

MONKS ORCHARD PRIMARY SCHOOL

Science Policy

January 2020

'Growing and Learning Together'

Policy Statement

Science at Monks Orchard Primary School aims to teach our children the skills, knowledge and understanding they need to question and understand scientific concepts. This enables them to make sense of the world in which they live and motivates them to seek explanation through curiosity, scientific enquiry, logical thinking and critical evaluation of evidence. We provide experiences that are appropriate and relevant to the children's lives, but at the same time satisfy their curiosity and offer a worthwhile challenge. The teachers are aware of the importance of teaching Science in a progressive way, ensuring that all National Curriculum objectives are taught and developed. Children are encouraged to work together and care is taken to provide equal access for all.

Each year the Science curriculum is enriched by trips and visitors to the school. We have close links with local high schools, which gives our children the opportunity to work in science labs. All of these visits bring Science to life and encourage the children's enquiry skills.

Aims

At Monks Orchard we aim to:

- To raise and support standards of achievement in Science.
- To develop and support a common approach to science teaching.
- To maximise quality of all science lessons.
- To establish clear procedures for planning, recording, assessment and moderation.
- **Teach the children Scientific knowledge and skills**
- **Encourage them to investigate and question**
- **To make observations.**
- **Teach them to communicate ideas using appropriate scientific language**
- **Teach them to evaluate their findings and suggest explanations.**
- **Select and handle equipment safely.**

Attitudes and skills

We believe that Science for our children means exploring, discovering and investigating the world around them. These experiences will help them to understand more about the world they live in. We aim to ensure that such experiences will be

appropriate and relevant to the children's lives, but must at the same time satisfy their curiosity and offer a worthwhile challenge.

We feel that it is important for children to acquire the following positive attitudes and skills through scientific investigation:

- interest/curiosity
- creativeness and inventiveness
- willingness to co-operate and collaborate
- perseverance
- open-mindedness
- care and sensitivity to the living and non-living environment
- self appraisal

Through all Science topics pupils will have opportunities to experience and develop the following skills:

- **Questioning** - all scientific investigations undertaken by the children should begin by asking a question and conclude by using the data they have collected to answer that question.
- **Predicting** - pupils make an "educated guess" based on previous experience.
- **Hypothesising** - pupils put forward a tentative explanation of their expectations of an investigation, based on the application of a variety of scientific knowledge they possess.
- **Experimenting and investigating** - by generating data through practical work, such as fair test investigations, pupils find answers to questions raised.
- **Observing** - pupils should use all senses (within safety guidelines) to discover more information.
- **Recording** - pupils report on methods, results and conclusions in oral, written and I.T. forms.
- **Interpreting** - pupils explain the results of observations or investigations, using graphs and tables to help them to do this.
- **Communicating** - pupils should develop the necessary language to communicate their ideas and findings scientifically.
- **Modelling** - pupils should attempt to understand new observations by reference to simple objects or situations already known.
- **Drawing Conclusions** - pupils decide whether or not the interpretation of observations supports their prediction or hypothesis. Also pupils to suggest possible reasons as to why different or differing results may have occurred.
- **Evaluation** - pupils should be encouraged to reflect on their investigative technique and to decide how they could improve their method for generating data to answer their question.

Curriculum Planning

At Monks Orchard we ensure that all National Curriculum objectives are covered throughout each Key Stage. We plan our Science by units, where appropriate. Each year group has one major Science topic during the year as a hub for cross-curricular links. Other Science topics are linked, where relevant and appropriate, to the main topic being covered that term. Some areas of Science will be taught discretely.

We also have a Science Week each year where all children are encouraged to plan and carry out scientific investigations using a Thinking Skills approach. We attempt to end each Science topic with a 'hands-on' investigation, which can then be a basis for assessment of Scientific Enquiry (Sc1).

ICT links, for example, internet sites, data-logging equipment, digital microscopes and databases are used as a tool to enrich the Science curriculum.

