Science Policy

POLICY CONTROL	
Responsible Governor Committee:	Standards and Curriculum
Approved by Governors:	Autumn 2022
Review Date:	Autumn 2026

'Love your neighbour as yourself'
Parable of the Good Samaritan Luke 10:25-37

Our school policies are written with the objective of realising our vision:

As we journey together. we learn to live as good neighbours, demonstrating love, compassion, dignity and respect to all in our communities.

Through this we aspire to become global citizens, courageous advocates and people of wisdom and integrity.

We look towards the parable of the Good Samaritan as our guide.

A school where all **children** are **valued**, where they **feel safe**, are **happy** and **learn well**. We want our school to have a warm friendly atmosphere, which supports families, builds relationships and sets children up for a life of learning. We want our Christian values to guide our pupils along the right path and help them to achieve fulfilling and happy lives.

OUR SCHOOL VALUES
Adderley and Moreton Say Church of England Primary Schools values:
Respect □ Hopefulness □ Kindness □ Courage □ Integrity □ Curiosity

Contents

Statement of intent

Science learning, across the Addmore federation, aims to foster a sense of wonder and awe, encouraging children to ask questions and be curious about the world around them. We nurture our children to develop a love for Science, appreciating the role that key scientific figures have played in shaping the world as we know today, aspiring them to follow in their footsteps.

Our curriculum has been designed to ensure that children acquire the key scientific knowledge and skills through practical experiences; using equipment, conducting experiments, building arguments, problem solving and reasoning with results.

In each unit of learning children are immersed in new and learnt vocabulary, empowering them to talk like real scientists.

At different stages of their primary education, children will revisit scientific topics, within a spiral curriculum, allowing them to build upon their prior learning and further embed key knowledge, skills and vocabulary.

As rural schools, we make the most of our special surroundings, taking Science learning outside of the classroom whenever possible. As part of our curriculum we teach our children the importance of showing care and respect for our environment and children take part in units of work that support them to recognise their role as a guardians.

Our ultimate goal is to give children the independence, confidence, motivation and enthusiasm to further develop their love for Science as they progress into the next stages of their education and life experiences.

1. Legal framework

This policy has due regard to statutory legislation and guidance including, but not limited to, the following:

- DfE (2013) 'Science programmes of study: key stages 1 and 2'
- DfE (2014) 'Statutory framework for the early years foundation stage'
- 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 following school policies and procedures:

- Health and Safety Policy
- Accident Reporting Procedure Policy
- Primary Assessment Policy

2. 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.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of 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, including cross-curricular and extra-curricular activities.
- Collating assessment data and setting new priorities for development of science in subsequent years.

The classroom teacher is responsible for:

- Acting in accordance with name of school's Primary School Science Policy, ensuring that lessons are taught in line with the school's Health and Safety Policy at all times.
- Liaising with the science coordinator about key topics, resources and supporting individual pupils.
- Ensuring that all of the relevant statutory content is covered within the school year.
- 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.

3. Curriculum

Curriculum

Throughout the AddMore Federation, the National Curriculum is followed and provides a full breakdown of the statutory content to be taught within each unit. We have chosen to use the schemes 'Engaging Science' and 'Switched on Science' which further supports teachers to plan exciting and engaging units in line with the National Curriculum objectives. Throughout each unit children are taught to work scientifically as set out in the national curriculum.

Early Years Foundation Stage

During reception class, in accordance with the 'Statutory framework for the early years foundation stage', focus will be put on the seven areas of learning, with the scientific aspect of pupils' work relating to the objectives set out within the framework.

The Foundation Stage deliver science content through the 'Understanding of the World' strand of the EYFS curriculum. This involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment. They are assessed according to the Development Matters attainment targets. Our Early Years teachers use the scheme 'Switched on Science' to deliver their Science curriculum.

Key Stage 1

Taken from the nation curriculum: The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. Areas of study include: plants, animals including humans, everyday materials and their uses, seasonal changes and living things and their habitats.

Throughout each unit of learning KS1 pupils will be taught to work scientifically by:

- 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.

Lower Key Stage 2

National Curriculum: The principal 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 comparative and 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.

Areas of study include: Plants, animals including humans, rocks, light, forces and magnets, living things and their habitats, states of matter, sound and electricity.

Throughout each unit of learning LKS2 pupils will be taught to work scientifically by:

- Asking relevant questions and using different types of scientific enquiries to answer these questions, setting up simple practical enquiries, comparative and fair tests.
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units and a range of equipment, including thermometers and data loggers.
- Gathering, recording, presenting and classifying data in a variety of ways to help answer 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, making predictions for new values, suggesting improvements and raising 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.

Upper Key Stage 2

National curriculum: The principal 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 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.

Areas of study include: Living things and their habitats, animals including humans, properties and changes of materials, earth and space, forces, evolution and inheritance, light and electricity.

Throughout each unit of learning UKS2 pupils will be taught to work scientifically by:

- 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 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.
- Identifying scientific evidence that has been used to support or refute ideas/arguments.

Additional units if study

We have also incorporated additional units of study to complement the objectives set out in the national curriculum including links to other curriculum areas of study.. These units are intended to be taught across the whole year with a minimum of two lessons in each term. These units include activities such as: Exploring changes within the environment across the year, observing and documenting habitat changes related to seasonal changes, creating and observing animal's homes across the year, observing and responding to human impact on the environment, exploring decay and recycling within our school grounds and community and finally exploring animal and plant population across the year.

4. Cross-curricular links

Wherever possible, the science curriculum will provide opportunities to establish meaningful links with other curriculum areas:

English

Pupils are encouraged to use their speaking and listening skills to describe what is happening. Children's writing skills are developed through recording their planning, what they observe and what they found out. Science based texts are incorporated within the English and guided reading curriculum and there is a broad range of high quality scientific texts available for children to enjoy reading for pleasure. The federation make use of the Shropshire Library Service and order a wide variety of scientific texts to suit subjects of study.

