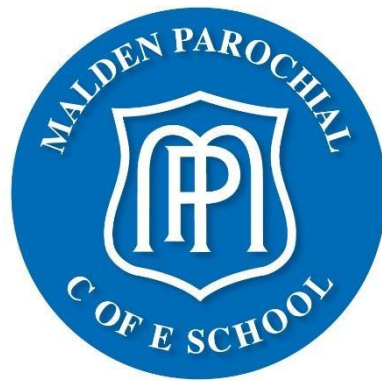


The Royal Borough of Kingston upon Thames

Malden Parochial C of E Primary School



Science Policy

Agreed: Summer Term 2020

Review: Summer Term 2022

[or as required]

Science Policy

Vision Statement

Our pupils foster their curiosity and excitement for natural phenomena through an inspiring curriculum. Biology, Chemistry and Physics underpin our pupils' understanding of the world around them and develop their understanding of the uses of science.

Pupils are given many and varied opportunities to explore, question, and challenge, and to offer explanations, predictions and analysis using scientific knowledge and vocabulary.

Intent

In Science lessons, the children are given opportunities to develop their knowledge and understanding of important scientific ideas, processes and skills and relate these to everyday experiences. We aim to equip the children and teachers with the belief that Science is for everyone. The children will have the scientific knowledge across a range of topics and the skills to understand how to find out about their world, by working using scientific methods. Our children will be ready to ask and answer scientific questions relevant to them.

Nursery and Reception will be taught Science through the Early Years Framework: Understanding of the World. Years 1 to 6 will be taught topics within our Science curriculum; Animals including Humans, Plants, Forces and Magnets, Light, Everyday Materials, Living Things and their Habitats, and Seasonal Changes (see curriculum mapping Appendix A).

The pupils will access the content within the seven strands of learning at an age and ability appropriate level, each year (or at different key stages) returning to the topic to build on the knowledge from previous years (see curriculum overview, scheme of work, skills and progression documents Appendices B, C and D).

The progression of skills to enable the children to work scientifically will be taught the across key stages, with Key Stage 2 being split in lower key and upper key stage. It includes six skills: Asking questions, Observation, Testing, Pattern Seeking and Classification, Data Recording, Data Analysis and Reporting (Appendix E- KPI's). The children build on their skill base as they progress through the school. We aim to encourage independent investigations and independent scientific thought.

Children will learn through a Science curriculum that is clear and progressive, with strong links to other curriculum areas, particularly Computing, Maths, P.S.H.E. and RSE.

Through the teaching of our Science curriculum, we aim that our pupils will develop the knowledge, skills and attributes that are needed understand the relevance of science in their lives and promote an interest to further their science knowledge outside of lessons and in future careers.

Through our framework at Malden Parochial we will:

- develop enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life;
- develop children's curiosity and sense of awe of the natural world;

- investigate and engage in practical activities to give a greater understanding of the concepts and knowledge of science;
- build a bank of scientific language and vocabulary;
- learn basic practical skills and develop their ability to make accurate and appropriate measurements;
- apply maths and computing in children's science studies;
- link to our RSE curriculum balanced information about human reproduction, in the wider context of emotional, ethical, religious, and moral dimensions of relationships;
- use our local outdoor learning environment to promote 'Science Capital' and promote a 'healthy lifestyle' in our pupils.

Implementation

The curriculum is designed and delivered to ensure children gain 'sticky knowledge' so that they can transfer all they have learnt to long-term memory. The curriculum is organised as a 'spiral' so that the seven strands of learning are revisited, building on what has been taught before. There is a progression of the skills needed for working scientifically through the key stages.

Roles and Responsibilities

The Subject Leader for Science is responsible for action planning, termly update for staff, organising/running CPD, monitoring standards, supporting book weeks, reporting to the Governors' Curriculum Committee, if requested, auditing and ordering new resources, leading assessment and analysing data, attending CPD and carrying out professional reading.

Equal Opportunities

- At Malden Parochial, we value the individuality of all of our children. We are committed to giving our children every opportunity to achieve at the highest of standards.
- We offer a broad and balanced curriculum, and have high expectations of all children.
- We seek to ensure that all pupils have equal access to the full range of educational opportunities provided by the school. We constantly strive to remove any forms of indirect discrimination that may form barriers to learning for some groups.
- We value each pupil's worth, we celebrate the individuality and cultural diversity of the community centred on our school, and we show respect for all minority groups.
- The achievements, attitudes and well-being of all our children matter.

Health and Safety

The Subject Leader for Science will ensure that all material used to inspire is appropriate and fulfils the requirements of the school's R.E. values as well as the nationwide British Values. A simple risk assessment will be carried out for all practical activities and any perceived hazards will be reported to the Subject leader who will determine the appropriateness of said activity and refer to CLEAPPS guidance.

Planning

- All pupils are exposed to a progressive and comprehensive Science curriculum which embraces the requirements of the National Curriculum and ensures

progression of knowledge in key areas and progression of working scientifically skills through the key stages.

