

# SCHOOL POLICY FOR SCIENCE

**Co-ordinator:**

**D.Malyon**

**Buddy:**

**C. Allen**

**Date Adopted:**

**Autumn 2013**

**Review By:**

**Autumn 2017**

## How the Policy developed

This policy now updates the previous one. As part of a rolling programme of policy development.

## How it relates to the School Development Plan

This policy was identified for review during the academic year 2013/14. The Co ordinator has attended CPD to introduce elements of the new National Curriculum for Science – statutory from September 2014. The Head and Co ordinator will continue to monitor the policy.

## Key Targets for the Period to the Date of the Policy review

- Update long term planning when necessary to fit with whole school 4 year rolling programme of planning
- Evaluate planning and work across KS1 and KS2 through book scrutinies
- To consider when lesson observations of staff in KS1 and KS2 could be carried out
- To embed use of APP sheets for assessment of Science.
- Maintain the use of ICT in science.
- Implement the New National Curriculum for Science from September 2013 in readiness for statutory implementation from September 2014.

<b>Tasks</b>	<b>Action Group</b>	<b>Timescale</b>	<b>Cost</b>
To amend policy with staff	Staff	Sept 2013	-
To present policy to the Curriculum Committee	Head	Autumn 2013	
Include Science in lesson observation timetable for staff in KS1 and KS2	Co-ordinator	During 2013/14 Ongoing	Nothing during 2013/14. 11 hours supply cover thereafter £250
To provide resources	Co-ordinator	Ongoing	
To provide support and guidance on APP assessment materials and other resources to new staff,	Co-ordinator	Ongoing	
To continue monitor children's work across the school – Book Scrutinies	Co-ordinator/ SMT/Head	One day per term	Half day supply cover for each book scrutiny.
To ensure that 4 year rolling programme of planning covers requirements of the New Science National Curriculum	Co-ordinator /key stage leaders	By Sept 2014 at the latest.	-

## **Intentions**

- To maintain a high profile of the subject and acknowledge the value and importance of science across the whole school.
- To provide more opportunities for investigational activities in science planning and teaching.
- To help children communicate through the use of scientific language.
- To encourage children to have a positive attitude to Science, developing their natural curiosity of the world around them.
- To help children learn to make informed judgements and decisions through scientific activities.
- To provide children with degrees of challenge, through questioning and scientific investigating.
- To provide all children with access to science activities, including those with special educational needs and those who are seen to be gifted and talented.
- To work towards all children achieving the standard of the National norm for both KS1 and KS2. Early Years to be secure in the Early Learning Goals at the end of Reception and, in Nursery, working within 40-60 months - accepting that some SEN children may work to other pre-determined standards.

## **Aims and Objectives**

### **Aims:**

- Children to build on knowledge and understanding from the foundation stage
- Children to develop scientific knowledge so that they have a greater understanding of their world.
- Children to be able to work in a scientific way and make decisions and solve problems for themselves.
- Children to enjoy and appreciate the fascination of Science.
- Children to be able to select and use scientific equipment appropriately.
- To continue to build up a resource bank for science.
- For staff to become more familiar with the content of the New National Curriculum for Science

### **Objectives:**

- To provide a range of appropriate materials to enable children to make suitable choices.
- To encourage children to be able to communicate their ideas about Science and use appropriate language.
- To teach through investigative and enquiry based methods.
- To apply Science to a range of real life and cross-curricular situations, and consider ethical situations.
- To make use of QCA guidelines, LEA materials and APP to support teaching, learning and assessment.
- To monitor the direction of the enquiry and to redirect, where necessary, furthering their investigation.
- To pose questions in such a way as to develop scientific understanding, attitudes and organisation of enquiries.
- To use outdoor learning such as forest school to enhance learning where possible.

## Principles of Teaching and Learning

We understand the relationship between policy and practice, and that the content of our policy has a direct link to the received curriculum.

