

Science Policy

Thorntree Academy



2020-2021

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1. Science Intent

Science education at Thorntree Academy is about developing an understanding of and making sense of the world around them. We encourage children to be inquisitive throughout their time at school and beyond. The science curriculum fosters a healthy curiosity in children about our universe and promotes them to be a responsible citizen, respect other living things, respect their local community and the wider environment. Children are encouraged to explore, investigate, ask questions, answer questions and challenge scientific phenomena so they become confident scientists. Opportunities are provided to increase children's scientific aspirations and science capital through the curriculum, Science Week, educational visits and visitors into school.

Thorntree Academy offers all pupils with a high-quality science curriculum that provides the foundations for understanding the world, helping them to think scientifically, gaining an understanding of scientific processes and also an understanding of the uses of science, today and for the future. The science curriculum is taught through the three disciplines of biology, chemistry and physics, where children acquire specific skills and knowledge which are built upon; it is important for lessons to have a skills-based focus, and that the knowledge is taught through this. To promote the love of reading within science, non-fiction books are provided to support teaching within classrooms and the school library. The core spine of texts (fiction) within each year group also has links to science.

2. Science at Thorntree Academy

2.1 Science in the Foundation Stage

The Foundation Stage curriculum is based upon the 'Statutory Framework for the Early Years Foundation Stage.' Some scientific concepts are taught within the area 'Understanding the World'. It involves teaching children to use their sense to investigate and to find out about and identify features of living things and objects. The goals are taught through half-termly integrated topics. Learning through play, both teacher planned and child initiated, is a key feature of teaching in the foundation stage.

2.2 Science and Key Stage 1 and Key Stage 2

Science is a core subject within the National Curriculum. The quantity and quality of science teaching and learning reflects this status as lessons are expected to take place weekly over a 1 ½ hour session in KS1 and a 2 hour session in KS2.

The science curriculum is broken down into 'big ideas' which are repeated throughout a child's school life, building on prior knowledge.

Each section of the National Curriculum provides the programmes of study that must be taught at Key Stage 1 and 2.

3. Schemes of Work and Planning

Science is taught according to the national curriculum and linked with our cornerstones creative curriculum, where possible. The objectives from the national curriculum form the basis of our teaching and, where appropriate, science knowledge will be deepened through cornerstones. The school scheme of work offers teachers an overview of the objectives to be taught and how they link in with the creative curriculum. The national curriculum provides 4 blocks of objective for KS1 and 5 blocks of objectives for KS2, meaning that some units have been extended to cover more time than others. This has been decided based on the amount of times that the 'big idea' is taught over a child's school life.

3.1 Planning

Teacher's planning reflects the use of the National Curriculum. Teachers plan the half terms scheme of work, taking into consideration the needs for the different elements of Working Scientifically, and the use of specific technical vocabulary. The teacher retains these plans, and a copy is kept on the school network for monitoring and resourcing purposes. Planning also takes into consideration children's prior knowledge through the use of pre and post-learning tasks.

3.2 Working Scientifically

The school uses the Post-It method to teach the planning of fair test investigations. The investigations will be supported by the cornerstones 'Love to Investigate' scheme. Although the expectation is that a full investigation (including planning, recording, analysing and concluding) will only take place once every half term, other elements of Working Scientifically objectives must be included frequently.

The other elements of Working Scientifically are:

- Classifying or grouping
- Observations over time
- Research
- Spotting patterns or trends
- Surveying

The teaching methodology and organisation used to deliver these processes will vary due to individual class circumstances and the age and ability of the children. However, teachers will ensure that children have opportunities to work independently to investigate as well as part of a group. When children do work in groups, each child takes on a different role: manager, resources manager, measurer and recorder.

3.3 Science and ICT

The use of ICT is actively encouraged during Science. One of our key aims is to use ICT to offer children an alternative method of presenting their science work, using ipad apps such as: tellegami, keynote and skitch to record thoughts and ideas. As well as use for recording, apps like anatomy 4d are used to enhance the teaching of content objectives.

4. Roles and Responsibilities

4.1 Role of the Teacher

- To understand the 'big ideas' and use them effectively when planning and assessing.
- To provide opportunities to encourage curiosity
- To facilitate children's learning by careful questioning and discussion of ideas, challenging misconceptions
- To organise and provide resources to aid learning
- To plan and carry out differentiated activities
- To deliver the programmes of study as indicated in the National Curriculum
- To record progress according to the school's current assessment and record keeping policy
- To consider health and safety issues with regard to science

4.2 The Role of the Co-Ordinator

- To advise, support and assist staff in the teaching in science
- To review and update schemes of work if necessary
- To organise and develop CPD
- To monitor progress of science teaching and learning across the foundation and the key stages
- To make staff aware of any new developments in the teaching of primary science
- To conduct observations and provide constructive feedback in science
- To contribute to the school develop plan
- To organise and make available resources

5. Displays

Every classroom has a dedicated science display, which is changed regularly to match the topic being taught. This can be used by the children to refer to during lessons. Each display board must contain the appropriate vocabulary, which is discussed and referred to throughout the topic. Children assess their knowledge of the vocabulary using a system consistent across the school:

- ☺ I understand this word and could explain it to a friend
- ☹ I have heard this word before but I don't know what it means
- ☹ I have never heard this word before

Each class should also display Thorntree Academy's 'Science Principles,' which set out what we believe 'good science' looks like within school. These can then be referred to in the classroom and the children can be encouraged to demonstrate these qualities.

6. Assessment

6.1 Marking

Marking will be in line with the school's policy and will be the same standard as in other core and foundation subjects. Teachers must emphasise the correct use and spelling of scientific vocabulary in their feedback.

6.2 Assessment and Evidence

In the Foundation Stage, the children's knowledge and understanding of the world is assessed as part of the non-statutory Baseline Assessment

In Key Stage 1 and 2, teachers assess children's attainment in science in both content and working scientifically objectives. The scientific content and working scientifically objectives then give an overall teacher assessment of how the child is working in science. This data is input into the science tracker as one of the following:

A	Children are working beyond age related expectation
E1	Children have achieved independently and securely
E2	Children have achieved independently with little support
B1	Achieved with some support and some independence
B2	Skill has been supported

This is done half termly and assessed by teachers and science lead.

As this is teacher based assessment, the collection of evidence in books is extremely important. It is expected that some evidence of every lesson is recorded in children's books. Teacher's plan carefully for assessment opportunities which very much focus on individual progress rather than group. Pre and post learning tasks are used for planning and assessment purposes.

7. Equipment and Resources

Equipment is stored in the science cupboard. The cupboard is kept locked, but staff have access to the key at all times. A complete list of available resources is available from the Science Leader.

8. Health and Safety

Health and Safety in Science is covered by Be Safe, by ASE. School also has access to health and safety advice provided by CLEAPS. The class teacher is primarily responsible for the safety of the children in their class. They should ensure that all science work is carried out with the children's safety in mind. Further information for Health and Safety in Science is held by the leader.