

# Lowton West Primary School



## Science Policy

**Policy reviewed by A. Brooks**

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**Ratified by Governing Body:**

Mr B. Cunliffe (Chair of Governors)

Mrs J. Westhead (Headteacher)

**Review date: September 2021**

# Lowton West Primary School Science Policy



*Aiming High Together*

## **School Vision**

To inspire, achieve and succeed, we will aim high and build dreams and futures together.

## **Mission Statement**

***Providing the highest quality education, care and support for the whole school community.***

*Our mission statement is based on RESPECT:*

***R*** = *Recognising the needs of the individual child*

***E*** = *Ensuring a unique and engaging curriculum*

***S*** = *Supporting each other to learn and achieve*

***P*** = *Passionate about providing the highest quality education*

***E*** = *Encouraging creativity, self – expression and imagination*

***C*** = *Creating confident, resilient, life – long learners*

***T*** = *The voice of everybody is heard*

All the above statements help us to understand how we can all make a positive contribution to the school and the wider community.

## **We will do this through our core values:**

- Respect
- Resilience
- Kindness
- Confidence

We also, at Lowton West Primary School, strive to develop and uphold British Values. The five British values that the Government has identified for schools to focus on are:

- Democracy
- The Rule of Law
- Individual liberty and mutual respect and tolerance of those with different faiths and beliefs
- Developing personal and social responsibility
- Respect for British Institutions

There are more details on how our school demonstrates and develops these British Values in our British Values Policy and on our website.

## **SCIENCE STATEMENT**

At Lowton West Primary School, we recognise the importance of Science in every aspect of daily life. As one of the core subjects taught in Primary Schools, we give the teaching and learning of Science the prominence it requires.

Science provides the foundation for understanding the world around us. It can not only teach pupils about the world they live in, but also how to study it and make sense of various phenomena. As such, it is a fundamental aspect of all children's learning.

Through adherence to this policy, Lowton West Primary School will not only ensure statutory compliance with the national curriculum, but also that all pupils have a solid grounding in Science and a positive attitude towards scientific knowledge and experimental processes.

The aims of this policy include:

- Developing pupils' interest in, and enjoyment of, Science. By building on children's curiosity, the Science curriculum will help to instil a positive attitude towards Science in pupils.
- Delivering all the requirements of the National Curriculum in relation to Science and covering major scientific concepts.
- Ensuring Science lessons are purposeful, accurate and imaginative.
- Ensuring pupils have sufficient scientific knowledge to understand both the uses and implications of science, today and in the future. This will also give pupils an appreciation of the changing nature of scientific knowledge.
- The development of pupils' ability to pose questions, investigate these using correct techniques, accurately record their findings using appropriate scientific language and analyse their results.
- Helping pupils develop the skills of prediction, hypothesising, experimentation, investigation, observation, measurement, interpretation and communication.
- Making pupils aware of and alert to links between Science and other school subjects, as well as their lives more generally.
- Use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including I.C.T., diagrams, graphs and charts.
- Develop a respect for the materials and equipment they handle with regard to their own, and other children's safety.

We endeavour to ensure that the Science curriculum we provide will give children the confidence and motivation to continue to further develop their skills into the next stage of their education and life experiences.

## **IMPLEMENTATION**

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. Our whole school approach to the teaching and learning of Science involves the following;

- Science will be taught in planned and arranged topic blocks by the class teacher. This is a strategy to enable the achievement of a greater depth of knowledge.
- Through our planning, we involve 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. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning, so that all children keep up.
- We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.

### **IMPACT**

The successful approach at Lowton West results in a fun, engaging, high-quality science education, that provides children with the foundations for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. So much of Science lends itself to outdoor learning and so we provide children with opportunities to experience this. Through various workshops, trips and interactions with visitors/ experts, children have the understanding that Science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in Science as a result of our community links and connection with national agencies such as the STEM association. Pupil voice is used to further develop the Science curriculum, through questioning of pupil's views and attitudes to Science to support the children's enjoyment of science and to motivate learners.

### **Legal framework**

This policy has due regard to statutory legislation and guidance including, the following:

DfE (2013) 'Science programmes of study: key stages 1 and 2'

DfE (2017) 'Statutory framework for the Early Years Foundation Stage'

'Development Matters in the EYFS'

The Control of Substances Hazardous to Health Regulations (COSHH) 2002

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013

This policy will be used in conjunction with the school Health and Safety Policy.