### The Role of the Teacher

- To organise teaching in a variety of ways best for learning i.e., class teaching, group work, individual learning, teacher led activities or independent investigations.
- To involve children in the processes of thinking, communicating and acquiring skills through-  
new knowledge  
reinforcement and consolidation  
questioning, planning, predicting, hypothesising, observing, measuring, recording and interpreting  
evaluating  
reviewing
- To teach investigative methods using the agreed planning boards and format. To use modelled, intermediate and supported independent investigations as a means of developing the investigative approach. **(Appendix 6)**.
- To provide a range of illustrative activities and modelled investigations.
- To meet the needs of individuals through differentiated teaching, questioning and activities, using a range of scientific resources and published material.
- To teach children to work together co-operatively, taking responsibility for their own work and accepting responsibility for their immediate and wider environment.
- To develop learning through recognising that the *skills of thinking* used in other areas of the curriculum are intrinsic in the development of a scientist. **(Appendix 3)**
- To use accelerated learning techniques to aid children's long term recall and making connections to see the big picture of a unit of study. **(Appendix 5)**
- To develop learning through practical activities, and recognising the doing is more often more important than the recording, especially in younger children. and in EYFS.
- To ensure a time allocation for Science of 2 hours in Key Stage 1 and 2.25 hours in Key Stage 2 – or the equivalent if teachers choose to block the time.
- To plan a range of investigations for each term into medium term plans when delivering a topic. **(Appendix 6)**

### Equal Access and Outcome

Every pupil is entitled to a broad and relevant Science curriculum and, providing access to this for pupils with special educational needs is an important task. We need to give these children opportunities to engage in Science activities and to have their achievements recognised.

We must take account of ethnic and cultural diversity within our school and be aware that not all cultures share our view of Science.

We must consider gender issues when planning Science activities and ensure that both boys and girls are given equal access to Science within school.

We must provide for those that are deemed Gifted and Talented, and present them with suitable challenging activities.

### Health and Safety

- We need to remember at all times that children have the right to be safe.
- We will adhere to the school Health and Safety policy.
- We will maintain an awareness of Health and Safety issues both in the activities we plan and the

equipment we provide for children.

- Pupils will be taught to use materials, tools and techniques for practical work safely. Children will be closely supervised when using sharp tools, thermometers or candles.
- Children will be made aware that it could be dangerous to put any science materials in their mouths and to wash their hands after handling materials.
- All electrical equipment is subject to an annual safety check carried out by qualified electricians.
- We take extra care if we plan for work to happen outside school. All visits are properly planned and are checked against the requirements procedure for educational visits.
- We will ensure that a risk assessment is completed for activities carrying an element of risk. An agreed format for Risk Assessments is stored on the staff shared drive on the school's computer network.

## **Implementation**

Following the acceptance of the policy, all staff will be provided with a copy of the policy.

All staff have a responsibility to implement the policy.

The policy will also be implemented through the use of the school long term plan and the National Curriculum requirements.

The requirements of the National Curriculum Programmes of Study at KS1 and KS2 are such that teachers should plan opportunities for children to develop their scientific knowledge and skills through:

- Exploring and developing ideas
- Investigating scientific questions and ideas
- Evaluating and reviewing - their work and others
- Observing, comparing, measuring and recording their findings

A scheme of work is used in our 2 year planning cycle for KS1 and KS2 referring to the Units of Study as outlined by QCA documents. In addition medium term plans are in place for each unit of study with specific resources provided where appropriate.

