to observe seasonal changes in their school environment including plants, animals and weather. They will record their observations through drawing of plants and animals, photographs and contributions to whole class discussions.</p>	<p>knowledge of plant structure and use their observations to complete a bean diary. Children will learn about different animal groups and their features to support identifying and classifying as well as applying prior knowledge of omnivores, carnivores and herbivores. Children will identify, name, draw and label the basic parts of the human body and link to the parts of the body associated with each sense.</p> <p>Learning Garden: Children will enjoy monthly visits to the learning garden where they will have the opportunity to observe seasonal changes in their school environment including plants, animals and weather including day length. During the course of the year, the children's individual observations will be recorded in a class learning garden journal, leading to the children recording their own observations. The children will explore opportunities for data gathering and recording to help answer questions as well as using simple equipment to support observations, e.g. hand lens.</p>	<p>In "Pirate Island" children will deepen their understanding about a broader range of living things and their habitats and apply this knowledge when designing their island, including considering the food chain and the habitat needs of each animal. Children will develop identification and classification skills when comparing things which are alive, never alive and/or dead.</p> <p>In "Budding Botanists" children will make predictions and perform simple tests to develop their understanding of the conditions needed for bulbs and seeds to grow into healthy, mature plants in order to compete in a sunflower growing competition.</p> <p>Learning Garden: Children will enjoy monthly visits to the learning garden where they will develop their skills in working scientifically through using observations to gather and record data and help answer questions. This includes looking at plant and minibeast diversity using a plot study. During the course of the year, the children will complete their own learning garden journal to record their own pictorial and written observations. Children will have practical opportunities in the learning garden to explore their understanding of things which are living, dead or never been alive as well as animal and plant habitats and food chains.</p>
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Aims of a scientist leaving our school

Children will leave Mudeford Infants using simple scientific language to talk about what they have found out, particularly (but not exclusively) around the subjects of plants, animals including humans, everyday materials, seasonal changes, and living things and their habitats. This will provide a strong foundation of skills and knowledge in working scientifically to build on as they enter KS2. They will be happy, confident scientists who can apply their understanding of working scientifically to different challenges and experiences, being prepared to have a go and see what happens. They will develop a sense of excitement and curiosity of the world around them as they experience, observe and question, looking more closely at the natural and humanly-constructed world around them in a first-hand practical manner. Children will learn that science is everywhere and that anybody can be a scientist, regardless of academic ability.