Molescroft Primary School

SCIENCE POLICY

Written NOVEMBER 2010, Reviewed 2013, 2016, September 2019

1. INTRODUCTION

This policy document is written after a change of science co-ordinator and is an update on current practice at Molescroft School. It is a working document, which reflects the ethos and practice within the school in relation to Science. It has been written with due regard to the requirements of the National Curriculum and is aware of current good practice linking Science to other subjects being taught in a more cross-curricular framework.
The Science co-ordinators:KS2 Mrs Cameron, KS1 Mrs Crofts

2. FUNDAMENTAL PRINCIPLES

The whole ethos of Molescroft Primary School is to provide every child with a happy, caring, learning environment in which he or she can develop their full potential – whatever their needs and irrespective of ability, race or gender.

Molescroft Primary school believes that: Science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies their curiosity with knowledge. Because science links direct practical experience with ideas, it can engage learners at many levels. Through the subject, pupils learn to raise questions and discuss science-based issues which may affect their own lives and the world in which they live.

AIMS

- To develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- To develop the natural curiosity of children about the world around them.
- To develop questioning and enquiring minds through a range of enjoyable and interesting experiences.
- To help children develop the skills to make systemic enquiries.
- To provide opportunities for children to apply theoretical ideas to the solving of practical problems.
- To enable children to develop an increasing attention to accuracy.
- To foster a positive attitude to science and increase their understanding of how science is used in the wider world and in the future.
- To develop the understanding of the nature, processes and methods of science through different types of scientific studies.
- To develop accurate use and spelling of scientific vocabulary.
- To meet the needs of each child so that they will reach their full potential.
- To provide opportunities to explore science learning which is linked to a broader theme involving other subjects, such as STEM.
- To engage children's enthusiasm for science in an annual STEM week, which is rich in practical activities.
- To teach science in a global and historical context; including the contributions of significant scientists.

3. ROLES AND RESPONSIBILITIES

The governing body should, in co-operation with the Head Teacher, determine the school's general policy and approach to Science at Molescroft Primary School.

The Science Co-ordinator should advise the Headteacher, staff and governors of current practice in Science and any new initiatives put forward by the governments or LEA.

4.PLANNING

The Long Term plan for Science is now based on the Science Programmes of Study for Key Stage 1 and 2. Each year group has allocated units to study totaling 64 hours. These link into the school's 'Thematic Spiral'. Medium Term plans have been written based on these Programmes of Study. From these, class teachers write their Short Term Plans in accordance with the school's policy on Accelerated Learning.

5. MASTERY IN SCIENCE

What it means to achieve mastery in Science

A high-quality science education provides the foundations for understating the world through the scientific disciplines of biology, chemistry and physics.

Children will be taught essential aspects of knowledge, method, concepts and the skills to make systemic enquiries.

Children will build up a body of foundational knowledge and concepts which enable them to explore the wider world with excitement and curiosity.

Children will understand how science can explain what is happening and use this to predict how things will behave, giving them opportunities to question the world around us.

Coherence in Science

- The process of learning in science is coherent across the school. Each unit within scientific enquiry should be taught in a step by step manner which is immediately understandable to the pupils and progresses within the year group and across the school.
- On starting a unit there should be a reminder of the lessons learned in previous units and particularly those with similar materials.

Variation in Science

- Children will be able to work in a variety of different ways to develop their scientific skills.
- Opportunity will be given for children to work scientifically through the five different strands allowing variation to develop understanding of the different units.

Structure in Science

- Unit plans should always be taught with the following structure:
  - Each unit starts with an assessment of prior knowledge.
  - Each unit is to incorporate relevant scientific skills ensuring that across the year all aspects of working scientifically are taught and revisited.
  - There is a high expectation of open ended questioning from both teacher and child, and an investigative approach to learning is expected.
  - Children will work through the investigative process of predicting, experimenting, collecting data, analysing results and drawing conclusions. This may then lead to more questions!

Fluency in Science

- Prior knowledge will be taken into consideration to ensure fluency.
- Pupils are expected to verbalise their reasoning and understanding with open ended questions at regular intervals. Pupils should expect to be challenged by critical questions and be given the opportunity to further their understanding with research and experimentation.

