

GREAT MOOR JUNIOR SCHOOL **WHAT SCIENCE LOOKS LIKE AT GREAT MOOR JUNIOR SCHOOL**

Children possess a natural curiosity about their surroundings, taking delight in finding ways to investigate and question what they see in their environment. At Great Moor Junior School, we strive to encourage this natural inquisitiveness to help children make sense of the world around them. The Science curriculum is an ideal vehicle to achieve these aims. We also seek to develop in the children an awareness of how science permeates almost every aspect of their lives.

AIMS

We follow *The National Curriculum 2014 for Science Guidelines* and aim 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.

PURPOSE OF STUDY

A high-quality Science education provides foundations for understanding the world. Through building 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 key knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes.

In teaching Science, we are developing in our children:

- ♣ a positive attitude towards Science and an awareness of its fascination;
- ♣ an understanding of Science through a process of enquiry and investigation;
- ♣ confidence and competence in scientific knowledge, concepts and skills;
- ♣ an ability to reason, predict, think logically and to work systematically and accurately;
- ♣ an ability to communicate scientifically;
- ♣ the initiative to work both independently and in co-operation with others;
- ♣ the ability and meaning to use and apply science across the curriculum and real life.

PLANNING

School curriculum

The programmes of study for Science are set out year-by-year for Key Stage 2. Teachers will base their planning on the programmes of study for their relevant year groups.

Scientific knowledge and conceptual understanding

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of Science, including collecting, presenting and analysing data.

The nature, processes and methods of science

'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group. It is not taught as a separate strand.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Lower Key Stage 2 – Years 3 and 4

The main focus of science teaching in Lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

'Working scientifically' must **always** be taught through and clearly related to substantive Science content in the programme of study.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2 – Years 5-6

The main focus of Science teaching in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.

At Upper Key Stage 2, they should encounter ideas that are more abstract and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer Science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' must **always** be taught through and clearly related to substantive Science content in the programme of study.

Pupils should read, spell and pronounce scientific vocabulary correctly.

TEACHING AND LEARNING

- ♣ Science is taught in a modular system annually, see whole school overview for timings.
- ♣ A range of teaching methods and resources are used which promote learning, cooperation and independence. As pupils progress through school, they are given increasing responsibility for their choice and organisation of resources.
- ♣ Visits and visitors are actively encouraged to enliven the curriculum and capitalise on knowledge and resources whilst forging closer links with the local community.
- ♣ Cross-curricular links are made where possible with other subjects, see overview.
- ♣ We recognise the important role ICT plays in the development of children's investigative skills and knowledge and understanding. It is used to obtain, organise and present scientific data, eg. use of iPads and Apps. It is also used for research. Work is presented in A4 exercise books.
- ♣ Activities are differentiated by task, outcome or by support provided. Open-ended tasks are included to ensure that children are challenged at every level.
- ♣ Activities are recorded using a range of different methods, e.g. tables, charts, photographs. iPad Apps, oral and video presentations, ICT, A4 exercise books.

Science Overview

Great Moor Junior School – Science Overview

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3		Rocks	Animals including Humans	Plants	Light	Forces and Magnets
Year 4		Electricity Sound		States of Matter		Living things and their habitats Animals including humans
Year 5		Properties and changing materials Forces	Earth and Space			Living Things and their habitats. Animals including Humans
Year 6		Animals including humans Living things and their habitats		Light Electricity	Evolution and Inheritance	

PLANNING AND ASSESSMENT

Each study unit is planned by year group staff using the National Curriculum programmes of study.



- ♣ Planning is kept in the medium term planning file.
- ♣ Formative assessment is ongoing throughout the teaching of each topic. After each lesson, assessment of progress is made in relation to that particular learning objective and is recorded on the medium term plans. At the end of a unit each child's progress is considered in relation to the Science Age Related Expectations, which are included in the children's books. Achieved Expectations are highlighted.
- ♣ Assessment is achieved through:
 - discussion with pupils;
 - observation of pupils;
 - marking work;
 - Summative assessment through Topic Assessment

MONITORING AND EVALUATION

The Subject Leader follows the *Role of the Curriculum Co-ordinator* guidelines and monitoring and evaluation is achieved through;

- ♣ monitoring and evaluation of pupils' work;
- ♣ lesson observations;
- ♣ monitoring of planning
- ♣ carrying out pupil voice discussions

RESOURCES

- ♣ A science garden is available for classes to use as required.
- ♣ Relevant resources are kept in the specific year group.
- ♣ Year group leaders request resources as necessary from the Science budget or buy perishable ones as needed within the year group.
- ♣ The subject lead looks out for and orders resources, e.g. new publications, which could help individual, or all, year groups.
- ♣ The subject lead provides advice on how to enhance the science curriculum by sharing best practice and feedback from CPD courses.

SAFETY

- ♣ Key issues are highlighted in module plans.
- ♣ Risk assessments must be completed by staff as required for each topic.