MARSTON MORETEYNE VC SCHOOL

SCIENCE POLICY

January 2025

Science Intent:

Science teaching at Marston Moreteyne School aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future.

At Marston Moreteyne School, Science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Science links direct practical experience with ideas and it engages learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modelling.

Through Science, pupils understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving the quality of life. Pupils recognise the cultural significance of science and trace its world-wide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

This policy outlines the teaching, organisation and management of Science taught and learnt at Marston Moreteyne School. Our learning is sourced from the 'Cornerstones Curriculum' which offers children a broad and balanced curriculum by following a clear knowledge and skills framework, building upon the National Curriculum programmes of study and is underpinned by a four-stage approach: Engage, Develop, Innovate and Express.

Our cross-curricular learning enables the children to expand on their knowledge of a focus topic and apply their learning across a range of other subjects. Our ever-increasing use of the local area and curriculum enriching visits to places of interest and educational value helps to further embed the knowledge and skills learnt by the children.

It should provide every child with the opportunity to:

- To develop a relentless curiosity and excitement about natural phenomena.
- 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 'Working Scientifically' enquiry skills that help them to answer scientific questions about the world around them.

Reception:

Science is included in one of the seven areas of learning known as Understanding the World. Science in the Early Years Foundation Stage is planned to meet the Early Learning Goals (Understanding the World).

Scientific learning occurs through:

- Access to a range of developmentally appropriate practical activities based on first hand exploratory experiences. For example, a nature walk, magnifiers to explore natural objects, manipulating wet/dry sand etc.

- Enthusiastic and meaningful interaction with adults, who provide opportunities to develop communication skills, use correct scientific language and carefully framed open-ended questioning techniques to develop thinking skills.

- Exploration of both indoor and outdoor environments linking all areas of learning through continuous provision activities.

- Recognition and extension of their existing knowledge and understanding gained from their home setting.

Years 1 to 4:

The schools Medium term planning and coverage of key scientific skills will be used by teachers to plan, this will drive the journey of Science for every year group, building on from prior learning and develop progressively key skills and developing depth.

Science is planned in year groups and National Curriculum objectives are met through our Cornerstones Curriculum topics, the curriculum overviews which are saved on the school website reflect the skills and knowledge taught through the Cornerstones Curriculum.

Science Week takes place annually and each year group plans for this with a designated theme, provided by the Science lead. This ensures effective progression across the school.

The contribution of science to teaching in other curriculum areas

English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

Mathematics

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions.

Personal, social and health education (PSHE) and citizenship

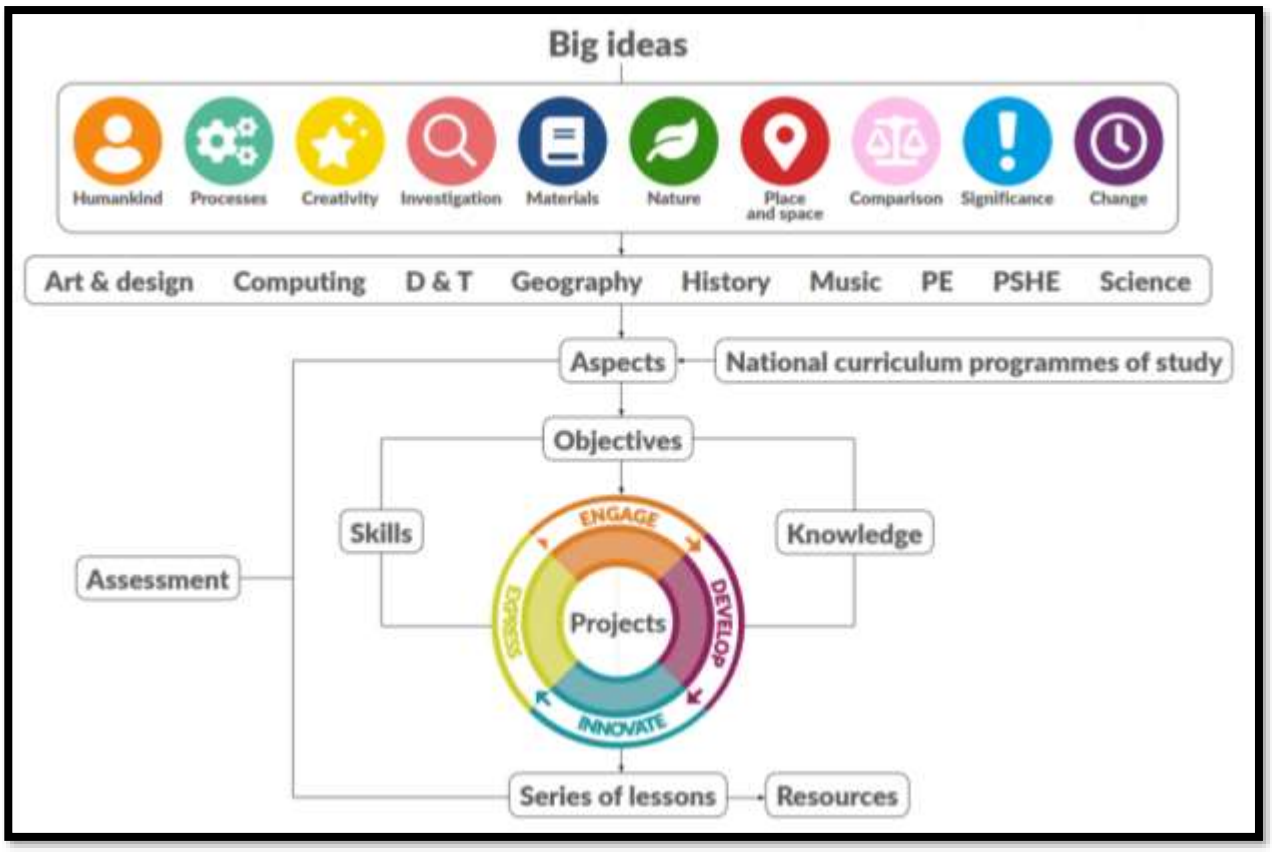
Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. They organize campaigns on matters of concern to them, Science promotes the concept of positive citizenship.