Making connections / logical reasoning Science

- Pupils are encouraged to make connections with the real world and see Science in practise.
- Opportunities are given for the children to make connections through visiting scientists, STEM club and educational visits.
- The transferable skills of science can be used across the scientific units and the curriculum in general.
- Reasoning skills are used when children draw conclusions from the data they collect. They need to explain why, how, and consider further opportunities for investigations.

The KEY CONCEPTS/THEMES/PROCESSES which run through the units which need to be developed, step by step, and show progression year on year.

Children will develop their knowledge, understanding and concepts in the units of the National Curriculum through the process of scientific enquiry. This will nurture a questioning mind.
These areas are:

- Research using secondary sources.
- Identifying, classifying and grouping.
- Making comparisons and fair testing.
- Pattern seeking.
- Observing over time.

6. APPROACHES TO LEARNING

The school is committed to the importance of learning through first hand experiences in Science and developing children's understanding of Science through Accelerated Learning techniques.

Where ever possible, it is important that the children learn through the 'Working Scientifically' strand of Science and develop skills as 'real scientists'.

Through individual, small group and whole class experiences, pupils will be given the opportunities to develop the intellectual and practical skills to allow them to explore the world of science.

The activities will require a progressively more systemic approach, drawing on knowledge gained through previous experiences. They will be relevant to the children and will provide opportunities for trying out their own ideas. Activities will be differentiated by the class teacher when required and appropriate to the pupils being taught.

The curriculum for science reflects the importance of Spoken language in pupil's development. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely.

7. PROVISION IN EYFS

Science in the Early Years is taught through the areas of provision. Our aim is to develop enquiring minds and make science fun.
There are opportunities to explore and investigate, both inside and out. The children regularly visit the wildlife area and experience forest school activities.
The children are encouraged to use their fine and gross motor skills to develop scientific skills.
They learn through talk, songs, play and being surrounded by a stimulating environment rich in opportunities and scientific vocabulary.
Science related topics are taught regularly throughout the year such as Space and Pets and the children have the opportunity to cook on a weekly basis.
Visits from scientists, STEM week and educational visits encourage a scientific mind.
Assessment of science is carried out using FLIC.

8.ASSESSMENT

Assessment is an on-going process which enables teachers to match the level of work to the children's understanding. Informal judgements will be made during

lessons and completed work will be marked in accordance with the target set and appropriate success criteria.

At the end of a unit of work, teachers will make a summary judgement on the attainment of each child based on the National Curriculum statutory requirements. Children's achievements will be recorded using FliC and this will then be used to inform future planning. The science co-ordinator will also be able to monitor the attainment of children in Science by accessing the Flic data across the school. As part of the Key Stage 1 and Key Stage 2 SATs, children will be teacher assessed in Science.

9. SAFETY

All experiments are carried out in accordance with national safety guidelines published in the ASE 'Be Safe' publication. Safety issues are recorded on the short term plans and teachers notify the Science Co-coordinator if there are any amendments or concerns. In addition to this, advice is available from CLEAPSS.

10. CROSS-CURRICULAR OPPORTUNITES

Whilst Science is taught as a discrete subject, where relevant it will be linked with all other areas of the curriculum e.g. Literacy, DT and Maths. The school also supports STEM in school wherever possible, with the STEM coordinators liaising closely to ensure cross-curricular opportunities. Our STEM week ensures all the related subjects are celebrated and visits from people who work in the field of STEM help demonstrate the relevance of the subjects in the world today.

11.RESOURCES

See Coordinator for a full list of resources. Most are kept in a central location.

12. EQUAL OPPORTUNITES

Teachers will be aware of children who have an EHC plans and those in vulnerable groups such as Pupil Premium; they will then be monitored appropriately. Work will be differentiated to the needs of the children to enable them to meet their full potential in the subject.

The teacher will also monitor those children who it is believed have an aptitude for the subject and a record will be kept to enable future teachers to develop these children's ability. Please refer to Gifted Children policy for requirements for identifying those who are gifted in the subject.

13.INSET

The Science Co-ordinator will attend courses organised by the LA and other providers. The Science Co-ordinator will deliver INSET on changes to National and East Riding policy.

14. LIAISON WITH OTHER ORGANISATIONS

The Science Co-ordinator will liaise with other schools during co-ordinator meetings within the Beverley area.

The Year 6 team will attend meetings relating to the transition of our pupils to the relevant secondary school and share any relevant information.

Connections have been made with Local universities, adults who use STEM in their working lives, and local secondary schools. These links ensure children can see the relevance Science has in the wider world.