St. Thomas' Church of England Primary School
SCIENCE POLICY

AIMS OF SCIENCE POLICY

Our Science Policy follows The National Curriculum 2014 for Science Guidelines and aims to ensure that all pupils:

- 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 science enquiries that help them to answer scientific questions about the world around them;
- are equipped with the scientific knowledge required to understand the **uses and implications** of Science, today and for the future.

PURPOSE OF STUDY

A high-quality Science education provides foundations for understanding the world. Science has changed our lives and is vital to the world's future prosperity. Through building 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 knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes. This understanding should be consolidated through their appreciation of applications of Science in society and the economy.

In teaching Science we are developing in our children:

- a positive attitude towards Science and an awareness of its fascination;
- an understanding of Science through a process of enquiry and investigation;
- confidence and competence in scientific knowledge, concepts and skills;
- an ability to reason, predict, think logically and to work systematically and accurately;
- an ability to communicate scientifically;
- the initiative to work both independently and in co-operation with others;
- the ability and meaning to use and apply science across the curriculum and real life.

PLANNING

School curriculum

The programmes of study for Science are set out year-by-year for Key Stages 1 and 2. We are however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, School has the flexibility to introduce content earlier or later than set out in the programme of study and may introduce key stage content during an earlier key stage if appropriate. Teachers will base their planning on the programmes of study for their relevant year groups. Teachers will provide differentiation of tasks/activities within their weekly/Medium term planning.

Scientific knowledge and conceptual understanding

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of Science, including collecting, presenting and analysing data.

The nature, processes and methods of science

'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group. It should not be taught as a separate strand.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Foundation Stage (reception pupils):

Pupils explore science topics through making predictions, using their senses and investigating materials and their properties. Science is taught through the strand of, 'Understanding the World'. Science teaching and learning is also linked to the other strands of The EYFS framework for learning, 2014.

Teachers and teaching assistants support pupils to develop a solid understanding of things occurring around them in their day-to-day lives. Children are encouraged to be creative and inquisitive as they participate in activities. Pupils are encouraged to use their natural inquisitiveness, while taking part in exploratory play in
specific scientific areas as well as areas that link across the EYFS framework.

Key Stage 1

The main focus of science teaching in Key Stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about Science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.
Pupils should read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2 – Years 3 and 4

The main focus of Science teaching in Lower Key Stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this 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. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. 'Working scientifically' must **always** be taught through and clearly related to substantive Science content in the programme of study.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2 – Years 5-6

The main focus of Science teaching in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At Upper Key Stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer Science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. Pupils should read, spell and pronounce scientific vocabulary correctly.

'Working and thinking scientifically' must **always** be taught through and clearly related to substantive Science content in the programme of study.

Cross-curricular Science Opportunities:

Teachers will seek to take advantage of opportunities to make cross-curricular links. They will plan for pupils to practise and apply the skills, knowledge and understanding acquired through Science lessons to other areas of the curriculum.

The Use of Computing:

We recognise the important role computing skills have to play in the development of scientific skills. We also recognise the importance of being computer Literate. Computing skills are used on a daily basis to enhance teaching and learning of science and to give all children the opportunity to use computing to research, collect, analyse and present scientific findings (see Computing policy).

ASSESSMENT

This is achieved through:

- discussions with pupils
- observation of pupils;
- marking work;
- half termly assessment linked to objectives from Years 1 – 6 [assessments recorded in teachers' mark books to inform staff, pupils, parents and for report writing.]

MONITORING AND EVALUATION

The Subject Leader Monitors and evaluates science teaching through;

- monitoring and evaluation of pupils' work;
- lesson observations;
- monitoring of planning

CO-ORDINATOR ROLE:

The role of the teacher co-ordinators is described in the relevant job descriptions.

In planning the co-ordinators will:

a) Support teachers in the planning, delivery, evaluation and review cycle

b) Develop policy and schemes of work with staff

c) Liaise with transfer school staff, as appropriate.

To fulfil this role the co-ordinators will, when appropriate:

a) Lead staff meetings

b) plan/lead I.N.S.E.T. activities

c) Provide consultancy/advice

d) Teach alongside colleagues

e) Order all resources

f) Co-ordinate staff requests for resources

g) Monitor and maintain, with colleagues, the condition and availability of resources.

To enable the co-ordinators to monitor and evaluate this subject they will have the opportunities, when appropriate, for:-

a) Reviewing teachers' plans

b) Reviewing teacher/pupil records

c) Reviewing assessment and SAT results

d) Attending teacher planning sessions

e) Working alongside colleagues in the classroom

f) Leading curriculum review meetings

g) Designing and carrying out specific evaluation.

To ensure the professional development of the co-ordinators opportunities will be given for working with other age groups in school, or visit other schools as appropriate. The co-ordinators will be encouraged to undertake personal reading and will have access to both in-house and external I.N.S.E.T. - SEE Staff Development Policy.

SAFETY

Following COSHH guidance 'Be Safe'.

PARENTAL INVOLVEMENT

Following the guidelines in the whole School Policy on Parental Involvement in their Children's Education, parents may be involved in class based work if they can offer a particular skill or extend and compliment the class teacher's skills and knowledge.

MARKING WORK

Refer to the whole School Marking Policy.

*** Signed on hard copy

Subject Leader ……

Headteacher ……

Nominated Governor ……