Nursery and Reception children will follow the guidelines of the EYFS and Early Years Goals.(**Appendix 2**)

Teachers have access to a range of teaching resources available from practical resources, books, posters, Folens Scheme, websites, ITPs and the School Library Service.(**Appendix 4**)

The role of the Co-ordinator.(**Appendix 1** )

## **Continuity and progression**

Aims:

- To provide planning which identifies progression of skills& concepts
- To assess and monitor work undertaken in each key stage, with particular reference to investigational skills. Assessment and record keeping will be in line with school policy.
- To understand and review how the science curriculum is being delivered and how it can be improved.
- Pupils will work towards achievement of the National norm for the end of key stages or beyond if they are able. Early Years to be secure in the Early Learning Goals at the end of Reception and, in Nursery, working within 40-60 months - accepting that some SEN children may work to other pre-determined standards.
- To teach investigative methods using the agreed planning boards and format. To use modelled, intermediate and supported independent investigations as a means of developing the investigative approach. **(Appendix 6)**.

## **Resourcing**

The majority of resources are kept on the KS2 site. A store of core resources is needed on KS1 site.

Teaching resources are kept at the KS2 store..

The annual budget will be spent on consumables and to provide new materials wherever needed. FOSLS will be approached for the purchase of larger items.

## **Assessment and Reporting**

Samples of work (investigations) will be collected by the co-ordinator to identify levels of attainment and kept in a portfolio.

Teachers will make regular assessments after Units of study using Folens assessment materials, QCA assessment units, APP or self review.

Children's progress and achievements will be reported on in the annual children's report and Parent Evenings.

## **Summary**

Science for Primary children means exploring, discovering and investigating the world around them. Our aim is to offer activities that help children to gather the experiences they need to understand their world.

Science forms an integral part of children's school and everyday life, as such they should be given opportunities to experience and learn first hand through their own investigations and observations. Forest school also provides opportunities for our Nursery and foundation stage to explore scientific concepts

Our teaching will offer opportunities for children to develop knowledge and understanding of important scientific ideas, processes and skills. They will learn how to communicate their ideas and explore values and attitudes through science.

Science teaching should contribute to raising achievement in Literacy, Speaking and Listening, Numeracy and ICT. It should also contribute to the children's personal, health, social, spiritual and cultural development

## Appendix 1

### Role of Co-ordinator

- Putting together the policy documents and reviewing as necessary when a focus of the SDP
- Monitoring and evaluating subject planning
- Providing support for individual planning as required in terms of content and ideas
- Support delivery as required, providing peer coaching when subject is a focus in SDP
- Monitoring standards across and between Key Stages to help ensure progression and continuity
- Providing school based CPD as required
- Attending CPD in other venues to keep abreast of new developments and to disseminate to staff through school based CPD
- Initiating Science weeks and events
- Ordering stock and over seeing the storage of resources
- Monitoring Teaching and Learning
- Book scrutinies
- Liaison with the relevant Link Governor

## Appendix 2

### **Foundation Stage/ EYFS – Understanding of the World**

Within the Foundation Stage (Nursery/Reception) our aim is to give our children exposure to a variety of experiences of the world around them. We support children in developing the knowledge, skills and understanding that help them to make sense of the world around them. First hand experiences offer the best opportunities for exploration, observation, problems solving and discussion.

Science enables our children to develop practical skills and acquire knowledge of the world around them through a range of activities that will stimulate the children's interest. Children will learn about creatures, people, plants and objects in real life situations, and will work with a variety of materials to broaden their knowledge of their environment.

Science offers opportunities for interaction with both adults and their peers, thus developing social and personal skills. Language development will be an ongoing objective, the children will be encouraged to pose questions, describe their observations and explain what they understand.

We aim to provide a stimulating environment which will encourage children's interest and curiosity both indoors and outdoors, through ICT and in Forest School.

## Appendix 3

### **Thinking Skills**

By using thinking skills children can focus on knowing *how* as well as knowing *what* – on learning how to learn. Many aspects of Science contribute to the development of thinking skills.

Information processing skills enable children to locate and collect relevant information, to sort, classify, sequence, measure and compare and contrast.

Reasoning skills enable children to give reasons for opinions and actions, to draw inferences and make deductions, to use precise scientific language to explain what they think and to make reasoned, informed judgements.

