Science Policy

Record of Policy Amendment / History

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1.0	05.12.2023	A Greveson	Update

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Introduction

This policy outlines the key focus for teaching of Science at Mickley Village Primary and Nursery School and provides a framework to support teachers in the planning and delivery of the curriculum.

Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national and global level.

Intent

At Mickley Village Primary & Nursery School, we recognise the importance of science in all aspects of life. We encourage children to be inquisitive and see science as the world around them, whilst acquiring specific skills and knowledge to help them think and reason scientifically.

As a core subject, we give the teaching and learning of science the prominence it requires with science being a driver for some of our Big Questions. Science at Mickley focuses on increasing pupils' knowledge, vocabulary and understanding of our world, alongside developing their investigative skills. Children are encouraged to develop an understanding of the nature, processes and methods of science through different types of science investigations which enable them to answer scientific questions about the world around them. As a result, we develop our children's natural curiosity, encourage respect, appreciation and tolerance for living organisms, the physical environment whilst also providing opportunities for critical evaluation of evidence. Our progressive curriculum allows well pitched teaching and learning of science. Teachers create

a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. This approach ensures all pupils are equipped with the scientific knowledge, vocabulary and skills needed to understand the uses and implications of science, today, in the past and for the future.

Implementation

At Mickley Village School, we use the Developing Experts scheme to plan lessons that will ignite children's passion for science. Our lessons ensure all children learn and retain knowledge throughout the programmes of study and have exciting experiments to inspire future generations to explore STEM careers. Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science. We ensure that lessons are engaging and accessible by making adaptations to meet individual children's needs.

- **We provide problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers.**
- **Teachers use precise questioning in class to test conceptual knowledge and skills and assess children regularly to identify those with gaps in learning.**
- **We build upon learning and skill development from previous years.**
- **Working scientifically skills are embedded into lessons to ensure skill progression.**
- **New vocabulary is shared with the children and displayed in the classroom.**
- **Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding.**
- **Science will be taught in planned and arranged topic blocks to have a project based approached. This is a strategy to enable the achievement of a greater depth of knowledge.**

Impact

The successful approach to the teaching of science at Mickley Village school will result in children developing their confidence, a love of science and the world around them. We want children to enjoy and value science and appreciate the range of skills it will provide them with. We have several assessment opportunities to track pupils progress within lessons and units of work. As mentioned previously, an essential part of the children becoming scientists is by providing experiments, promoting curiosity and encouraging children to ask questions to ignite their passion for science!

By the end of KS2, our expectation is that:

- **Children will be able to develop their own questions**
- **Children will be able to plan different types of enquiries to answer those questions**
- **Children will be able to communicate their findings in a variety of ways.**
- **children will understand that part of science is failing and problem solving helps to overcome these failures.**
- **Children will have a clear understanding of how scientists both past and present have contributed to society's understanding of the world around them.**
- **Children will understand the role that science plays in solving some of the key problems facing the world, such as climate change.**

Aims and objectives

The aims of science are to enable children to:

- **ask and answer scientific questions; plan and carry out scientific investigations, using equipment, including computers, correctly;**
- **Study the following areas:**

EYFS

- **Animals**
- **Food**
- **Forces**
- **Health and Safety**
- **Insects and Invertebrates**
- **Machines**
- **Materials**
- **Our Body**
- **Plants**
- **Space**
- **The Senses**
- **Weather and Seasons**

Year 1

- **Seasonal Changes**
- **Animals, including**
- **humans 1 – All about**
- **me**
- **Everyday Materials 1 –**
- **Exploring Everyday**
- **Materials**
- **Everyday Materials 2 –**
- **Building Unit**
- **Plants**
- **Animals, including**
- **humans 2 – All about**
- **animals**

Year 2

- **Uses of everyday materials**
- **Living things and their habitats**
- **Living things and their habitats – Habitats around the world**
- **Animals, including humans 1 – Health and survival**
- **Animals, including humans 2 – Life cycles**
- **Plants**

Year 3

- **Scientific Enquiry**
- **Animals, including humans**
- **Rocks Year 3 Forces and magnets**
- **Plants**
- **Light**

Year 4

- **Animals, including humans**
- **Living things and their habitats**
- **Living things and their habitats - Conversation**
- **States of matter**
- **Sound**
- **Electricity**

Year 5

- **Forces**
- **Properties of Materials**
- **Changes of Materials**
- **Animals including Humans**
- **Earth and Space**
- **Living things and their habitats**

Year 6

- **Electricity**
- **Light**
- **Animals Including Humans**
- **Living things and their habitats**
- **Evolution and inheritance**
- **Looking after the environment**

Teaching and Learning

At Mickley Village Primary and Nursery School we work on a two-year cycle; Cycle A for a year and Cycle B for the second year. This is because we have mixed age classes throughout the school. By having a two-year cycle, children do not repeat the curriculum in their second year of the same class. This year we are following cycle B of the 2-year cycle.