### **Roles and responsibilities**

**The subject leader is responsible for:**

- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the National Curriculum and advising on their implementation.

- Monitoring the learning and teaching of Science, providing support for staff where necessary.
- Ensuring the progression of skills is embedded in Science teaching and learning.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising resources and carrying out an annual audit of all Science resources.
- Liaising with teachers across all phases.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessment.
- Advising on the contribution of Science to other curriculum areas.
- Collating assessment data and setting new priorities for ongoing development of Science.

**The classroom teacher is responsible for:**

- Acting in accordance with the school's Science Policy, ensuring that lessons are taught in line with the school's Health and Safety Policy at all times.
- Liaising with the Science subject leader about key topics, resources and supporting individual pupils.
- Ensuring that all of the relevant statutory content is covered within the school year.
- Ensuring the key skills are covered through implementing the school scheme of work to ensure progression over time.
- Monitoring the progress of pupils in their class and reporting this on an annual basis.
- Reporting any concerns regarding the teaching of the subject to the subject leader or a member of the senior leadership team (SLT).
- Undertaking any training that is necessary in order to effectively teach the subject.

**The National Curriculum**

The National Curriculum is followed and provides a full breakdown of the statutory content to be taught within each unit.

During Reception, in accordance with the 'Statutory framework for the Early Years Foundation Stage', focus will be put on the prime areas of learning, with the scientific aspect of pupils' work relating to the objectives set out within the framework.

During Years 1 and 2, pupils will be taught to:

- Ask simple questions and recognise that they can be answered in different ways.
- Observe closely, using simple equipment.
- Perform simple tests.
- Identify and classify.
- Use their observations and ideas to suggest answers to questions.

During Years 3 and 4, pupils will be taught to:

- Ask relevant questions and use different types of scientific enquiries to answer these questions, setting up simple practical enquiries, comparative and fair tests.

- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units and a range of equipment, including thermometers and data loggers.
- Gather, record, present and classify data in a variety of ways to help answer questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Use straightforward scientific evidence to answer questions or to support their findings.

During Years 5 and 6, pupils will be taught to:

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

### **Cross-Curricular links**

Wherever possible, Science will provide opportunities to link with other curriculum areas.

#### **English**

- Pupils are encouraged to use their speaking and listening skills to describe what is happening.
- Pupils' writing skills are developed through recording their ideas in a variety of ways.
- Science based texts are often used in English lessons and in Guided Reading sessions.

#### **Maths**

- Science will involve a degree of Numeracy at all levels.
- Pupils use their knowledge and understanding of measurement and data handling.
- Where appropriate, pupils record their findings using charts, tables and graphs.

#### **Computing**

- Pupils will use ICT to locate and research information.
- ICT will be used to record findings, using text, data and tables.
- Pupils are encouraged to use the activities on Purple Mash to compliment science

#### **PSHE**

- 'Healthy me' is taught alongside Science, which covers:

- Health and growing
- Teeth and eating
- Moving and growing
- Keeping healthy
- Life cycles

### **History**

- Scientific discoveries and the contribution of individuals to science will be studied.

### **SMSC**

- Pupils' development will be focused on the vastness of science and the natural world, encouraging a sense of awe.
- Pupils are encouraged to think about the effect of scientific discoveries on the modern world.
- Current scientific developments and issues will be discussed in the classroom, where appropriate.

### **Teaching and learning**

Pupils will be taught to describe associated processes and key characteristics in common language, as well as understand and use technical terminology and specialist vocabulary.

Lessons will allow for a wide range of opportunities to work scientifically, including the following:

- Questioning, predicting and interpreting
- Pattern seeking
- Practical experiences
- Collaborative work
- Carrying out investigations
- Carrying out time-controlled observations
- Classifying and grouping
- Undertaking comparative and fair testing
- Researching using secondary sources
- Opportunities for outdoor learning will be provided wherever possible.

Pupils will have the opportunity to undertake regular external educational visits, which are Science based, throughout each Key Stage and use the school gardens regularly for science enquiry and observations.

A Science scheme of work is located in every classroom and available to access on the shared drive; this can be used to promote progression throughout the school.

### **Planning**

All relevant staff members are briefed on the school's planning procedures as part of staff training.

