Marshland St James Primary School & Nursery

Science Policy

Believing, Belonging, Being

In our school we want our children to be caring and confident learners. We aim to provide a loving, safe and secure environment, where every child has the belief to achieve and the sense of belonging to a Christian school family. We will nurture and encourage children's ambitions enabling them to believe in themselves; to become courageous learners, and to be compassionate, tolerant and respectful members of our community. We will give them the knowledge, skills and experience to make sense of and understand the changing world they're growing up in.

Rationale

Science is a systematic investigation of the physical, chemical and biological aspects of the world which relies on first hand experiences and on other sources of information. The scientific process and pupils' problem-solving activities will be used to deepen their understanding of the concepts involved. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum 2014.

Through science pupils at Marshland St James Primary School will continue to deepen their respect, care and appreciation for the natural world and all its phenomena.

At Marshland St James we follow the Primary Knowledge Curriculum (PKC). This aims to equip children with the foundations for understanding the world through a scientific lens. Pupils will be taught units of work that cover and go beyond the requirements of the National Curriculum in the specific disciplines of biology, chemistry and physics. Pupils will encounter people who have made significant contributions to the field of science over time, understanding that science has been a quest for understanding for many years, and will continue to be so in the future. Pupils will build a body of key foundational science knowledge as they work through the curriculum, asking questions and developing a sense of curiosity about the world around us.

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 as set out in the PKC. This is a strategy to enable the achievement of a greater depth of knowledge.
- Pupils will be encouraged to use the knowledge they learn in Science and apply it to investigations that test a theory or set out to answer a question. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. 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.
- Children are offered a range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
- Regular events, such as Science Week or project days, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.

Aims

- to develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life
- to build on pupils' curiosity and sense of awe of the natural world
- to use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science
- to introduce pupils to the language and vocabulary of science
- to develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- to develop pupils' use of computing in their science studies.
- to extend the learning environment for our pupils via our environmental areas and the locality
- to promote a 'healthy lifestyle' in our pupils.

Planning

As a school we follow the planning units as set out in the Primary Knowledge Curriculum. Science will be planned and taught as an independent subject through separate units of work. Half termly science foci are planned using the key questions in each unit of work. Pupil progress towards these objectives will be recorded by teachers as part of their class recording system and once a term shared with the Science subject leader for whole school tracking purposes. Teachers plan according to a topic where the knowledge is built on incrementally.

The areas of study are outlined by the National Curriculum and the PKC. These have been divided and allocated to Year groups, with specific content to cover. These are outlined on a long term plan, allowing an overview of the progression of Science teaching throughout the school. Activities should be planned to meet the needs of all pupils. Differentiation is achieved through careful planning an organisation. Learners should be supported and challenged to progress within Science.

Cycle A	Year 1&2	Year 3&4	Year 5&6
Term 1	Human Body	Human Body	Human Body
	Animals & Their Needs	Cycles in Nature	Materials
Term 2	Seasons & Weather	Light	Living Things
	Taking care of the Earth	Plants	Forces
Term 3	Plants	Rocks	Astronomy
	Materials & Magnets	Forces & Magnets	Meteorology

Cycle B	Year 1&2	Year 3&4	Year 5&6
Term 1	Human Body	Human Body	Human Body
	Living things & their Environment	Classification of Plants & animals	Classification of Living Things
Term 2	Electricity	Ecology	Electricity
	Plants	Sound	Light
Term 3	Materials & Matter	States of Matter & the Water Cycle	Reproduction
	Astronomy	Electricity	Evolution

Pupils will be encouraged to use the knowledge they learn in Science and apply it to investigations that test a theory or set out to answer a question. Importantly, substantive scientific knowledge is taught first, before pupils are asked to undertake enquiry. This helps them to fully understand the elements of the enquiry first, and to make informed observations about the processes they see. Gathering information, recording data, graphing data and interpreting findings are all essential skills that pupils will apply to new contexts as they work through the curriculum. Enquiries include observing over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and researching using secondary sources. Scientific enquiries provide children with a wealth of opportunities, but first and foremost they will help to deepen understanding of the nature, processes and methods of science as a discipline and how it differs from other subjects they are studying. Pupils will gain an understanding of the purpose and uses of science both today and in the future.

