

Thurnham C.E. Infant School



Science Policy

Member of Staff Responsible	Josie Crew
Position	Science Subject Leader
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Thurnham C.E. Infant School

‘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.’

At Thurnham C.E. Infant School, we aim to make science an enjoyable and stimulating experience for all our pupils. All children take part in science and environmental studies regardless of age, ability, gender or race.

The Science Subject Leader has developed this policy. The implementation of this policy is the responsibility of all teaching staff.

This policy is underwritten by our school Christian value of Love and our Superpowers of Resilience, Brain Power and Independence. These all form an integral part of all Science teaching and should be evident in everything we do. They should be evident within all Science sessions e.g. sharing equipment safely, respecting people’s opinions, questions and answers and trusting that their teacher will keep them safe.

Aims

These objectives are met through a scheme of work (White Rose Science) and will inform our curriculum planning in the classroom.

The aims in the National Curriculum for Science are 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 addition to this, at Thurnham C.E. Infant School we also aim:

- To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.
- To build on pupils' curiosity and sense of awe of the natural world.
- To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.
- To introduce pupils to the language and vocabulary of science.
- To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements.
- To develop pupils' use of information and communication technology (ICT) in their Science studies.
- To encourage a healthy lifestyle.
- To develop the outside learning environment.
- To ensure children understand what they have been learning

Objectives

The White Rose Science scheme of work is based upon the National Curriculum programme of study for Science. Reception pupils follow the Early Years Foundation Stage - aspects of Science can be found in 'The World' section of Understanding the World.

The principal focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

‘Working scientifically’ is described separately in the programme of study but must **always** be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

In Year 1, pupils are taught about:

- Plants
- Animals, including humans
- Everyday materials
- Seasonal changes

The statutory objectives are:

Plants:

Pupils should be taught to

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.
- Identify and describe the basic structure of a variety of common flowering plants, including trees.

Animals, including humans:

Pupils should be taught to

- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
- identify and name a variety of common animals that are carnivores, herbivores and omnivores.
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Everyday Materials:

Pupils should be taught to

- distinguish between an object and the material from which it is made.
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties.

Seasonal Changes:

Pupils should be taught to

- observe changes across the four seasons.
- observe and describe weather associated with the seasons and how day length varies.

In Year 2, pupils are taught about:

- Living things and their habitats
- Plants
- Animals, including humans
- Everyday materials

The statutory objectives are:

Living Things and Their Habitats:

Pupils should be taught to:

- explore and compare the differences between things that are living, dead, and things that have never been alive.
- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.
- identify and name a variety of plants and animals in their habitats, including micro-habitats.
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Plants:

Pupils should be taught to:

- observe and describe how seeds and bulbs grow into mature plants.
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Animals, including Humans:

Pupils should be taught to:

- notice that animals, including humans, have offspring which grow into adults.
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Everyday Materials:

Pupils should be taught to:

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Principles of Teaching and Learning

Equal Opportunities

- We plan our classroom activities to challenge and involve all pupils appropriately, according to age and capability. The work is differentiated where appropriate and children's individual learning needs are addressed.
- We use materials for teaching which avoid stereotyping, and bias, towards gender or role, thus presenting a more accurate understanding of society and of different cultures.
- We aim to deal with such issues clearly and sensitively when they arise.
- Thurnham C.E. Infant School is committed to promoting the principles and practices of equality and inclusion. A whole school approach is used to ensure all children receive equality of opportunity - not only so that every child is included and not disadvantaged - but also so that they learn from the earliest age to value diversity in others and grow up making a positive contribution to society. We acknowledge and respond to the differing needs of all children, whatever their cultural or ethnic background and experiences and whatever their physical and educational needs. We understand the importance of providing a challenging and enjoyable programme of learning and development and we undertake to make reasonable adjustments to enable all to participate and feel valued and supported.
- Thurnham C.E. Infant School is fully committed to avoiding all forms of discrimination as set out in the Equality Act 2010 (including February 2013 update). This applies to all pupils, parents and staff members and includes inappropriate discrimination on grounds of gender, age, religion or belief, physical ability or disability, learning ability, other special education needs or academic or sporting ability, race (including colour, nationality, ethnicity, family, culture or linguistic background), marital status and civil partnership, sex, sexual orientation, gender reassignment, pregnancy and maternity.
- This policy should be read in conjunction with the following school policies: **Safeguarding and Child Protection, School Accessibility Plan, Behaviour Policy and SEND information report and Policy.**

Differentiation and SEN

We use a range of strategies to support pupils. The study of science is planned to give pupils a suitable range of differentiated activities appropriate to their

age and abilities. Tasks will be set which challenge all pupils, including the more able. For pupils with SEN the task may be adjusted or pupils may be given extra support. The grouping of pupils for practical activities will take account of needs and ensure that all take an active part in the task and gain in confidence.

Variety

Pupils will be involved in a variety of structured activities and in more open-ended investigative work:

- activities to develop good observational skills.
- practical activities using measuring instruments which develop pupils' ability to read scales accurately.
- structured activities to develop understanding of a scientific concept
- open ended investigations.

On some occasions, pupils will carry out the whole investigative process themselves or in small groups.

Assessment, recording and reporting

- At the end of each year, children are given a final assessment judging whether they are emerging, at expected or exceeding the assessment requirements for the year. However, a clear marking policy and ongoing assessments of the children will help to inform teachers' planning, assess how we are challenging more able pupils, and decide how to support the vulnerable groups or children who are not meeting expected or higher.
- At the end of Reception pupils' work is reported upon as to how it relates to the Early Years Foundation Stage Profile.
- The pupils' progress is reported to parents annually as part of the annual report.

Health and Safety

When working with tools, equipment and materials in practical activities and in different environments, including those that are unfamiliar, pupils should be taught:

- About hazards, risks and risk control.
- To recognise hazards, assess consequent risks and take steps to control the risk to themselves and others.

- To use information to assess the immediate and cumulative risks.
- To manage their environment to ensure the health and safety of themselves and others.
- To explain the steps they take to control risk.

Management and Administration

The Science subject Co-ordinator leads the maintenance and development of the subject. She is responsible for assuring quality and standards in the subject by:

- Taking the lead in the development, evaluation and amendment of schemes of work as and when necessary.
- Acting as a consultant to colleagues on resources, curriculum changes, classroom-teaching ideas, monitoring and evaluating pupils' work and teacher's planning.

Resourcing

In order to encourage an investigative approach to learning all classrooms contain sufficient basic equipment to allow simple investigations, observations and measurements to be carried out in small groups. The Science Subject Leader and Headteacher will monitor the budget implications involved in the maintaining of resources at a reasonable level. More specialist pieces of equipment will be held centrally. Resources are stored in the music room cupboard and some resources will be given to each year group to store in their area.

Review, Monitoring and Evaluation

The Science Subject Leader will monitor classroom teaching in all year groups on a yearly basis and produce a report and recommendations. The Science Subject Leader will also evaluate the previous year's action plan and progress towards the recommendations and formulate a new action plan each September. The effectiveness of the science curriculum will be evaluated in discussions between the Headteacher and the Science Subject Leader. Priorities for in service support and external review will be established.