"Let Your Light Shine"

Frieth C.E.C. School
Science Policy

Date implemented : June 2019
Member of staff responsible: Martin Gosling
Designated Governor: Christine Weaving

Headteacher's signature ……

Review date: June 2021	signed:	date:
Review date: Feb 2024	signed:	date:
Review date:	signed:	date:
Review date:	signed:	date:

Frieth School Vision statement:

'…Your light must shine before people, so that they see the good things you do.'

Matthew 5:16

Science Vision Statement:
Develop curiosity to inspire tomorrow's scientists.

Values:

These are the Christian Values that you believe are both taught and learnt in our school.

Kindness
Honesty
Creativity
Responsibility
Resilience
Respect

Intent

Introduction
A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science stimulates and excites children's curiosity about phenomena and events in the world around them. It also satisfies this curiosity with knowledge. Through play and observation children are learning scientific concepts from a very early age and because of its practical nature, science can engage learners at many levels. Children learn to question and discuss science-based issues that may affect their own lives and the direction of society and the future world.

The 2014 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.

In our approach to Science we aim to:

1. Give every opportunity to relate Science to everyday life and to consider the sensitivity needed when working with living things and the environment.
2. Encourage every child to investigate, question and discuss in order to acquire scientific knowledge, understanding and skills.
3. Encourage children to hypothesise and to find ways of testing their ideas to provide evidence to support their ideas.

4. Teach scientific vocabulary and to use a variety of ways to present the results of their investigations.
5. Promote key skills by offering a range of contexts for the development of:
    - Literacy – communicating facts, ideas and opinions, reading
    - Mathematics – application of number through collecting, considering and analysing data
    - IT – through using a wide range of ICT
6. Through a cross-curricular approach to learning, provide opportunities to learn about aspects of personal, social and health education (PSHE) and citizenship.
7. Ensure children recognise hazards and risks when working with living things and materials and agree safety rules.
8. Provide opportunities that engage the children in relevant, interactive first-hand experiences.
9. Encourage children to work co-operatively and collaboratively, developing their confidence in communicating ideas.

Objectives

We will fulfil these aims by:

1. Using the rich and stimulating environments that surround our school to enable us to provide opportunities for learning about life processes and living things, through observation, questioning and wonder.
2. Providing a wide range of interactive, practical activities for individual and group work that encourage the children to explore and find out and develop their understanding of key scientific ideas and make links between different experiences.
3. Developing the children's investigative skills and understanding of Science through the use of questioning and giving them opportunity to express their findings and ideas to their peers and a wider audience.
4. Planning opportunities to develop skills predicting, asking questions, making inferences, drawing conclusions and making evaluations based on evidence and understanding.
5. Teaching scientific and mathematical language, including technical vocabulary and conventions, and drawing diagrams and charts to communicate scientific ideas.
6. Planning opportunities to extract information from sources such as reference books or IT, as well as through science visits and visitors to school.
7. Working collaboratively in pairs or groups, listening to and sharing ideas and treating these with respect.
8. Recall and recap on knowledge taught to ensure impact of the subject.

Statutory Requirements

Early Years Foundation Stage

Children entering school will be expected, by the end of their first year, to have made good progress towards (and where appropriate beyond) the early learning goals as outlined in the Statutory Framework for the Early Years Foundation Stage (2012). Opportunities for developing scientific knowledge and skills will be given as set out under the area of learning called *Understanding the World*. This area of the Foundation Stage prepares children for scientific learning in Key Stage 1 and is consistent with the National Curriculum 2014.

National Curriculum

At Key Stages 1 and 2 the programmes of study set out what the children should be taught and are expected to know by the end of each Key Stage. *Although the National curriculum sets these out within distinct year groups**, schools are only required to teach each relevant programme of study by the end of the key stage**.*

The Programme of Study for each key stage identifies four areas of science that children study.

- Biology
- Physics
- Chemistry
- Working scientifically

Although described separately, 'Working Scientifically' guides the teaching of science and **must** always be taught through the other three identified areas. Science is also supported through the use of ICT.

Implementation

Organisation

The Science scheme of work is developed through two or topics a term at Key Stages 1 and 2 to ensure that the programmes of study are fully implemented into the Curriculum. Within these topic areas discrete learning objectives, which are appropriate to the different age groups, are given, allowing opportunity to reach the attainment end points. These are linked to the curriculum policy and progression tables.

Curriculum Design

The science curriculum is mapped out so that topics are linked to seasons and locality. Plants for years 1 – 3 occurs in the summer term so that the children can visit Lady Ryder Memorial Garden. Year 3 – 6 study living things and their habitats at the start of the Autumn term so that they can visit the garden and learn about reproduction and classification of plants. All classes visit a farm each year. For example, in Year 2, they study animals and humans in the spring term and visit Hanger Farm and watch some lambing; in year 3 they visit Lacey's Farm to learn about nutrition watch some live milking. This creates awe and wonder makes learning memorable.