Enquiry skills enable children to ask relevant questions, pose and define problems, to plan what to do and ways to work, to predict, record, evaluate results and review.

Creative thinking skills enable children to generate and extend ideas, to suggest hypotheses, to apply prior knowledge and to look for patterns or trends in results.

Evaluation skills enable children to evaluate information, to judge the value of what they read, hear, see and do, to develop criteria for judging their own or others' work or ideas and to have confidence in their judgements.

## Appendix 4

### Useful Websites

[www.bbc.co.uk/4-11/science](http://www.bbc.co.uk/4-11/science)

[www.primaryschoolscience.com](http://www.primaryschoolscience.com)

[www.primaryresources.co.uk](http://www.primaryresources.co.uk)

[www.tlfe.org.uk](http://www.tlfe.org.uk)

[www.kented.org.uk](http://www.kented.org.uk)

[www.bigbrownenvelope.co.uk](http://www.bigbrownenvelope.co.uk)

[www.nwnet.org.uk](http://www.nwnet.org.uk)

[www.coxhoe.durham.sch.uk](http://www.coxhoe.durham.sch.uk)

[www.prometheanworld.com/uk](http://www.prometheanworld.com/uk)

[www.crick.web](http://www.crick.web)

Espresso (on network at school)

[www.educationcity.co.uk](http://www.educationcity.co.uk)

## Appendix 5

### **Accelerated Learning**

The following are a reminder of some useful ideas to help children recall scientific concepts and vocabulary.

**Positive vocabulary** Use positive language when talking about scientific issues, show how fascinating you think it is!

**Imagery** Use phrases like “picture this”, “imagine this”, use colour for different aspects of a concept, learning or vocabulary, use arrows to link ideas

**Learning outcomes map** at the beginning of the year, display a Science map to show the 3 main strands (Physical Processes, Materials and their Properties and Life Processes and Living Things). Put on the strands which they will study this year. Use every lesson to show connections and bigger picture

**Drawing a picture** put up a poster or picture associated with the unit of study, the children organise into a concept map. Repeat at the end of the unit. Helps the children see the big picture and make connections between concepts.

**Learning preferences** Try to structure teaching so that the children have an opportunity to see it, hear it, experience movement and feel it.

**Brain train** listing activities, prioritising activities, 3 pronged links, and rhythm and clapping (see Mind Kind training folders in school for further details)

This is not an exhaustive list, there will be other accelerated tools that teachers will use.

Appendix 6

Appendix 6

Planning Investigations To Build Up Children's Investigation Skills In Year 1

Autumn Term	Spring Term	Summer Term
Modelled Investigation Modelled Investigation Intermediate Investigation	Modelled Investigation Intermediate Investigation Intermediate Investigation	Modelled Investigation Intermediate Investigation <u>Simple Independent Investigation</u>
Modelled Investigation Modelled Investigation Intermediate Investigation	Modelled Investigation Intermediate Investigation Intermediate Investigation	Modelled Investigation Intermediate Investigation <u>Simple Independent Investigation</u>

Developing Pupils' Investigative Skills From Year 2 Onwards

Autumn Term	Spring Term	Summer Term
Modelled Investigation Intermediate Investigation Independent Investigation	Modelled Investigation Intermediate Investigation Independent Investigation	Modelled Investigation Intermediate Investigation Independent Investigation
Modelled Investigation Intermediate Investigation Independent Investigation	Modelled Investigation Intermediate Investigation Independent Investigation	Modelled Investigation Intermediate Investigation Independent Investigation

## Planning a Blocked Unit in Science Structuring the Medium-Term Plan

Week	Conceptual Hierarchy of Key Scientific Ideas	Development of Independence in Investigative Skills
1	Most accessible scientific ideas	Modelled Investigation
2		
3		Intermediate Investigation
4	Increasingly more challenging scientific ideas	
5		
6		Independent Investigation
7	Most challenging scientific ideas	Independent Investigation