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TIPTON ST JOHN
CHURCH OF ENGLAND VA PRIMARY SCHOOL

Policy for Science

Tipton St John Church of England Primary School

Going for the best, to honour God and inspire each other.

There are four main purposes to this policy:

- To establish an entitlement for all pupils.
- To establish expectations for teachers of this subject.
- To promote continuity and coherence across the school.
- To state the school's approaches to this subject in order to promote public, and particularly parents' and carers', understanding of the curriculum.

Rationale:

Science is a systematic investigation of the physical, chemical and biological aspects of the world which relies on first-hand experiences and on other sources of information. The scientific process and pupils' problem-solving activities will be used to deepen their understanding of the concepts involved. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum and the Tipton St John scheme of work. (Curriculum documents 1&2.)
Through science, pupils at Tipton St John C of E Primary School will continue to deepen their respect, care and appreciation for the natural world and all its phenomena. Pupils will study key questions in the curriculum and be encouraged to ask their own questions to further their interest.

Aims:

To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.

To build on pupils' curiosity and sense of awe of the natural world.

To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.

To introduce pupils to the language and vocabulary of science.

To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements.

To develop pupils' use of information and communication technology (ICT) in their science studies.

To extend the learning environment for our pupils via our environmental areas and the locality.

To promote a 'healthy lifestyle' in our pupils.

Objectives:

The following objectives derived from the above aims, form the basis of our decisions when planning the scheme of work and curriculum mapping. Assessment will also be related to these objectives:

- To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.

To develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world including scientists from different cultures

To encourage pupils to relate their scientific studies to applications and effects within the real world

To develop a knowledge of the science contained within the programmes of study of the National Curriculum. To build on pupils' curiosity and sense of awe of the natural world

To develop in pupils a general sense of enquiry which encourages them to question and make suggestions.

To encourage pupils to predict the likely outcome of their investigations and practical activities.

To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.

To provide pupils with a range of specific investigations and practical work which gives them a worth-while experience to develop their understanding of science.

To develop progressively pupils' ability to plan, carry out and evaluate simple scientific investigations (Plan, Do, Review) and to appreciate the meaning of a 'fair test'.

To develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts.

- to introduce pupils to the language and vocabulary of science
- to give pupils regular opportunities to use the scientific terms necessary to communicate ideas about science
- to develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- within practical activities give pupils opportunities to use a range of simple scientific measuring instruments such as thermometers and force meters and develop their skill in being able to read them. To develop pupils' use of information and communication technology (ICT) in their science studies
- to give pupils opportunities to use ICT (including digital microscope, video, digital camera, data logger) to record their work and to store results for future retrieval throughout their science studies
- to give pupils the chance to obtain information using the internet, CD-ROMs and other data bases.

Principles of teaching and learning, Differentiation and Additional Educational Needs:

At KS2 the pupils will study science for the equivalent of a minimum of 2 hours per week and at KS1 for a minimum of 90 minutes per week. Science learning in the Early Years Foundation Stage will link to the specific area of learning 'Understanding the World' and particularly Early Learning Goal 14, The World. The study of science will be planned to give pupils a suitable range of differentiated activities appropriate to their age and abilities. Tasks will be set which challenge all pupils, including the more able. For pupils with SEN the task will be adjusted, differentiated by outcome or time allowed, or pupils may be given extra support. The grouping of pupils for practical activities will take account of their strengths and weaknesses and ensure that all take an active part in the task and gain in confidence but will most usually be in mixed ability groupings.

- Extra-curricular activities for Gifted & Talented pupils are identified and pupils given the opportunity to attend these.

Teaching and learning and the monitoring of it will take account of:

Intent – What are you doing? When are you doing it? Why are you doing it?

Implementation – How are you doing it?

Impact – What difference has it made?

Breadth and Balance:

We will ensure that all staff, including those in a supportive role, have a clear idea of the concepts and skills to be taught. The importance of Working Scientifically will be stressed.

Variety:

Pupils will be involved in a variety of structured activities and in more open-ended investigative work:

activities to develop good observational skills

practical activities using measuring instruments which develop pupils' ability to read scales accurately

structured activities to develop understanding of a scientific concept

open ended investigations.

On some occasions, pupils will carry out the whole investigative process themselves or in small groups, but more usually, they will focus on the one knowledge statement and one working scientifically statement that are the focus for that lesson.

Relevance, equality of opportunity and links:

Wherever possible science work will be related to the real world and everyday examples will be used. The units will be linked to the Big Question for the theme for the term, but some science will need to be taught discretely. Cross-curricular skills and links to science pervades every aspect of our lives and we will relate it to all areas of the curriculum, particularly literacy and mathematics.

