MEADOWS PRIMARY SCHOOL AND NURSERY

Policy for Science
March 2017

1. Principles

Rationale

"A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how key foundational knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes. This foundational understanding should be consolidated through their appreciation of the specific applications of science in society and the economy." DfE NC 2014

Generic Aspects

This policy is to be implemented in conjunction with the generic policies in place in our school.

What is Science?

The purpose of teaching Science in our school is to enable the children to understand the world in which they live by showing them how to investigate it in a systematic fashion. Drawing on a child's curiosity, a teacher can show him or her how to observe, study, question, plan, investigate and experiment, relate findings, draw conclusions, understand and record how things are, and also the ways in which things sometimes change.

Science in the National Curriculum

Science is a National Curriculum core subject. Pupils no longer have to do Statutory Assessment Tests (SATs) in Year 6 although some schools may be selected for sample SAT testing bi-annually for monitoring purposes.

At Foundation Stage, scientific concepts form part of 'Knowledge and Understanding of the World'. For Key Stage 1 there are four units per year to be delivered and, at Key Stage 2, there are five units per year. All of these units are linked to the three main areas of science: biology, chemistry and physics. The National Curriculum document 2014 emphasises that ***enquiry is still at the heart of the curriculum, but must be taught through related content from the programme of study.***

Future – science is becoming more of a focus, and is beginning to be monitored more closely. The provision for science within primary schools is also being assessed formatively at present, with the intention of using summative assessments to judge the quality of provision within science.

In our teaching of Science to children, we aim to:

We aim to teach science in ways that are imaginative, purposeful, well managed and engaging. We try to ensure we give clear accurate teacher explanations and use skilful questioning.

- Develop scientific enquiry. These are observing, identifying and classifying, pattern seeking, research (using secondary and primary sources) and fair testing.

- Develop process skills through discussions with adults and peers, questioning (child to child, adult to child or child to adult) alongside predicting, hypothesizing and reflection.

- Foster scientific attitudes. These include a willingness to collect and use evidence, a willingness to change ideas in the light of evidence and a willingness to review procedures critically.

- Develop scientific concepts – e.g. how things behave in water, hot and cold and temperature changes, hearing and producing sound.

Differentiation

Activities will be pitched at the expected level for the year group being taught, however additional scaffolds will be put in place by the class teacher to ensure the child achieves success. Children who reach the intended learning outcome quickly will be provided with enrichment opportunities to extend and secure their learning within a range of contexts. Teachers should ensure that children are not accelerated through the content, and are taught the content within the appropriate key stage. They should also be encouraged to carry out more independent enquiry and build up scientific investigative skills.

Cross curricular themes

Where appropriate, science should be linked to other subjects to provide opportunities for children to apply their understanding of science in a range of contexts. This must be done in addition to science lessons. Science can be taught through other subjects, but the teacher needs to ensure that the science learning outcomes within lessons are clear, and achievable through the use of a variety of science enquiry skills.

2. Guidelines

Units of work

Throughout Key Stages 1 and 2 there are 7 units of work for each year group, which cover the topics to be delivered over one academic year programme (see Appendix 1). In some years, this includes the school science curriculum where exploration units have been added to enrich the national curriculum for science. This is to add extra opportunities for children to explore natural phenomena and gain a better understanding of the world around them.

Working Scientifically is a continuous strand throughout EYFS, Key Stages 1 and 2.

Classroom management

It is the class teacher's responsibility to identify and collect beforehand the resources needed for planned science activities. These can then be made available in class for pupils' selection. Group work is most beneficial to children's learning in Science as it encourages the exchange of ideas. Practical activities need supervision by an adult.

A Way of Working

When planning, teachers are encouraged to make use of the Engage Science scheme of work, alongside QCA units of work, CLEAPPS and the Hamilton Trust examples of work. The Science subject leader holds copies of Engage

Science and will be able to show you how to access additional planning resources if required.

Also, the science enquiry cycle has been made available to foster a more child led approach to learning within science. This is to encourage the children to discover the answers to scientific questions themselves. (This is to avoid multiple lessons where a passive approach is used)

Health and Safety

Before carrying out investigations class teachers are responsible for ensuring that safety precautions are taken to reduce any risks to the children participating. Class teachers should refer to the CLEAPPS 'Model Health and Safety Policy for Science in Primary Schools' and the Be safe publication kept in the science resource cupboard and staffroom.
If a class teacher is ensure of whether it is safe to carry out an investigation with the children they should consult the science lead who will contact CLEAPSS for clarification.

Resources

At present the school's science equipment is kept in the cupboards in the area between Classes 7 and 8.

Assessment (interim period) and Record Keeping

Class teachers assess a pupil's progress through observation, recorded work and specifically planned assessment activities in line with our Assessment Policy. At the beginning of each unit of work, teachers are encouraged to refer to the Q.C.A. *Assessing Progress in Science* activities to help make formative assessments. Once a term, teachers will focus on a child's independent investigative work and assign a level in accordance with the step descriptor statements. This step will be entered on the O'track system in order to keep track of individual pupil's progress in Science.

(Tracking progress in books)

Teachers and pupils are able to track progress of scientific enquiry skills and knowledge, related to the programme of study, by highlighting steps of progression on tracking sheets. These are attached to the inside cover of each pupil's science book.

Recording Children's Work

Children record their investigations and scientific understanding through written work, concept maps, brain-storming, drawings, diagrams, and pictures with annotations, charts, tables and graphs. They are encouraged to use headings, prompts, framework sheets and subject specific vocabulary to help with their recording of ideas and activities. Evidence of children's work can also be shown in digital photographs and video recordings.

Reporting to Parents

Each term the class teacher publishes a letter to parents and carers outlining the work planned in all subject areas, including Science. Comments about a child's progress and targets to move his or her learning forward are entered onto the annual report to parents and carers, who then have an opportunity to make a written or oral response.

3. Scheme of Work

At present our schemes of work are based on the 2014 National Curriculum document for Science, which is delivered through the use of the 'Engage Science' scheme of work.

4. Success Criteria

Our criteria for success include:

- Pupils exhibit an enthusiasm about Science and an interest in talking about their work, using a growing science vocabulary;

- Pupils develop an investigative approach when seeking answers to scientific questions;

- Pupils have an increasing awareness of safety risks when carrying out practical activities;

- Pupil achievement will significantly rise throughout the school ;

- Evidence of pupils' achievement in Scientific Enquiry and knowledge to be compiled in a school moderation portfolio.

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Reviewed and revised March 2017