We believe the best way to learn science is through first-hand experience. Initially this will take the form of activities centred around play to provide the development of knowledge, skills and understanding. We use a variety of teaching and learning styles in science lessons.

Sometimes we do this through whole-class teaching, while at other times we engage the children in an enquiry-based research activity.

We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs. They use Computing in science lessons where it enhances their learning. They take part in role-play and discussions and they present reports to the rest of the class. They engage in problem-solving activities.

Resources

The environment, in which the pupils live and work, remains a key source. This includes the school, homes, school staff and the pupils themselves. We encourage the children to make use of the school outdoor area.

Science apparatus, equipment, specimens etc; are stored centrally and are categorised and are easily accessible. Children will be encouraged to realise that with limited resources care should be taken in their use.

Children's reference books are sorted into topics and subjects, and are housed within the school library.

Curriculum planning

Mickley Village Primary and Nursery School uses the National Curriculum as the basis for planning. We carry out long, medium and short term planning. The long-term plan maps the scientific topics studied each term during the key stage. Medium term plans follow the National Curriculum and build upon prior learning. Short-term plans identify the specific learning objective. Because we have some mixed age classes we carry out the planning on a two year rotational cycle.

Science In EYFS

The early years are critical for building knowledge and vocabulary.

While building knowledge is always beneficial, the early years are especially important.

Developing Experts is used to support the teaching of Understanding of the World in EYFS. As with the rest of the school, Developing Experts is used for a short session and the learning is then incorporated into the continuous provision areas. The units are taught according to the children's interests during the week or to link with other topics being taught in the provision.

Assessment and Recording

Teachers use a variety of assessment tools, including: pre and post assessment reviews (key focus on the vocabulary learned throughout unit), pupil discussions about their learning and scrutiny of books (and digital platforms such as SeeSaw) to check for progress by the subject leader and SLT. We use assessment at the end of every unit, to assess a specific working scientifically skill. At Mickley, assessment and record keeping is an integral part of our teaching and learning policy. Books and written work provide records of pupil's achievements which help to inform planning for future learning, and reports of progress to parents.

We assess children's work through:

- **monitoring progress against school and national targets using the entry profile and 'base-line' assessment to assess progress, inform planning and report back to parents.**
- **informal observations and careful questioning during lessons.**
- **regular assessments are made to measure progress against the key objectives and help us plan the next unit of work.**

The subject co-ordinator keeps the Headteacher informed of the strengths and weaknesses in the subject and indicates areas for improvement. The involvement of children in their own assessment is an essential educational aim (see assessment policy). Children are involved in the evaluation of their work through agreeing next steps with their teacher. They are encouraged to

comment on their work themselves before discussing it with the teacher and through self-evaluation (see marking and feedback policy).

Parents are involved in assessment and recording through regular informal discussions, more formal parental consultation evenings and through annual reports. Parents have the opportunity to discuss progress at any time through the school's open door policy.

Contribution to other subjects

English

Science contributes significantly to the teaching of Literacy in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the children study in English are of a scientific nature. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information (see English policy)

Mathematics

Science contributes to the teaching of Mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many ways for their answers and conclusions.

They collect data and represent their findings in a variety of ways (see Mathematics policy).

Computing

Children use Computing in science lessons where appropriate. They use it to support their work in science by learning how to find, select and analyse information on the Internet, digital cameras and microscopes. Children use Computing record, present and interpret data and to review, modify and evaluate their work and improve its presentation (see Computing policy)

Health and Safety

The children are encouraged to be considerate and aware of their own health and safety and towards that of others during activities.

Equal opportunities

Science forms part of the Mickley Village Primary and Nursery School's curriculum policy to provide a broad and balanced education to all children (see Race Equality Statement, Equal opportunities policy and Inclusion policy/statement). We provide learning opportunities matched to the needs and abilities of the children and take into account the targets set for individual children in their individual education plans or Educational Health Care Plans (IEP's/EHCP). The learning of more able children is extended as appropriate to their age and ability through challenge activities and questioning.

Review of policy

The policy will be reviewed by the co-ordinator on a regular basis and appropriate amendments made.

Signed

Chair of Governors