SCIENCE CURRICULUM STATEMENT

Rationale

At Frances Olive Anderson C of E Primary School we recognise the importance of Science in every aspect of daily life. As one of the core subjects taught in Primary Schools, we give the teaching and learning of Science the prominence it requires.

The scientific area of learning is concerned with increasing pupils' knowledge and understanding of our world, and with developing skills associated with Science as a process of enquiry.

The experience of pupils using scientific methods of investigation should enable them to approach the practical, social and economic issues of life in a disciplined and systematic way. It should develop the natural curiosity of the child, encourage respect for living organisms and the physical environment and provide opportunities for critical evaluation of evidence.

Science education, as well as being a satisfying and enjoyable experience in itself, should contribute to the enrichment and quality of life.

The National Curriculum will provide a structure for the Science curriculum taught throughout the school, which reflects a balanced programme of study.

We endeavour to ensure that the Science curriculum we provide will give children the confidence and motivation to continue to further develop their skills into the next stage of education and into adulthood.

Aims

At Lea Primary School our science teaching follows the National Curriculum 2014 (except years 2 & 6) and offers opportunities for children to:

- 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
- consider ways in which living things and the environment need care, protection and respect
- use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including ICT, diagrams, graphs and charts
- develop a respect for the materials and equipment they handle with regard to their own, and other children's safety
- develop an enthusiasm and enjoyment of scientific learning and discovery.

Teaching Guidelines for Science

The school will teach science in accordance with the requirements of the National Curriculum 2014 (except years 2 & 6 who will follow the previous curriculum for 2014/15). We recognise the importance of:

- the early learning goals at the 'Early Years Foundation Stage' of learning in nurturing Knowledge and Understanding the World
- the *Breadth of Study* requirements which accompany each key stage particularly with regard to health and safety.

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. They will take into account the specific needs of children such as SEND (Special Educational Needs and Disability) and children who are Gifted and Talented.

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.

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.

Monitoring and Evaluation

Monitoring

Monitoring of the standards of children's work and of the quality of teaching in science is the responsibility of the science subject leader. The work of the subject leader also involves learning walks and completing a book scrutiny in each class on a termly basis, 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. The subject leader gives the Head teacher an annual action plan in which s/he evaluates the strengths and weaknesses in the subject and indicates areas for further improvement. The subject leader has specially-allocated time in which to fulfil this role by reviewing samples of children's work and visiting classes to observe teaching in the subject.

Assessment

All years from 1-6 fill in a science tracker with levels/points and will be updated onto the school tracking system termly. The children's progress will then be discussed at Pupil Progress meetings 6 times a year. The class teachers carry out investigations and group assessment activities to support their judgements. **This will be reviewed and updated along with new assessment guidelines.**

Additional Information

Inclusion, assessment, recording and reporting achievement will be the responsibility of all teachers in accordance with our other school policies.

Review

This guidance is monitored by all teaching staff with the leadership team. It will be reviewed when changes are made to the curriculum.