Science in EYFS

Play underpins the delivery of all the EYFS. In playing, children behave in different ways: sometimes within their play, they may describe and discuss what they are doing and sometimes they may be more reflective and quiet as they play. Within a secure and challenging environment with effective support, children can explore, develop and experiment as they play to help them make sense of the world. The EYFS strand 'Understanding the World' leads directly to scientific elements of the curriculum and leads to more formalised Science learning in KS1 and then KS2.

Assessment

Formative assessment is used to guide the progress of individual pupils in Science. It involves identifying each child's progress in each area of the Science curriculum, determining what each child has learnt and what therefore should be the next stage in his/her learning. Teachers in the course of their teaching usually carry out formative assessment informally. The PKC assessments quizzes also provide a useful resource to assess prior learning and end of unit learning.

Summative assessment takes place at the end of each term and at the end of each academic year, when a level of the child's attainment is given. This assessment may be carried out through discussion and/or assessment sheets. At the end of each Key Stage the assessment is carried out through teacher assessment.
Wherever possible experimental and investigative work should form the basis for the teaching of Science. Children should be given as many opportunities as possible to carry out investigations and experiments. During each term an AT1 assessment should be carried out. Science assessments are recorded termly on Pupil Asset.

The leadership of Science

The Science co-ordinator is responsible for ensuring that the aims of the Science Policy are met. In addition to this, the science co-ordinator should:

- Be enthusiastic about Science and demonstrate good practice
- Encourage and support staff in the implementation of the curriculum and school approaches to Science teaching
- Co-ordinate assessment procedures and records, to ensure progression and development throughout the school.
- Monitor the teaching and learning of Science throughout the school
- Bid for funding to maintain resources
- Organise and review all science-based resources, ensuring they are readily available and maintained.
- Support staff by encouraging the sharing of ideas and organising in-service training as appropriate.

Recording in Science

The way in which Science is recorded will vary across the school depending on age and ability. Teachers should ensure that a range of appropriate methods are used. These may include:

- Written accounts including: instructions, reports and explanations
- Diagrams, drawings and pictures
- Annotated diagrams
- Spreadsheets (data collection)

- Charts, graphs and tables
- Model making

Health and Safety

In order to access and benefit from the entire Science curriculum, pupils must feel safe within the classroom and around school. This can be monitored through all staff following health and safety procedures of the school. When organising and undertaking trips outside of the school grounds, risk assessments are undertaken, pre-visits are made and first aid kits alongside pupils emergency contact details and medical information are carried at all times. When handling materials, pupils will be observed washing their hands before and after handling as well as being aware of any allergies which could be triggered. Children are encouraged to consider their own safety and the safety of others at all times. Teachers will be provide a safe and secure environment for children to learn. Any experiments or trips which are considered a particular risk will need a Risk Assessment Form to be completed and to consult the Science Co-ordinator prior.

Although most Science will follow a pattern of 'Question, Prediction, Method, Results, Evaluate', it is important to remember that the most valuable time is spent engaging in practical Science which allows children to understand a concept, rather than recording it.

Inclusion

In order to access and benefit from the entire Science curriculum, pupils must feel safe within the classroom and around school. This can be monitored through all staff following health and safety procedures of the school. When organising and undertaking trips outside of the school grounds, risk assessments are undertaken, pre-visits are made and first aid kits alongside pupils emergency contact details and medical information are carried at all times. When handling materials, pupils will be observed washing their hands before and after handling as well as being aware of any allergies which could be triggered.

Reviewed Summer Term 2021

Next Review Date: Spring 2023