



Townlands C of E Primary Academy

A journey of learning in the light of God's love.

Science

"The important thing is not to stop questioning. Curiosity has its own reason for existing."

Albert Einstein

Our Vision for Science

At Townlands, we believe that science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way they do and it teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to appreciate the way in which science will affect their future on a personal, national, and global level.

Why do we teach science?

At Townlands, we value science as an important part of the children's entitlement to a broad and balanced curriculum. We teach science every week so that the children can fully immerse themselves and have opportunities to reflect and build upon prior learning. It is our intention to recognise the importance of science in every aspect of daily life.

The science curriculum aims to ensure that all children:

- Are given opportunities to ask and answer scientific questions;
- To plan and carry out scientific investigations, using equipment (including computers);
- To use a range of scientific enquiry such as pattern seeking, observation over time, research, fair testing and identifying and classifying;
- To know and understand the life processes of living things including plants, animals and humans and to know about different living things and their habitats;
- To know and understand the physical processes of materials, electricity, light, sound, and natural forces;
- To know about the nature of the solar system, including the earth;
- To gain an understanding of inheritance and evolution;
- To evaluate evidence and present their conclusions clearly and accurately.

- To know some scientists and how their research has impacted our current understanding of the world.

As a school, we aim to:

- Develop a curriculum which promotes progress and understanding for each child.
- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- Develop a curriculum which allows children to develop scientific enquiry skills.
- Develop cultural capital to give our students the vital background, knowledge required to be informed and thoughtful members of our communities.
- Give children experiences in a range of topics.
- Provide links with our local and wider community to make learning relevant and purposeful.

Rationale – Why we do what we do

After completing a science audit with pupils and staff we know that children are fascinated by science. They have experienced a wide range of practical activities designed to explain scientific principals and extend their ability to experiment fairly. Children are naturally inquisitive and ask questions relating to the world around them which we aim to address throughout the science curriculum.

Enrichment

Children will learn about areas of significant scientific interest such as biology, chemistry and physics. In addition, they will be introduced to famous scientists such as Dr Jane Goodall, Isaac Newton, Mary Anning and Carl Linneaus (as they relate to specific topics). Children will also experience the following:

- Meeting and talking to scientists and students in association with The University of Leicester Widening Participation Programme
- Talks and discussions with adults who are working in scientific fields such as medicine, engineering, computing, electrical systems
- Visits to scientific places of interests
- After school science clubs
- Attend and participate in STEM science lessons at local High schools

How do we deliver the curriculum?

The teaching and implementation of the science curriculum at Townlands is based on the National Curriculum. We aim to increase pupils' knowledge and understanding of our world, and with developing skills associated with science as a process of enquiry. We also aim to develop the natural curiosity of the child, encourage respect for living organisms and the physical environment and provide opportunities for critical evaluation of evidence.

Scientific Skills

- Work scientifically
- Follow a scientific enquiry approach
- Observe patterns over time
- Research
- Classify
- Collect and analyse data
- Apply mathematical skills when analysing data.

These scientific skills are repeated throughout school so that the children can build upon and refine their skills in each area. Throughout each science unit taught, a thread of scientific enquiry ensures that pupils build upon their experiences in a progressive and age appropriate way:

- Children will learn about fair tests and will know how to carry out an investigation resulting in accurate and fair results, from which to make conclusions
- Children will undertake comparative tests and will gain the independence to choose their own appropriate enquiry types to answer their own questions
- Children will be encouraged to develop and apply scientific vocabulary
- Children will use a range of resources to develop their knowledge and understanding of working scientifically
- Children will reflect on previous learning and be given opportunities to develop cross curricular links where possible
- Children will be able to build on prior knowledge and link ideas together, enabling them to question and become enquiry based learners
- Attainment will be assessed each half term through related topic assessment tasks

EYFS children have access to an investigation station where they can explore a variety of materials and their properties, which promote scientific curiosity, awe and wonder. This is enhanced by outdoor learning where children can explore different areas.

Throughout KS1 and KS2 children will have the opportunity to make cross curricular links with other topics such as using electricity within a design and technology project, exploring sound during music lessons and developing their knowledge of rocks and soils when learning about The Stone Age.

Science in the curriculum

- Teachers plan using the National Curriculum
- We enhance the National Curriculum using subject progression grids
- Subject progression grids are used to develop long term planning

- Teachers use the long-term planning to plan units of work (which may be linked to themes) and deliver individual lessons

This is how we support and ensure access for all children:

- We ensure that a range of equipment and resources are available to enable success for all pupils (e.g. practical equipment, outdoor learning, additional templates etc).
- We use teacher and self-assessment to quickly identify any child who requires additional support in specific skills

This is how we challenge:

- An additional extra challenge is planned for, from the very start of the lesson

How does the science curriculum embed knowledge?

The successful approach at Townlands results in an engaging and high-quality science education that provides children with the foundations and knowledge to become curious about the world in which they live. They will be given the skills to investigate questions, answering then in an accurate and systematic way.

- Most children will achieve age related expectations in science at the end of their cohort year.
- Children will retain knowledge that is pertinent to science with a real-life context; aided by our knowledge organisers
- Children will be able to question ideas and reflect upon knowledge
- Children will work collaboratively and practically to investigate and experiment
- Children will be able to explain the process they have taken and be able to reason scientifically.



Useful Websites

Here are some useful websites:

<https://pstt.org.uk>

<https://explorify.uk/>

<https://www.stem.org.uk/primary-science>

