



William Fletcher Primary School

Where Everyone Counts

Science Policy

William Fletcher School is a Rights Respecting School, this policy reflects Articles 17 (access to information), 24 (access to health education), 28 (right to education), 29 (goals of education).

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. *The National Curriculum 2014.*

1. Aims and Objectives

Aims and Intent

Science encourages children to ask questions and explore and understand the world around them, in addition to developing life-long problem-solving skills. It is through the implementation of our science curriculum that we hope to encourage and achieve the following aims for our pupils:

- * Develop enquiring minds.
- * Develop scientific knowledge and conceptual understanding of their world, 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 answer scientific questions about the world.
- * Ensure pupils are equipped with the scientific knowledge required to understand the uses and implications of science, for both today and the future.
- * Evaluate evidence and present conclusions clearly and accurately.
- * Work carefully and safely.

2. Teaching and Learning: Implementation and Inclusion.

2.1 Our approach to teaching and learning

We use a variety of teaching and learning styles in science to ensure each of our pupils is able to develop their scientific skills and understanding. Our principal aim is to develop children's knowledge, skills and conceptual understanding. We aim to teach scientific enquiry through whole-class teaching and practical activities. Children are encouraged to use a variety of data, including graphs, diagrams, photographs and statistics. Where appropriate, children use ICT in science lessons to enhance their learning. During lessons, children may work on their own, in pairs or as part of a group depending on the task and nature of the lesson.

2.2 Inclusion

To cater for children of different abilities, we ensure learning opportunities are matched to the needs of children in our school, taking into account the targets in children's IEPs. For example, this may include the pre-teaching of scientific vocabulary, the use of concrete resources to reinforce theoretical concepts or working in small groups with adult support. We also aim to be proactive in

identifying learning opportunities that will challenge our more able children. For example, planning differentiated outcomes which will stretch and challenge their understanding etc.

2.3 Resources

We have resources for all science units of work in the school. We keep these in the science resource cupboard, where there are clearly labelled boxes and trays. The library contains a good supply of science topic books. Computer software is used to support children's individual research. We also have more specialist resources (such as electronic microscopes) available to us and the use of these is encouraged across the science curriculum.

2.4 Safety

Children are taught to observe the rules of safety and understand that materials and equipment need to be handled sensibly. Teachers are aware of the contents of the document **Be Safe** published by the Association for Science Education which has been adopted by the county as its Science Safety policy. A copy of the document is kept in the staff room. When appropriate, Risk Assessments may be completed prior to practical or off-site activities.

3. Impact and Assessment

Assessment

We assess children's work in science by making informed judgments as we observe them during lessons. On completion of a piece of work, the teacher marks it in line with the school's marking policy. Work may also sometimes be peer or self-marked if appropriate and discussed in groups or as a whole class. Each child in the school has a science ladder linked to the national curriculum and details objectives they will cover within each topic. When a child achieves an objective their class teacher highlights it with a green pen. Science ladders are kept in the back of the children's science books providing easy access for pupils, teachers and parents to identify where a child is in their learning journey and attainment. We give our pupils the opportunity to demonstrate their scientific knowledge, skills and understanding in a variety of ways so we can accurately assess their attainment. Teachers use a variety of assessments when making judgements about pupils (for example: discussions between teachers, written pieces of work, quizzes etc.). This helps to ensure that the assessment focuses on the specific scientific objective rather than, for example, how well-written a piece of work is. Therefore, using the same method to assess science may not be appropriate for all pupils and teachers use their judgement as to which assessment task would be most suitable.

4. Science curriculum planning

4.1 The Two-Year Spiral Curriculum:

The school uses the national curriculum as the basis of its scheme of work for science. The scheme of work is organised into a two-year rolling programme, where every child visits the same knowledge areas of the curriculum in any academic year, covering the content that is suitable for their age and stage. This ensures that children will not miss or repeat any area of the curriculum and that there is a clear progression of teaching and learning throughout the school.

The science curriculum areas are as follows:

Cycle A

Ourselves and other animals, Habitats (Biology)
Changing materials (Chemistry)
Light and Sound (Physics)

Cycle B

Plants, Keeping fit and healthy (Biology)
Properties of materials (Chemistry)
Electricity, Forces and movement (Physics)

Curriculum planning in science is reflected in long and medium-term plans. Long-term planning maps scientific topics studied in each term during the key stage. Science is taught both as a discrete subject and through cross curricular links where appropriate. Medium-term plans detail each unit of work for each term. The science coordinator keeps and reviews these plans.

4.2 Vocabulary

Children are taught and encouraged to use scientific and technical vocabulary specific to the area of study. Key vocabulary for each unit and lesson are detailed on lesson plans and made explicit to pupils during lessons to encourage them to use the vocabulary correctly.

5. The Foundation stage

Science in The Foundation Stage is covered in the 'Understanding the world' area of the EYFS curriculum. It is introduced through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.

Understanding The World: The Natural World

Early Learning Goals

Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

In the EYFS children use a range of 'Characteristics of Effective Learning' in their independent learning. These can be seen as complementing 'Working Scientifically'.

- Playing and exploring – engagement

Finding out and exploring; playing with what they know; being willing to 'have a go'

- Active learning – motivation

Being involved and concentrating; keeping trying; enjoying achieving what they set out to do

- Creating and thinking critically – thinking

Having their own ideas; making links; choosing ways to do things

In continuous provision:

These are the activities that are available linked to children's needs:

Water tray (floating, sinking, absorbency)

Sand tray/pit (consistency of materials, role play)

Bug hunts (bug hotel, logs to turn over, wild flowers and long grass)

Construction area (junk modelling, different types of materials)

Growing area (seeds, plants, minibeasts)

Mud kitchen (consistency of materials, scented herbs, stones, minibeasts)

Sound (musical instruments and sound)

Small world (different animals, props, dolls' house, figures)

Playdough area (birthday props/cake decorations to encourage talk about changing and growing)

6. Monitor and Review

6.1 The Senior Leadership Team and science lead review the science work completed in children's books. The quality and content of the learning is discussed and fed back to key stage teams.

6.2 The Science Subject Leader reviews the curriculum map and examples of planning from each key stage.

6.3 As discussed in the *Assessment* section, the subject lead and staff also discuss any trends or patterns in attainment.

Policy Name Science Policy

Frequency of review 3 years

Reviewed January 2022

Reviewed by Amy Lancaster- Science Co-ordinator and staff team

Next review date January 2025