



Science at Limehurst

Explore Investigate Motivate

Purpose

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. Above all science should be interesting and fun for young children.

Aims: The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

National Curriculum Science 2014

Science Teaching

Working scientifically underpins all of the subject knowledge topics.

Principles of Science Teaching – Explore Investigate Motivate

- Children's curiosity is encouraged and valued; they are excited and enthusiastic when anticipating their science lessons.
- Science is practical and hands on where possible and children enjoy learning through exploration and question raising; they have the opportunity to use good quality resources.
- All pupils are actively engaged in science enquiry; using a variety of enquiry strategies, independently making decisions and answering their own questions, and differentiated to meet all children's needs.
- Progression of science and investigational skills is evident and taught throughout, encouraging children to think, understand and progress. Children confidently use accurate scientific vocabulary in context.
- Teachers plan for and use different assessment strategies during science lessons.
- Children learn together collaboratively and learn from each other.
- Teachers are enthusiastic and knowledgeable about the topics.
- Whenever possible, enrichment events, workshops, learning outside the classroom and science visitors happen regularly.

How to teach science well- Good to Outstanding!

- ❖ Understand pupil's prior learning – what they know and can do already and misconceptions.
- ❖ Facilitate the learning opportunities and challenge needs.



- ❖ Give feedback causing thinking and that affects learning.

How do pupils learn science?

- ❖ Understanding their own ideas – confront their own understanding and misconceptions
- ❖ Exploring/noticing/observing.
- ❖ Identifying/classifying/pattern seeking.
- ❖ Questioning theirs and others ideas.
- ❖ Testing/experimentation/research.
- ❖ Discussion/dialogue/argument

Working Scientifically

Working scientifically is more than fair testing – it includes different types of enquiry:

- Observing over time
- Identifying and classifying
- Pattern seeking
- Research
- Fair testing
- Reporting/presenting

The purpose of working scientifically is to answer scientific questions – enquiry based learning.

The non-statutory guidance illustrates how working scientifically might apply in each topic.

Assessment for learning in science

- Assessment should be part of the learning process.
- Assessing is done best while pupils are 'doing science' and not when science is over!
- Plan for it, look for it, ask for it and record it as you go. Use everyday classroom work to assess against learning challenge
- To complete at least 1 scientific enquiry based investigation using school Science planning sheets per term
- To complete Assessment grids – Hamilton Trust assessments, in year key stage cycles

Monitoring

- A moderation across school to ensure progression of scientific enquiry skills.
- Book scrutiny
- Assessment grids (at least twice a year)
- Informal classroom observations / learning walk