Science Implementation:

Our curriculum intent is achieved through a rich array which is inspired and developed by our Christian Vision. Our curriculum has depth in knowledge, skills and meaningful experiences.

Our Big Ideas are symbolic of our desire to prosper and give hope for the future

Our Science Curriculum focuses on the *nine* Big ideas:
Humankind, Change, Creativity, Nature, Materials, Place, Processes, and Comparison.



Through the teaching of Science we aim to:

- Plan and teach an ambitious and progressive curriculum across the school, to ensure that skills are built upon and mastered.
- Provide exciting lessons to build good foundations for learning and extend children's Scientific knowledge.
- Ensure that children are challenged in their learning and encouraged to persevere to reach their potential.
- Use clear adaptive teaching strategies and regular assessments to guide challenges at the correct level for each child.
- Make lessons engaging, inspiring and enjoyable, giving the children confidence in their abilities.
- Develop their understanding of scientific ideas by using different types of scientific enquiry skills to answer their own questions. These 'Working Scientifically' skills include: identifying, classifying and grouping; observing; pattern seeking; comparative and fair testing; researching using secondary sources.
- Support all pupils to read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge.
- Enable pupils to broaden their scientific view of the world around them 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.

When planning, teachers cover the 'Cornerstones Curriculum' through a creative and cross-curricular approach which ensure the smooth progression of skills without duplication. Teachers refer to the 'Cornerstones Curriculum Projects' for lesson sequences as a tool to support planning.

The class teacher will ensure that curriculum activities allow for adaptive teaching strategies amongst the children where appropriate. Through assessment for learning, summative and formal assessment, activities will be presented and extended at an appropriate level to give each child the opportunity to develop and utilise their individual skills and knowledge. We recognise the fact that in all classes there are children of widely differing abilities and backgrounds, and we therefore seek to provide suitable learning opportunities for all children.

Computing is used where appropriate to enhance and develop children's learning. This could be using the internet to find about scientific concepts or using programmes to present findings from their learning.

Our teaching and learning methods include:

- A mixture of whole class teaching, experimental learning, discovery methods, problem solving and open-ended investigations.
- All lessons have clear learning objectives which are shared and reviewed with the pupils effectively.
- Investigations covering all aspects of 'Working Scientifically' enquiry skills are planned into each unit to ensure practical Science is at the heart of the Curriculum across all year groups, through individual, small group or whole class groups
- In lessons where potential risks are involved, an appropriate risk assessment is made alongside the planning (in accordance with the guidance offered by Central Bedfordshire).

This risk assessment will be shared with pupils as a learning objective. If the safety of any science activity is in doubt, advice should be sought from the Science Leader, the Head teacher, or another member of staff responsible for Health and Safety.

- Science work should be investigative, explorative and based on first-hand experience (where possible).
- Activities are planned through relevant topics to allow children to develop concepts and to progress according to individual ability.
- Opportunities for open investigations that allow for differentiation of outcome within scientific enquiry, along with adapted tasks, are planned in order for pupils to succeed at their own level of understanding

Inclusion:

As a school we ensure that our curriculum is engaging and accessible to all children in our school community to achieve and thrive. Teachers do so by using ongoing judgement, formative and termly summative assessment to set ambitious targets and plan challenging work for all groups of pupils, including:

- High Attaining pupils,
- Pupils with low prior attainment,
- Pupils from disadvantaged backgrounds,
- Pupils with SEND,
- Pupils with English as an additional language (EAL),
- Pupils with SEMH challenges.

All pupils, regardless of need and including all those of protected characteristics will have equality of access to the curriculum.
Further information can be found in our statement of equality and objectives, in our SEND policy and in individual subject policies.

Impact of Science:

Our curriculum design will lead to good progress for all pupils, regardless of their starting points, over time. Planned learning will progressively build on prior knowledge and understanding and support children in producing outcomes of the highest quality.

Teachers will assess children's work in Science through a variety of methods. Firstly, during each lesson the teacher will observe the children and ask questions to assess their understanding to begin with. Open and closed questions should be used throughout the lesson to a range of children. After each piece of learning the teacher will use the Marston Moreteyne marking scheme of assessment and feedback and see if they have met the learning objective for that lesson. The teacher should refer to the objectives during the lesson so all pupils understand what they have to do to achieve. Teachers also complete assessment grids termly stating which children are Emerging, Expected, or Exceeding.

The Science Leadership group will monitor the delivery and planning of the Science Curriculum to ensure planning and teaching matches the aims and purpose outlined in this policy in a suitably progressive way. They will take into account Pupil Voice in their understanding of the impact of the intent and implementation of delivering high quality Science lessons.

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