Throughout school, Science is taught as a discrete lesson with focus on working scientifically.

Teachers will use the key learning content from the National Curriculum 'Science programmes of study for KS1 and 2'.

Lesson plans will demonstrate the balance of visual, auditory and kinaesthetic elements used in teaching, ensuring that all pupils with different learning styles can access the learning experience.

Long-term planning will be used to outline the units to be taught within each year group.

Medium-term planning will be used to outline the vocabulary and skills that will be taught in each unit of work, as well as highlighting the opportunities for assessment.

Medium-term plans will identify learning objectives, main learning activities and differentiation.

Medium-term plans will be shared with the subject leader to ensure progression between years.

Short-term planning will be used flexibly to reflect the objective of the lesson, the success criteria and the aim of the next lesson.

Short-term planning is the responsibility of the teacher. Achieved by building on their medium-term planning, taking into account pupils' needs and identifying the method in which topics could be taught.

All lessons will have clear learning objectives (WALT: We Are Learning To...), which are shared and reviewed with pupils.

### **Assessment and Reporting**

Pupils will be assessed and their progression recorded in line with age related skills and expectations.

Pupils will be assessed continuously throughout the year in working scientifically and at the end of each unit of work, according to assessment criteria.

Assessment in Science is based upon a combination of scientific knowledge and understanding and skills in working scientifically.

Assessment will be undertaken in various forms, including the following:

- Talking to pupils and asking questions
- Discussing pupils' work with them
- Marking work against the learning objective
- Specific assignments for individual pupils
- Observing practical tasks and activities
- Evidence in books

Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and informs their immediate lesson planning.

Parents will be provided with a written report about their child's progress during the Summer term every year. These will include information on the pupil's attainment and progress in Science.

Verbal reports will be provided during Parents' Evenings twice a year.

Pupils with special educational needs (SEND) will be monitored by the class teacher and SENCO.

### **Equipment and resources**

Science resources for each unit are stored in appropriate year groups or in the KS1 Resource Room.

The subject leader is responsible for ensuring that all resources and equipment are sufficiently maintained.

Equipment will be checked by class teachers prior to each use and any damages or defects must be reported to the subject leader immediately.

The subject leader is responsible for maintaining an inventory of resources.

Staff members must inform the subject leader of any changes regarding science resources, such as broken items or when new resources are required.

The subject leader will carry out an annual audit of the science resources, reordering any consumables when necessary.

Class teachers will discuss the need for new resources with the subject leader.

The subject leader is responsible for negotiating requests from staff members and ensuring resources are bought within the amount allocated in the annual budget.

### **Health and Safety**

Staff members will act in accordance with the school's Health and Safety Policy at all times.

Accidents and near-misses will be reported following the procedure outlined in the school's policy.

All staff members will be shown how to correctly use equipment as required by the subject leader.

All pupils will be shown how to correctly use equipment and this will be monitored by staff members.

All pupils will be made aware of how they are expected to behave, ensuring that they show respect to other people and the environment.

Pupils are made aware of the personal safety protocols and equipment needed when using different equipment or carrying out different tasks.

Staff members will be made aware of the COSHH and RIDDOR regulations by the subject leader and will act in accordance with these whilst undertaking activities.

Any 'new' experiments or activities which a teacher has not used in the classroom before will be trialled prior to being performed with pupils.

At the beginning of any experiment, the teacher will outline the purpose of the experiment to the class, and all hazards and safety precautions will be thoroughly outlined.

### **Equal Opportunities**

All pupils will have equal access to the entire Science curriculum, including practical experiments.

Gender, learning ability, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all Science lessons.

Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary.

All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.

Lowton West aims to provide more academically able pupils with the opportunity to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature.

### **Monitoring and Review**

This policy will be reviewed on an annual basis by the subject leader, in collaboration with the Senior Leadership Team.

The subject leader will monitor teaching and learning in Science at Lowton West ensuring that the content of the National Curriculum is covered.

The subject leader will conduct pupil interviews to ascertain understanding and enjoyment of Science.

The subject leader will maintain appropriate and current records in the form of subject leader files and reports containing evidence of:

- skills coverage
- work in books
- programmes of study
- data and assessment

This policy will also be reviewed annually to ensure that it complies with the latest legislation, guidance and best practice. Any changes made to this policy will be communicated to all teaching staff.