- The school has schemes of work which outline the expected coverage for each year group, ensuring pupil exposure to several different areas of science such as physics, biology and chemistry.
- Class teachers prepare short term plans for each lesson. These list the specific learning objectives for each lesson and give details of how the lessons are to be taught, outlining how teachers can challenge or offer more support as appropriate.
- The planning and delivery of each unit of work will ensure that each pupil will have the opportunity to acquire and develop skills; explore basic skills, actions and ideas with increasing understanding; remember and repeat simple skills and actions with increasing control and coordination.

In Key Stage 2, pupils will be given more opportunities to show initiative by leading investigations, using what they have learnt to improve the quality and control of their own and others' work in the subject.

Teaching

We use a variety of teaching and learning styles in our science lessons. We believe in whole class teaching methods and we combine these with enquiry-based research activities. We encourage children to ask as well as answer scientific questions. Wherever possible, we involve the children in 'real' science activities. We recognise the fact that there are children of different abilities and we provide suitable learning opportunities for all children by:

- setting investigations which are open-ended and child-led;
- setting tasks of varying difficulty, enabling all children to work to their full potential;
- providing a range of challenges using different resources;
- using teaching adults where necessary to support the work of individual children or groups of children.

Teachers actively assess the progress of pupils at the end of each unit of work. Informal assessment is carried out on a lesson-by-lesson basis, which leads into the final evaluation. Teachers complete a subject-specific Key Performance Indicator sheet outlining the attainment of the children for that area.

Organisation

Foundation Stage pupils investigate Science as part of 'Understanding of the World'. Children are encouraged to investigate through practical experience; teachers guide the children and plan opportunities that allow the children to experience and learn whilst experimenting for themselves. In Key Stage 1 and Key Stage 2 weekly plans outline what each hourly session will contain. Learning Objectives should be clear, using a Working Scientifically objective and knowledge-based objective. These objectives do not all have to be initially shared with the pupils to allow them to develop their own skills of scientific enquiry and investigation, but the teacher should have a clear understanding of the lesson intentions. Resources should be sourced before the lesson and organised correctly.

Homework

Every week, children are set homework that adheres to the school's Homework Policy (see school website). The main task varies from subject to subject, but due to the cross-curricular nature of our long term planning may link to Science. This may include research of a particular area or a practical investigation.

Resources

There is a central resource area (the attic resource room). Resources are stored on open shelving and are clearly labelled. The equipment is stored by topic. A list of all equipment is on each resource box. Resources are audited by the class teacher at the end of a topic. The member of staff should return all equipment to its place of storage in a state of suitable use. Shortages and breakages should be reported to the Subject Leader for replacement. Teacher reference material is stored on the All Staff drive, under Science.

Impact

Assessment

Much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms thus making marking different.

Assessment is carried out through:

- Questioning
- Marking
- Mini-plenaries
- TA feedback
- Self-assessment
- Formal assessment

The school's Assessment and Marking Policies ensures that high quality feedback is given to pupils through next step marking and pupils are expected to respond.

Children are also encouraged to make personal assessments of their own work through evaluating activities and identifying what they need to improve by using traffic lighting to show achievement against success criteria in every lesson.

The children are formally assessed each term in Science to ensure that progress is being made and that children are working at the expected level for their year group. This is recorded on SIMS with subject knowledge and Working Scientifically skills are recorded separately. For each unit of work covered there are clear National Curriculum targets showing what is expected of the children in that year group (see Appendices D, E). These assessments are submitted to the Headteacher and Subject Leader so that progress can be clearly tracked and monitored. Marking for improvement comments in a child's book must be relevant to the learning objective to help children to better focus on future targets.

Monitoring and Evaluation

Monitoring the standards of children's work and the quality of teaching in Science is the responsibility of the Science Subject Leader and Leadership Team. The work of the Subject Leader also involves supporting colleagues in the teaching of Science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

Review

The Subject Leader and Headteacher will review this policy and amend as appropriate.

In conclusion

Consultation

At the end of each academic year, the coordinator, Headteacher and staff review and evaluate the Science taught. Evaluation should take into account:

- Implementation of the National Curriculum, this will include discussion of the lesson structure, teaching of Working Scientifically skills, the teaching of Subject Knowledge, progress of the children in line with key objectives. Planning issues and staff needs as regards training and support will be addressed as appropriate.
- Pupil achievement, both in practical assessments and by teacher assessment.
- Coverage of curriculum.
- Analysis of children's books.
- Staff development.
- Any issues arising from teaching, regards common problems or difficulties.
- Children who have not reached the age related expectations

Links to other policies and documents

- Assessment policy
- Marking policy
- Homework policy
- SEND policy
- Inclusion policy
- Computing policy

Acronyms

KPIs – Key Performance Indicators

CLEAPPS- an advisory body for school science

PSQM- Primary Science Quality Mark

P.S.H.E. - Personal, Social, Health, Economic

RSE - Relationships and Sex Education

CPD – Continuing Professional Development

R.E. – Religious Education

TA – Teaching Assistant

SIMS – School Information Management System

SEND – Special Educational Needs and Disabilities

Appendix

Appendix A - Curriculum Mapping

Appendix B - Curriculum Overview

Appendix C - Scheme of Work

Appendix D - Skills and Progression Documents

Appendix E – KPI's