Maths

Science naturally lends itself to learning within numeracy. Pupils use their knowledge and understanding of measurement and data handling and where appropriate, record their findings using charts, tables and graphs. Children also have opportunities to deepen their understanding of ration and proportion when making mixtures for experiments.

ICT

Children are provided with opportunities to present their scientific thinking using a range of computing technology. Pupils may use ICT to locate, research and present information, recording their finding using text, data, images and tables. There are clear links within our computing units of study where children will experience branching data bases and classification tools.

PSHE

Health education is taught as part of the science unit about ourselves, which covers: Health and growing, teeth and eating, moving and growing, keeping healthy and life cycles

History

Throughout each unit of study is a focus on an icon scientist or inventor linked to the learning within the unit. Children will explore scientific discoveries and the think about the way these people have shaped our world today.

Spiritual development

Children will be given opportunities to appreciate the vastness of science and the natural world, encouraging a sense of awe and wonder. Pupils are encouraged to think about the effect of scientific discoveries on the modern world and current scientific developments and issues are discussed in the classroom, where appropriate.

Learning Outdoors

Due to the rural nature of both of our schools, we encourage science learning to take place outdoors where ever possible. Both sites have well developed forest school areas and this allows children to explore a great deal of scientific learning outdoors.

5. Teaching and learning

The delivery of science teaching places an emphasis on scientific investigations and practical activities which are based on real world scenarios. Opportunities for outdoor learning are provided wherever possible. Science is taught in weekly lessons and is also delivered through cross curricular links in other subjects. Approximately 60 minutes are allocated to the teaching of science per week.

Science lessons are differentiated according to children's learning requirements. This ensures all groups of learners can access the curriculum and make progress in each session. Lessons

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.

Care is taken to ensure progression from the foundation stage and throughout key stages 1 and 2. When topics are revisited another layer of knowledge and skills are added.

Pupils are taught to describe scientific processes using technical terminology and specialist vocabulary and this is clearly mapped out on our progression documents.

Science lessons will allow for a wide range of scientific enquiry, 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

Each year group will have opportunities to undertake educational Science based visits and children will also experience visitors to support further learning in Science.

6. Recorded Work

Scientific work is recorded in a variety of ways appropriate to the age of the children and their individual needs in each key stage. This can include teacher observations, photographs, drawings, tables, graphs, written accounts and formal write ups. It is expected that all recorded science work is to be presented to a high standard but not to the detriment of science investigations or the teaching and learning aspect of the lesson. The balance of practical activity and length of recording tasks is carefully planned to maintain a scientific emphasis. Children are provided with a learning slip that clearly sets out the learning objects and key vocabulary for each session and children use these to support their learning.

7. Planning

The study of science is based on the 2014 national curriculum. Science topics are mapped out on long term rolling programs of study, which are carefully linked with learning in other curriculum subjects. Units of study have been have been organised in a way that supports progression in knowledge, skills and scientific vocabulary.

The AddMore Federation has chosen to use the 'Engaging Science' and 'Switched on Science' schemes to support planning and delivery. Medium and short term plans are saved on the federations shared drive and these are accessible to all teaching staff. The 'Engaging Science' and 'Switched on Science' curriculums have been carefully cross referenced with the National Curriculum which ensures that all statutory content and skills are covered.

8. Assessment and reporting

Science learning will be assessed continuously throughout the year, and teachers will plan on-going creative assessment opportunities in order to gauge whether pupils have achieved the key learning objectives.

Assessment will be undertaken in various ways including:

- Talking to pupils and asking questions
- Discussing pupils' work with them
- Marking work against the unit learning objectives
- Observing practical tasks and activities
- Pupils' self-evaluation of their work
- Quizzes and other activities at the beginning and end of a unit.

Assessments in Science are shared with parents during parents evenings and in written reports at the end of each year. These will include information on the pupil's attitude towards science, progress in understanding scientific methods, ability to investigate, and the knowledge levels they have achieved.

9. Equipment and resources

We keep a wide range of science resources in a central store area in the school and teachers have easy access at all times. The subject leader is responsible for purchasing, organising and replenishing resources and works with staff to ensure equipment is available for each unit of study. The subject leader will carry out an annual audit of the science resources, reordering any consumables when necessary. Resources and equipment is assessed in line with the schools health and safety policy.

10. Health and Safety

Safe working practices are an integral part of all Science activities. All staff are aware of safe and correct handling of tools, materials and equipment. Staff members will act in accordance with the school's Health and Safety Policy at all times and seek further support form the subject leader as needed. The teaching staff demonstrate to pupils how to work safely and ensures that all children using equipment are properly supervised. All pupils will be shown how to correctly use equipment and will be monitored by staff members whilst using equipment.

Health and safety advice is clearly outlined in unit plans and teachers have access to advice and guidance from COSHH and CLEAPSS. Special risk assessments will be conducted when needed.

11. Equal opportunities

All pupils will have equal access to the entire science curriculum, including practical experiments and 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. We aim to support academically able pupils by providing opportunities to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature.

12. Monitoring and review

The subject leader will monitor the delivery of science teaching and the quality of learning across the school. This is done through observations, drop in sessions, book looks and discussions with children. The subject leader is also responsible for reviewing the science action plan to ensure priorities are identified and actioned.

The subject leader will also meet with the link governor on a termly basis to review priorities and actions and any developments will be communicated with staff.

This policy will be reviewed biannually by the subject leader, in collaboration with the link governor, SLT and the head teacher.