Goosewell
Primary Academy

Rise To Greatness

Science Curriculum

Overview

The science curriculum at Goosewell is designed to encourage our children become active learners in exploring the world around them. The cyclical nature of the subject means that elements or topics are taught more than once in their time at primary school and the knowledge and skills are explored in increasing depth each time they are revisited. A focus is placed upon practical investigation which ensures that it is accessible to all children at their own level. To complement this, there are many opportunities and visits outside of the classroom to develop the children's own scientific interests.

EYFS

Science in EYFS is mostly centred around 'Understanding of the World' in which children are encouraged to explore their own environment with activities such as making 3D rockets from 2D shapes and launching them, feeling ice in the mud kitchen at winter and looking closely at minibeasts in the outside area using hand lenses.Within the continuous provision, there is a table set up with science equipment which is frequently changed. This encourages children to follow their own areas of interest such as looking at the shadows created by different objects, feeling different materials and discussing natural objects such as leaves and flowers.

Key Stage 1

In Key Stage 1, the focus is upon building the foundations upon which knowledge can be built further up the school.

In Year 1, children learn the vocabulary associated with plants and animals in their topics 'Plant Parts' and 'Animal Parts' and learn how to use their sense to investigate and describe the world around them in 'Human Senses.' They observe changes in the weather and environment throughout the year in their 'Seasonal Changes' topic and identify and describe the properties of materials in their 'Everyday Materials' unit.

In Year 2, the children build upon their knowledge and learn about the basic needs of humans and plants in 'Human Survival' and 'Plant Survival.' They learn to compare the suitability of materials for different purposes and investigate how squashing, stretching and bending can affect the shapes of some solids in 'Uses of Materials.' In their 'Habitats' topic, they learn about basic food chains and investigate minibeasts and plants in their microhabitats around the school.

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Lower Key Stage 2

In Year 3, children revisit their understanding of animals and learn the specific nutritional requirements of humans and how these compare to animals. They learn the names and purposes of a variety of bones and how the muscles and joints work together to create movement. In their ‘Force and Magnets’ project, children are introduced to contact and non-contact forces and learn about how the poles of magnets can attract or repel each other before using this knowledge to make their own compass. In ‘Plant Nutrition and Reproduction,’ they are introduced to the concepts of pollination and seed dispersal before being given the opportunity to grow their own seeds using their knowledge of ideal conditions. In ‘Rocks, Relics and Rumbles,’ children classify a variety of rocks according to their features and learn the names of a variety of igneous, sedimentary and metamorphic specimens. In the summer term, they explore how shadows are created in their ‘Light and Shadows’ topic and investigate reflective materials and how these differ from light sources. They also explore sun safety and learn steps they can keep to protect themselves in the warmer months.

In Year 4, children develop their understanding of classification with the introduction of classification keys to compare living things. In their ‘Food and the Digestive System’ topic, they look at the functions of different parts of the digestive system as well as the roles that different teeth play for herbivores and carnivores. Building upon knowledge from Year 2, they examine food chains in more detail, exploring the consequences when these become unbalanced. Within their ‘Misty Mountain Sierra’ topic, they learn about how humans can affect their natural environment and the natural process of the water cycle. They explore how heat can affect the states of matter and observe how some materials can change between solids, liquids and gases at different temperatures. In their ‘Sound’ topic, children learn how sound is caused by vibrations and explore volume and pitch using a variety of traditional and home-made instruments. To further their understanding, they learn how sound travels through the different parts of the ear and how this sends electrical signals to the brain. Finally, in their ‘Electrical Circuits and Conductors’ project, the children learn about the components of simple series circuits and after building their own, investigate the effects of adding conductors and insulators.

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Upper Key Stage 2

In Year 5, children learn about how the planets orbit the sun in their ‘Earth and Space’ topic and use this to understand seasons as well as day and night. They build upon their understanding of forces by looking more carefully at friction and air resistance and exploring how mechanisms can increase the size of a force. They study the reproduction of plants and humans and examine the changes that happen from birth to old age. In ‘Sow, Grow and Farm,’ they describe the differences in the life cycles of mammals, amphibians, insects and birds look at how scientific understanding can be applied to real-world situations such as growing crops. In ‘Properties and Changes of Materials,’ they investigate how to separate mixtures using filtration, sieving and evaporation and learn that some changes are irreversible, resulting in new materials.

In Year 6, the children combine their knowledge of nutrition and the body to explore how blood transports water and nutrients to the organs and muscles. In ‘Electrical Circuits and Components,’ they explore how to adjust the brightness of a bulb and the volume of a buzzer, drawing their findings using formal electrical circuit symbols. In ‘Evolution and Inheritance,’ the children recognise the subtle differences between adults and their offspring and how this causes changes to species over time. They apply this knowledge in their ‘Frozen Kingdom’ project when looking at how their chosen animal has adapted to life in its environment. Finally, they develop their understanding of light from Year 3 to explore the spectrum and look at optical illusions in ‘Light Theory.’