Cleobury Mortimer Primary School

Science Policy

Date of Policy	September 2022	Named Responsibility	A Lort
Date of Review	September 2023	Named Responsibility	A.Lort
Policy Adopted by Deputy Head	September 2022	Named Responsibly	M.Dawes

Shropshire Gateway Educational Trust

Cleobury Mortimer Science Aims

At Cleobury Mortimer Primary School and Nursery we believe that teaching and learning in science should stimulate and excite children's curiosity about the world around them. Teaching science effectively provides children with the opportunity to develop enquiring minds as well as a range of investigative skills which allow children to take risks, learn from their mistakes and consequently develop them into independent learners.
The subject knowledge base of science has a practical application to everyday experiences and is therefore important in contributing to social development. By working scientifically, through tailored investigations involving planning, testing, recording, and analysing results, students come to appreciate the nature of the learning process.

Aims

Through the teaching of science, we aim to:

- 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
- equip our children with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

Curriculum Organisation

As a school, we have chosen the Engaging Science Scheme of Work from Reception to Year 6. The scheme of work supports our teachers in delivering fun and engaging lessons which help to raise standards and allows all pupils to achieve to their full potential. We are confident that the scheme of work more than adequately meets the national vision for science. Furthermore, it gives excellent supporting material for less confident teachers within the subject.
Planning is to follow the 'Engaging Science' scheme, where units are available, complete with investigations and appropriate resources.

Expectations

In KS1 and KS2 there are four key elements or skills to be developed:
1. Working scientifically
2. Biology
3. Chemistry
4. Physics

Key Stage 1

During key stage 1, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content of Biology, Chemistry and Physics:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions.

Source (National Curriculum POS 2014)

Key stage 2- Years 3 and 4

In order to broaden pupils' scientific views of the world around them we will be looking at exploring, talking about and testing relationships between living things and familiar environments. We will be encouraging pupils to ask their own questions about what they observe and identify the link to the type of scientific enquiry which would be the best way of answering those questions. They should draw simple conclusions and use some scientific language initially to talk about and later write about what they have found out.

To fulfil the above, the following skills will be incorporated into lessons:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings

Source *(National Curriculum POS 2014)*

Key stage 2- Year 5 and 6

The principal focus of science teaching in year 5 and 6, 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.

In these year groups they should encounter more abstract ideas 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 comparative and 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.

To fulfil the above, the following skills will be implemented:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments

Source *(National Curriculum POS 2014)*

Continuity and Progression

Continuity

We recognise that while the content of each lesson will be different there should be the ability for pupils to build on the knowledge and understanding throughout the key stage. Our 'engaging science' scheme of work allows us to implement continuity across all subjects and across key stage one and keystage 2.

Progression

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 social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum.

Source (National Curriculum POS 2014)

Time allocation
The minimum teaching time for science in each year group is two hours per week. The exact timing of this is at the discretion of the individual class teacher, but the preference is to teach it as a two-hour block, particularly when planning and investigating.

Assessment
All lessons include a clear learning objective with an appropriate context, and an assessment for learning opportunity. This may include self or peer assessments, or the completion of a differentiated success criteria grid.
As well as during lessons, assessment is carried out throughout the use of unit assessment for 'Engaging Science', which is the school's assessment system regarding assessment without levels. The assessment is a continuous one, where teachers mark down when and how the children have achieved their objective.
These grids are highlighted as the skills are achieved and then used to inform teacher assessment. This formative assessment is then used to set curriculum targets to address the identified areas, through future units.

Subject Monitoring and Review

The science subject leader is responsible for monitoring the standards of the children's work and the quality of the teaching in science. They are also responsible for supporting colleagues in the teaching of science, keeping staff informed about current developments in the subject, and for providing direction for the subject in the school. Any courses or CPD, which the subject leader attends, will be disseminated to staff by the subject leader, if appropriate.

CONTRIBUTION TO OTHER AREAS OF THE CURRICULUM

Science is sometimes taught as a discrete subject. It is also taught through a cross-curricular approach, drawing upon, where possible, children's skills in other curriculum areas to make links more pertinent and meaningful.
While science lessons primarily develop scientific skills, science can also promote the application of Maths and literacy skills of reading, writing, speaking and listening.
Science also contributes to the teaching of ICT and PSHE including British values (Democracy, the rule of law, individual liberty, mutual respect, and tolerance of those with different faiths and beliefs).

Health and Safety
Cleobury Mortimer Primacy School takes all necessary measures to ensure both staff and pupils are aware of the importance of health and safety. Children are encouraged to always consider their own safety and the safety of others. Teachers will be providing a safe and secure environment for children to learn and carry out investigations.

Equal Opportunities and Inclusion
At Cleobury Mortimer Primary School, we aim to enable all children to achieve to their full potential. This includes children of all abilities, social and
cultural backgrounds, those with disabilities, EAL speakers and SEN statement and non-statemented. Lessons and activities are planned to include all children by using a range of approaches.
These include questioning, use of equipment, and mixed ability grouping to enable children to offer peer support.
Frequent assessments carried out by the class teacher will support the identification of children working at different abilities and then this will support future opportunities for consolidation and extension.

COMMUNITY LINKS AND BRITISH VALUES

We seek whenever possible to create links with the local community to provide opportunities for learning about science. Children take part in science activities with other schools through our participation through the STEM scheme which is organised by the STEM co-ordinator at our feeder high school, Lacon Childe High School. A STEM week is planned and delivered by teachers every term, so that the children have the opportunities to develop and consolidate their learning through practical and cross-curricular activities. The theme for STEM weeks, are planned at the beginning of the year and emailed out to teachers with suggested cross-curricular activity links for each key stage.
Evidence of this is recorded by class teachers and a contribution of work.

Roles and Responsibilities of subject leader.

The subject leader is responsible for providing professional leadership and management of science within the school. They will monitor standards to ensure high quality teaching, effective use of resources and improved standards of learning and achievement. This will include observation of lessons and scrutiny of the pupils' work. They will collect, analyse and distribute, where applicable, information relating to the subject to the relevant people.
At Cleobury Mortimer Primary school, the Science lead is Mrs Annabelle Lort.

Class Teachers

It is the responsibility of each class teacher to ensure that their class is taught all elements of the science curriculum as set out in the National Curriculum programme of study. All class teachers are aware and should be following the aims and objectives of this policy.

POLICY REVIEW

The policy will be reviewed by the subject leader in September 2023, or as deemed necessary through the School Development Plan.