

# TANKERSLEY C of E (A) PRIMARY SCHOOL

## SCIENCE POLICY



***“Guide me in your truth and teach me, for you are God my saviour  
and my hope is in you all day long.”***

We aim high and have self-belief

We have community spirit

We are enterprising

We have enquiring minds

We are respectful

At Tankersley our vision is to promote: *'A love of learning developed in a Christian environment'* including our aims of - aiming high & self-belief, community spirit, enterprise, enquiry and respect for others. These aims underpin development of the Science curriculum.

### **Intent**

Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way that they do. It teaches methods of enquiry and investigation to stimulate scientific and creative thought. Children learn to ask questions, use scientific vocabulary and begin to appreciate the way in which science will affect the future on a personal, national and global level. We link in the United Nations Sustainable development goals to our curriculum.

We intend to:

- Ensure children develop scientific knowledge and skills across each areas of the Science National curriculum through our long term Science progression overviews and carefully sequenced planning
- Support children in understanding of the nature, processes and methods of science through different types of science enquiry that help them to answer scientific questions about the world around them
- Ensure children are equipped with the scientific vocabulary required to understand the uses and implications of science, today and for the future.

### **Implementation**

We use a variety of teaching styles in science lessons. Our principal aim is to develop children's knowledge, skills and understanding. We do this through whole-class teaching over a series of carefully sequenced lessons in themes linked to the National curriculum Year group programmes of study. We encourage the children to ask, as well as answer, scientific questions. Children have the opportunity to use a variety of media and data in science lessons, such as statistics, graphs, pictures and photographs. They use digital media and computers where it enhances their learning. Children take part in role-play and discussions, which they present to the rest of the class to support in retaining knowledge. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, such as investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

### **Enquiry-based sequences of learning for Science**

As *enquiry* is a corner stone of both science and our school ethos, we are using an enquiry-based approach to teaching science. This means the children are given a question to find an answer to using practical experimental means as far as possible. We think the key to making science interesting and stimulating for the children in our school is to allow them to find things out for themselves.

Science topics are taught as follows:

**Year 1:** Plants, Animals including humans, Everyday Materials, Seasonal Changes.

**Year 2:** Living things and their habitats, Plants, Animals including humans, Uses of everyday materials.

**Year 3:** Plants, Animals including humans, Rocks, Light, Forces and magnets.

**Year 4:** Living things and their habitats, Animals including humans, States of matter, Sound, Electricity.

**Year 5:** Living things and their habitats, Animals including humans, Properties and changes of materials, Earth and space, Forces.

**Year 6:** Living things and their habitats, Animals including humans, Evolution and inheritance, Light, Electricity.

Our Learning Resource areas contain a good supply of science topic books and computer software to support children's individual research and learning. We have a central shared KS2 store for science resources in school where equipment has been catalogued.

We aim to support the science taught in school as much as possible with visits out of school to various places of scientific interest to allow the children to experience science *in situ*. These visits include trips to Magna where the children take part in a workshop linked to their topic of magnets, and also see around the science museum; visits to the children's museum Eureka to enrich children's learning about the human body; visiting farms to see, touch and learn about animals and their lifecycles and outings to industrial museums to learn about engineering.

**National Science week** - At Tankersley St Peter's Primary School we take part in the National Science Week. The aim of this special week, devoted to science and engineering, is to increase the children's interest and enjoyment of the subject. The children take part in various activities in the science and engineering theme. In the past we have worked with Sheffield University, who talked to the children about materials, bacteria and space. We also held a whole day of hands-on science experiments and whole school science projects.

### **Cross curricular links**

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

Mathematics - Science contributes to the teaching of Mathematics in a number of ways. When the children use weights and measures, they are learning to use and apply number. Through working on investigations, they learn to estimate and predict. They develop accuracy in their observation and recording of events. Many of their answers and conclusions include numbers.

Humanities - Science contributes significantly to the teaching of humanities. For example, there are many overlaps with geographical understanding as children learn about their environment and how it has changed over time. Some important people, key in the history of science, are studied in history lessons. Teachers will take opportunities that arise in science lessons to explore issues of awe and wonder in the natural world.

Personal, social and health education (PSHE) - Science makes a significant contribution to the teaching of PSHE. Our children learn about matters of sustainability and social responsibility. In our curriculum we use the United Nations Sustainable learning goals to discuss the bigger issues of science such as climate change, use of plastics and the way in which people recycle material and how environments are changed for better or worse.

Spiritual, moral, social and cultural development - Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking (part of our 1Decision learning) and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet, and how science can contribute to the way in which we manage Earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

Computing - enhances the teaching of science in our school significantly, because there are some scientific investigations where computing can be particularly useful. It also offers ways of impacting on learning which are not possible with conventional methods. Software is used to animate and model scientific concepts, and to allow children to investigate processes which it would be impractical to do directly in the classroom. Children use Digital media and computers to record, present and interpret data, to review, modify and evaluate their work, and to improve its presentation. Children learn how to find, select and analyse information on the internet and on other media.

### **The Early Years Foundation Stage**

We teach science in EYFS as an integral part of the understanding of the world area of learning. This is taught through our creative curriculum work covered during the year. The children learn about the similarities and differences in relation to places, objects, materials and living things. The children talk about the features of their own immediate environment and how environments might vary from one another. The children make observations of animals and plants and explain why some things occur, and

talk about changes. We have introduced a mud kitchen in Foundation Stage where the children can learn through play using a wide variety of equipment. We have also developed STEM makerspace trollies which children use to investigate areas of Science, technology, engineering etc.

### **Equal opportunities and inclusion**

We ensure equal access for all children to the curriculum. Staff will plan activities so that all pupils are able to develop their knowledge, skills and understanding in the subject. This may include adapting teaching, objective outcomes and content in the lessons to suit different learning styles and abilities. Our curriculum will meet the current learners in the cohort and adaptations are made where necessary. Accessibility to the curriculum is always prioritised - visual aids, scaffolding, specialist equipment and other learning prompts are planned in where needed.

We recognise that children have a wide range of abilities and ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- setting tasks which are open-ended and can have a variety of responses
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks)
- sometimes grouping children by ability and setting different tasks for each ability group
- providing resources of different complexity, matched to the ability of the child
- using resources and aids to support the work of individual children or groups of children

### **Impact and Assessment, Recording and Reporting**

At Tankersley feedback and assessment for learning (AFL) is integrated into all parts of the teaching and learning process. Summative assessment in Science is carried out at the end of each unit of work. Assessment provides teachers and pupils with the knowledge of what has been learnt and address any gaps in learning – in both knowledge and skills. Assessments are used for reporting to parents at the end of the school year and to update NC individual records.

### **Developing and Monitoring and Subject in the Spotlight**

As part of the school's drive to ensure all subjects are given equal status and to provide a broad and balanced curriculum the school has a 3 year subject overview as part of the **Subject in the spotlight**. This involves each subject lead developing a 3 year action plan for their subject area and monitoring the subject across school through work scrutiny, developing policy, keeping a portfolio of subject progression and celebration in the subject as well as dedicated time for whole school display.

Science is developed and monitored through: staff development and training, book and work scrutiny, lesson observations, learning walks and paired enquiry. These are carried out by the Senior Leadership Team and subject lead.