



Thistly Meadow Primary School

SCIENCE POLICY

Approved by Governors (date)

Signed on behalf of the Governing Body

Chair of Governors

THISTLY MEADOW PRIMARY SCHOOL

SCIENCE POLICY

Rationale

At Thistly, all pupils are taught a high-quality science education through the specific disciplines of biology, chemistry and physics. Opportunities for scientific engagement are well planned and thought out, ensuring essential aspects of the knowledge, methods, processes and concepts of science are presented to pupils. Our pupils are encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. Through delivering a stimulating, exciting and purposeful science curriculum, we provide the opportunity for pupils to develop an understanding of the world and make sense of our environment. This is done primarily through explorative tasks, which allow the pupils to engage with science first-hand.

The role of science in our curriculum is to develop and refine the skills inherent in pupils by introducing them to the world of living things, materials and physical phenomena. It is a chance for pupils to understand how science has changed our lives and is vital to the world's future prosperity, whilst also encouraging them to recognise how science can be used to explain what is occurring, predict how things will behave and analyse causes. Thus, we aim to give the pupils the knowledge, skills and understanding they need to lead confident, healthy, independent lives and to become informed, active and responsible citizens and learners. This applies to all groups of pupils in school, including LAC, SEND, Disadvantaged/Pupil Premium, G&T, EAL and other vulnerable groups including 'hard to reach' families. Pupils have many collective experiences, assemblies and projects, which help to develop their personal and scientific qualities.

Purpose

Through Science at Thistly, we aim to ensure that all pupils develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. Through these strands, the children are encouraged not to passively accept stated facts or knowledge, but to think for themselves, to question what is going on around them and see things from a deeper perspective, thus developing pupils' enthusiasm to enhance their knowledge by a readiness to discover more.

Our science curriculum also aims to develop understanding of the nature, processes and methods of science through different types of science enquiries that help our pupils to answer scientific questions about the world around them. This is a linear process that builds upon yearly from the Foundation Stage, as we recognise that developing the skills necessary for investigation in science are complex and need fostering over a period of time. Developing these tools is at the heart of our curriculum, with all science topics featuring several opportunities for pupils to challenge their thinking, explore new possibilities and

more generally understand how to go about investigating the scientific questions presented to them or those that they pose themselves.

It is important to us at Thistly that our pupils are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Guidelines for teachers

Thistly strives not only for the ongoing progress of our pupils in science, but also for a concrete understanding of each block of knowledge and conceptual awareness before moving onto the next stage. In doing this, we believe we are limiting the chances of misconceptions and empowering our pupils to reach higher-order content further in their science learning journey. With the new assessment that we have adopted in science, this becomes simple to track as pupils move through year groups and thus steps can be put in place to ensure we are constantly closing the gap between pupils.

The teaching of science is immersive to ensure key skills such as communication, application of number, computing, working with others, improving their own learning and problem solving are an integral part of the planning and teaching cycle. We also seek opportunities for science to be weaved further through the curriculum to prevent it being a stand-alone subject and allowing pupils to apply and embed skills and knowledge in meaningful and purposeful contexts. Teachers at Thistly provide pupils with ample opportunities to extend scientific discovery beyond the classroom, whether this be into the outdoors or further into the community to bring their learning to life.

Science in the Foundation Stage

The core to science teaching in the Foundation Stage involves guiding children to make sense of their physical world and their community. The planning and teaching cycle ensure that pupils are taught to:

- Know similarities and differences in relation to places, objects, materials and living things
- Talk about the features of their own immediate environment and how environments might vary from one another
- Make observations of animals and plants and explain why some things occur
- Talk about changes

Science in KS1

The principal focus of science teaching in KS1 is to enable pupils to experience and observe natural phenomena, focusing on the natural and humanly-constructed world around them. Through this, pupils should be given opportunities to:

- Be curious and ask questions about what they notice
- Observe and describe what they can see
- Engage in different types of scientific enquiry to answer their own questions
- Use simple scientific language to talk about what they have found

- Learn through predominately first-hand, practical experiences
- Use appropriate secondary sources, such as books, photographs and videos
- Gather and record data to help in answering questions
- Begin to recognise when a test is unfair
- Draw simple conclusions which are supported by findings

Science in Lower KS2

The emphasis of science teaching in Lower KS2 is to enable pupils to broaden their scientific views of the world around them. To enhance this, pupils should be given opportunities to:

- Explore, talk about, test and develop ideas about everyday phenomena and the relationships between living things and familiar environments
- Make systematic and careful observations and take accurate measurements using standard units and use a range of equipment, including thermometers and data loggers
- Ask their own questions about what they observe
- Begin to analyse functions, relationships and interactions
- Make decisions about what type of scientific enquiry are likely to be the best ways of answering questions
- Record findings using simply scientific language, drawings, labelled diagrams, keys, bar charts and tables
- Draw simple conclusions
- Use scientific language to discuss and write about what they have found

Science in Upper KS2

The fundamental goal of science teaching in Upper KS2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. This will be achieved by building on knowledge and concepts from previous key stages and giving pupils opportunities to:

- Explore and talk about their ideas
- Ask their own questions about scientific phenomena
- Analyse functions, relationships and interactions more systematically
- Encounter more abstract ideas and begin to recognise how these help them to understand and predict how the world operates
- Recognise that scientific ideas change and develop over time
- Select the most appropriate ways to answer science questions using different types of scientific enquiry
- Independently plan enquiries to answer questions, including recognising and controlling variables
- Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

- Draw conclusions based on their data and observations
- Use evidence to justify their ideas
- Use their scientific knowledge and understanding to explain their findings

Health and Safety in Science

Providing an exciting and engaging science curriculum through investigative and experimental based learning requires all staff and pupils to be vigilant and consider the safety of everybody at all times. Teachers will risk assess science activities, when required, whether this be a new space the pupils will be working in or the equipment they will be using. Equipment will be checked before pupils will use it. Teachers are expected to discuss health and safety related issues with the pupils prior to activities beginning and allow opportunities for pupils to ask questions about anything they are unsure about. Appropriate equipment and clothing will be provided to pupils and staff if needed e.g. pond-dipping in the nature garden.

Planning/Assessment/Monitoring and review

Every year group has created, and follows, up-to-date medium term planning, in line with the changes to the science curriculum. To support the planning of each unit, ensuring all groups of pupils are catered for and challenged, we assess at the beginning of each science topic with a pre-topic assessment, which is re-tested once all of the teaching has been conducted. Teachers also use the assessment material to support planning, ensuring there are always opportunities for pupils to exceed. Judgements are made against age-related expectations in science using the symphony assessment sheets and all pupils are assessed as either: emerging (B), expected (S) or exceeding expectations (S+). It is the responsibility of the lead science teacher to gather in class data at the end of each term and work out percentages for classes and cohorts. This information should then be used to drive improvement in science and forms the basis of the annual subject report. The science subject leader, SLT and governors (through the learning and well-being committee) monitor standards and attainment in science based on age-expectations. The science subject leader also supports colleagues in the learning and teaching of science and organises staff INSET and CPD as appropriate. Parents are updated about progress and attainment in science at parents' evening in the autumn and spring and in the written report at the end of the year. There are also regular updates about science in the school posted on the class blogs.

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