Cross Curricular Links

Our curriculum is designed so that cross curricular links can be made to other subjects. For example, in year 6, Animals Including Humans, which includes the circulatory system, job of the heart, what is blood and how it is transported around the body, how heart rate is affected by exercise, is taught in half term 5 to link in with the text Pigheart boy which is taught as the reading text for the half term. The forest school curriculum, the pupils discuss light and the importance of the sun in helping things grow.

Science Week

Science week is delivered biennially in the Autumn Term. During this week, all subjects are linked to science with cross curricular link made across. A number of enrichment activities are also organised such as a mad scientist, planetarium and reptile man visiting the school in recent years. Parents who work in science related industry are are also invited in speak to the children developing cultural capital.

Resources and Planning:

Science resources are easily accessible to all staff. The majority of equipment is stored centrally in the large loft area. Children have access to a range of science books in the library. The outdoor school environment is used throughout the year by all year groups and has been recently updated to include a fire pit area. Specific Forest School lessons are taught to all year groups over a six-week block. The pond and wild garden as well as the raised beds are used by all children throughout the year. Teachers follow Twinkl scheme of work.

A full list of resources stored in the school can be found within the Science folder. T:\Planning\science\Resources

How delivery and content will be made accessible to all pupils including SEND

We are an inclusive school. As with all subject areas, delivery of Science is made to all pupils through Quality First Teaching, which considers the learning needs of all the children in the classroom. Effectively including all children with SEND and ensuring they cover the school curriculum is a strength of this school. In science teachers plan for inclusion to ensure full coverage. Lessons are not in ability groups and SEND children participate fully and where possible gain leadership experience during investigations when working scientifically. Differentiation is seldom by outcomes but by enabling interventions then ensure full participation and understanding is the norm. Reasonable adjustments are always made to ensure access to this curriculum is effective for all children.

Monitoring and Evaluation

The Senior Leadership Team monitors the progress in Science on a termly basis in order to identify trends in pupil progress and identify any individual pupils who may need further support. Pupil progress meetings are held on a termly basis. The Science Curriculum lead will follow a programme of monitoring that includes classroom visits, book scrutiny, planning scrutiny and learning walks. At the end of each term, pupils will be assessed within one of the following bands: Pre-Key Stage (PKS); Working Towards the curriculum (WT); Working at Expected (EXP); Working at Greater depth (GDS). Levels are added to the Insight Assessment tool for the subject lead to analyse.

A governor responsible for monitoring Science will work alongside the co-ordinator to ensure the policy is being followed to successfully deliver the planned outcomes.

Health and Safety

Health and Safety is an integral part of teaching. As teachers and citizens in a dangerous world, we have a responsibility to encourage children to approach hazards in a safe way. There are few risks associated with Primary Science, but children should be taught the importance of safety and the correct way of handling tools, materials and equipment. The school follows the Buckinghamshire County Council Health and Safety code of Practice for Primary science which is stored in the School Health and Safety file. Further advice is also available on the CLEAPS website. http://www.cleapss.org.uk/primary/primary-resources/primary-guides?start=10.

Children are not allowed to visit the pond area unless they are supervised by an adult.

A risk assessment policy has been added for use of the fire pit during outdoor learning.

Equal Opportunities

All children are valued for themselves and taught as equals regardless of race, gender, ability or disability. Through planning the Science curriculum with differentiated tasks, either by task or outcome, all children have access to the curriculum, including children with Special Educational Needs.

Related policies

Learning and teaching
Assessment
Curriculum
Health and Safety
Literacy
Numeracy
Computing
Equal Opportunities

Impact

Assessment

At the Early Years Foundation Stage, assessment is through observation and is mainly formative. The Foundation Stage Guidelines offer examples of what children do to help identify when knowledge, skills, understanding and attitudes have been achieved by individuals or groups of children to inform planning for the next stage in the children's learning. Children's progress in Science will be reported to parents in the end of year school report under the heading of *Understanding the World.*

The Science progression document enables staff to understand what pupils have learnt before, what they need to learn now and what they will learn next. The Twinkl Assessment Statements are used to makes judgements on the children's levels. Results are then added to 'Insight.'

Within KS1 and KS2 assessment takes place in a variety of ways. These can be assessed in a variety of ways:

- Observations of a child or group on task;
- Discussion with children about their task;
- Work on from IT which is then printed out or performed;
- Children's own evaluation of their work.
- Twinkl end of Unit Assessment Test

These assessments:

- Inform future planning;
- Provide information about individuals or groups;
- Provide summative information for parents.

Observations during practical work and discussions help us to make informed judgements about children's understanding in Science both in and outside of the classroom.

Progression of skills maps reflect the criteria and possible evidence for judgements to be made. These are moderated to ensure consistency across classes and year groups.

In line with the National Curriculum, assessment at the end of Key Stages 1 and 2 is based on teachers' assessments of the children's progress in the four areas of study. The results are recorded by County and are reported to parents during the Summer Term.

At the end of the school year all pupils will be teacher assessed as; working towards, at the expected or working at greater depth within Science. The school records this on Insight.