We will also ensure that pupils realise the positive contribution of both men and women to science and the contribution from those of other cultures. We will not only emphasise the positive effects of science on the world but also include problems, which some human activities can produce. Pupils in Key Stage 1 will be introduced to science through focused observations and explorations of the world around them. These will be further developed through supportive investigations into more independent work at Key Stage 2. All children have equal access to the science curriculum and its associated practical activities. The SLT, Class Teachers and TAs are responsible for ensuring that all children, irrespective of gender, learning ability, physical disability, ethnicity and social circumstances, have access to the whole curriculum and make the greatest possible progress. Where appropriate, work will be adapted to meet pupils' needs and, if appropriate, extra support given. (SEND)

More able pupils will be given suitably challenging activities. Gender and cultural differences will be reflected positively in the teaching materials used. All children have equal access to the Science Curriculum, its teaching and learning, throughout any one year. This is being monitored by teacher evaluations being collected by the science subject leader at the end of a unit (usually half termly) and analysing pupil performance throughout the school to ensure that there is no disparity between groups.

Continuity and Progression:

Foundation Stage pupils investigate science as part of Understanding of the World. By careful planning, pupils' scientific skills and knowledge gained at Key Stage 1 will be consolidated and developed during Key Stage 2. The knowledge and content prescribed in the National Curriculum will be introduced throughout both key stages in a progressive and coherent way. Because of the nature of vertical grouping in classes at Tipton St John C of E Primary School, a two year cycle has been developed which repeats some aspects, in order to accommodate the needs of children according to which route they have taken into the class and their previous access to aspects of the curriculum. (See curriculum documents one and two.)

Health and Safety:

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers, Teaching Assistants and the Subject Leader will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for all practical activities. The Subject Leader, together with the Headteacher will review risk assessments annually. The LEA has adopted the ASE book 'Be Safe' as its model risk assessment and therefore this should be consulted when necessary. If an activity is not covered by 'Be Safe' then we will contact CLEAPSS (School Science Service Helpline 01895251496) for further advice.

Assessment for learning:

Recording and reporting Assessment opportunities will be identified within medium-term plans.

At Key Stage 1 the only statutory assessment for science is teacher assessment and therefore assessments will be recorded appropriately, and some examples of work held in portfolios by the subject leader. Judgements will be made using the Tipton St John moderation document and against achievement of the end of year statement for that cohort within the two-year cycle. (Assessment judgements for the whole class will be entered into "PLANBEE trackers." These will be stored on SharePoint.)

At Key Stage 2 similar arrangements will be followed but assessments will include end of topic assessments which will be used to determine pupils' retention of knowledge and vocabulary. The assessment of working scientifically will rely on a mixture of evidence from pupils' everyday practical work throughout the key stage and other more independent investigations carried out by the pupils.

Marking for Improvement, in line with the school marking policy, will be used so that teachers can encourage and identify progress, and so that pupils can assess their own progress; much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms thus making marking different. It is, however, important that written work is marked regularly and clearly, as an aid to progression and to celebrate achievement. When appropriate, pupils may be asked to self-assess or peer-assess their own or other's work. Marking for improvement comments in a child's book must be relevant to the learning key question, to help children to better focus on future targets. It is imperative that children are given the time to improve their work and teachers will support children by scaffolding improvements as necessary

Management and administration:

The needs of science are discussed at staff meetings throughout the school year. Personal development of staff and training needs will be discussed. The Science Subject Leader will organise and lead these meetings. Much of the training will be done using Reach Out CPD https://www.reachoutcpd.com where teachers match the CPD unit to their own needs.

Role of the subject Leader: The Subject Leader will provide professional leadership and management for science and will ensure that it is managed and organised so that it meets the aims and objectives of the school. The Subject Leader will monitor teaching and learning within the subject and will initiate reviews of the scheme of work. The Subject Leader will manage the resources for science and will maintain the stock to meet the needs of the curriculum. Most resources are stored in the resources room in trays labelled alphabetically, but some specific to the needs of individual classes are stored in their classrooms. Class teachers are responsible for making sure that consumable resources are provided for their lessons within the constraints of the science budget. The science section of the school library is continuously being developed to reflect curriculum and teaching needs, but class teachers are responsible for making sure adequate books are provided for each topic.

Review:

The Science Subject Leader will monitor classroom teaching in all year groups according to a monitoring schedule. Book scrutiny and pupil interviews will take place according to the annual staff meeting schedule. The effectiveness of the science curriculum will be evaluated in discussions with the Headteacher and the curriculum committee of the governing body. Priorities for in service support and external review will be established. This evaluation will form the basis for an action plan, which will then inform the School Improvement Plan. (The action plan is the responsibility of the Subject Leader.) This policy will be reviewed bi-annually by the Science Subject Leader or as necessary in view of government or LA initiatives, analysis of assessments or curriculum development.

Date of Policy: Spring 2016

Subject Leader: Anne Ladbrook

Signed:

Policy Review Due Date: Spring 2018 Spring 2020