In the Foundation Stage, Science is taught in line with the Early Years Curriculum, through the Knowledge and Understanding of the World strand. Science in these years is mainly taught in a cross-curricular way, where all children can access the activities at their own level.

Teaching and Learning

At Monks Orchard we use a variety of teaching and learning styles in Science lessons. Our main aim is to develop the children's knowledge, skills and understanding. Sometimes we do this through whole class teaching, while at other times we encourage the children to work as a group, adopting a Thinking Skills approach when appropriate. We encourage the children to ask, as well as answer, scientific questions. The children begin each new Science topic by communicating what they already know and what they would like to find out. This can then be a basis for the work completed throughout the duration of the topic. The children use ICT in Science lessons where it enhances their learning. Wherever possible, we involve the children in 'real' scientific activities, for example, investigating the best place in the classroom to keep water bottles so that their water is kept as cool as possible.

Through our Science teaching, we believe we can contribute to the concept of offering our children a broad and balanced primary curriculum which allows them to build on previous experiences.

We recognise that there are children of widely different scientific abilities in all classes and we 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 by:

- Setting common tasks which are open-ended and can have a variety of responses;
- Setting tasks with extensions that can be completed by higher ability children;
- Using classroom assistants to support the work of individual children or groups of children.

Assessment

At Monks Orchard we assess children's work in Science by making informal judgements as we observe them during lessons. Regular marking of work will follow the schools' marking and assessment policies.

At the end of each topic there is a more formal assessment of the topic content. The teachers are also beginning to plan and carry out 'hands-on' investigations at the end of each topic. The work produced by the children at these times can then be used by the teacher to make judgements about the children's achievements in Scientific Enquiry. All of this information is used to inform the parents of their child's achievements in Science at informal parent's evenings, as well as in the child's end of year report. The judgements are also handed up to the child's next teacher.

Special Needs and Equal Opportunities

We teach Science to all children, whatever their ability. Science forms part of the curriculum policy to provide a broad and balanced education for all children. In line with 'Every Child Matters', we want to help 'each pupil achieve the highest educational standards they possibly can'. We provide learning opportunities that are matched to the needs of children. Our work in Science takes into account the targets set in the children's IEPs where necessary. We aim to ensure that all children have equal access to the Science curriculum.

Resources

We have resources for all Science teaching units in the school. These are kept in a central store. It is the responsibility of the staff to collect and return resources, as well as to inform the Science co-ordinator if any resources need to be purchased or replaced. The co-ordinator maintains oversight and purchases new materials at regular intervals. An audit of all equipment has been done and relevant purchases made. The Science Resources have been organised into the main areas of General Equipment, Materials and their Properties, Physical Processes and Life Processes and Living Things. All resources should be returned to the relevant area.

Enrichment

Each year the Science curriculum is enriched by trips and visitors to the school. We currently have visits from CEO of the Greenshaw Trust- Will Smith, Animal Farm UK,

Sublime Workshop, Andrew Smith, a minibeast specialist, Croydon's Life Education Centre and the Learning Dome. We also have close links with Orchard Park High School and the Primary Partnership Programme with Trinity School who provides science activities for the children in key stage 2. This is done in a number of ways either by sending their students to our school to explain and demonstrate a specific science lesson or by our pupils going to their schools. All of these visits bring Science to life and encourage the children's enquiry skills. They also develop knowledge and understanding in specific areas of the curriculum.

Monitoring

Monitoring of the standards of children's work and the quality of teaching in science is the responsibility of the science co-ordinator. The work of the science co-ordinator also involves supporting colleagues in the teaching of Science, being informed about current developments in the subject, and providing a direction for the subject in the school. Termly reports are made to the Governors, plus an annual summary regarding pupil progress and development in the Science curriculum, in which strengths and weaknesses in the subject are evaluated.

Health and Safety

We are aware of the importance of safety when planning and carrying out scientific investigations. We follow the procedures laid out in the Health and Safety policies which are kept in the teachers' workroom.

Date: January 2020

Date for policy review:2022

Science Coordinator: Mrs A Allen-Bernard

Signed: