

## Science Policy



This policy is intended to be read by teachers, teaching assistants, parents, governors, inspectors, support staff and staff from other schools with which we may have links.

Date Approved: September 2014

Date of Review: Triennially, Summer 2017

### **Introduction**

In accordance with the Education Reform Act 1988, and subsequent Education Acts, school must provide science as part of the National Curriculum for all registered pupils. This policy outlines the teaching, organisation and management of the science taught and learnt at St. Luke's C of E Primary School. It reflects the school's values and ethos. The policy has been drawn up after staff consultation and has the full agreement of the governing body. The implementation of the policy is the responsibility of all the teaching staff.

### **Our vision**

To create a caring Christian community in which all individuals feel valued, supported and respected, and where potential is recognized and developed.

### **Rationale**

All school policies form a public and accountable statement of intent. This policy is intended to create an agreed whole-school approach of which staff, children, parents, governors and other agencies have a clear understanding. It reflects the essential part that science plays in the education of our children. It is important that a positive attitude towards science is encouraged among all children and staff in order to foster self-confidence and a sense of achievement. The policy also explains how we, as a school, meet our legal requirements in this subject area.

### **Philosophy**

Science is a valued part of the curriculum at St. Luke's Primary School, as it provides a means of exploring and understanding the world around us. It stimulates the questioning nature of children and develops their ability to work methodically and systematically to observe and record. We encourage children to learn through experience and therefore we value investigative work as the key to the science curriculum.

### **Aims**

#### **Our whole-school aims:**

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- To aim for excellence in learning, teaching and personal achievement and to help each member of the St Luke's community reach their full potential.
- To provide a safe and stimulating environment which will enrich and broaden each child's knowledge, experience and creativity, thereby enabling them to have enquiring minds and become lifelong learners.
- To develop a child's growing respect for themselves and others, irrespective of race, age, gender, faith or ability.
- To build positive partnerships between school, home and the wider community.

### **Science Curriculum Aims**

We aim to:

- Encourage an investigative approach towards science.
- Provide a child centred approach to science where we build on a child's existing skills, concepts and interests.
- Encourage children to view science as exciting and stimulating.
- Teach science through first hand practical scientific activities wherever possible.
- Provide appropriate learning experiences from which children can acquire scientific knowledge and understanding.
- Ensure continuity and progression in terms of planning, teaching, record keeping and assessment.
- Support practical science activities with the provision of appropriate resources and reference materials.
- Ensure that science provision is undertaken with a strong commitment to equal opportunities.
- Ensure that all scientific activities are carried out with due regard to health and safety guidelines.
- Ensure the needs of all children are met through careful consideration of extension and reinforcement activities.
- We aim to develop independent and cooperative ways of working, encouraging children to explore ideas and activities in a variety of group settings.
- We are continually aiming to raise standards of achievement of the pupils of St. Luke's School.

### **Science Curriculum Objectives**

- Science will be taught throughout the school providing full access to the National Curriculum for Science.
- Science will be seen as one of the drivers of the curriculum in the non-core subject areas, and will be taught in a cross-curricular way.
- Pupils and staff will be encouraged to use science resources whenever

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appropriate in order to develop their work.

- Pupil of all abilities will be given the opportunity to use and develop their science skills, knowledge and understanding in contexts appropriate to their current needs and level of experience.
- Children will be given the opportunity to explore and investigate the world in which they live.
- Activities will be provided which encourage children to plan and carry out their own investigations where they are able to ask questions, predict and hypothesise; observe, measure and manipulate variables, interpret their results and evaluate scientific evidence.

### Implementation

The science coordinator is responsible for:

- Preparing the School Improvement Plan relating to science and ensuring that it is carried out.
- Preparing a curriculum bid and managing the assigned budget.
- Monitoring the delivery of science in the classroom.
- Auditing the science resources available.
- Organising appropriate INSET and associated training materials.
- Ensuring assessment is carried out and advising on activities to assist this.
- Updating the science policy.
- Maintaining a curriculum portfolio.

Class teachers are responsible for:

- developing and updating their own skills, knowledge and understanding of the relevant science topics in their year groups / key stages
- ensuring progression in pupils' acquisition of science skills with regard to the 2014 National Curriculum.
- identifying inset needs in science and taking advantage of training opportunities.
- keeping appropriate on-going records.
- planning effectively, using a cross curricular approach where possible, liaising with coordinator where necessary.
- identifying what resources are needed for their planned work and liaising with the coordinator to purchase what is necessary (within the confines of the school budget).

### Planning

Science units will be planned within a topic based curriculum, using National Curriculum objectives and supported by the Focus Education materials.

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Science planning will be linked to the use of ICT and application of ICT skills, as well as Literacy, Numeracy and other appropriate subject areas.

### Key Stage 1

Key stage 1 follow a 2 year rolling programme. Each topic title will be posed as question.

Units in Year A cover the following topics:

- Living things and habitats
- Seasonal changes
- Everyday materials
- Plants
- Animals including humans

Units in Year B cover the following topics:

- Plants
- Animals including humans
- Living things and habitats
- Everyday materials

### Key Stage 2

Key stage 2 is split into lower (years 3 and 4) and upper (years 5 and 6). Each follow a 2 year rolling programme, with topic titles posed as questions.

Units for lower key stage 2 in year A cover the following topics:

- Plants
- Animals including humans
- Living things and habitats

Units for lower key stage 2 in year B cover the following topics:

- Rocks
- States of matter
- Light
- Sound
- Forces and magnets
- Electricity

Units for upper key stage 2 in year A cover the following topics:

- Animals including humans
- Living things and habitats
- Evolution and inheritance
- Electricity

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Units for upper key stage 2 in year B cover the following topics:

- Properties and changes of materials
- Light
- Forces and magnets
- Earth and space

The school follows a two-year rolling programme of topic titles based on 'I can' statements set out by Focus Education. From these titles, skills-based, medium-term objectives ('I can' statements) are derived within triplet groups. Planning follows the format set out by *Focus Education*. Teaching is frequently cross-curricular, and Mantle of the Expert is an important component of much cross-curricular planning.

Planning is also discussed at staff meetings in order to ensure coverage in line with the requirements on the National Curriculum.

In-school topic boxes, atlases and maps are kept in a central store, and are enhanced as funds allow. The school has developed resources for all National Curriculum objectives in order to avoid the need for topic loan boxes.

### Assessment and Recording

- Children's attainment is assessed in individual lessons, whether the children's work is written or takes some alternative form. This formative assessment informs the direction in which learning is taken forward in the next lesson's planning and teaching. Collectively, assessment made during lessons leads to an overall assessment at the end of each unit.
- Assessment will be in accordance with the schools assessment policy which is followed throughout the school. The assessment of pupils work can provide information for pupils, teachers and parents:
  - 1) to enable pupils to reflect upon and celebrate achievement;
  - 2) to help plan for progression, continuity and target setting for pupils, and to inform planning for future work of whole classes and individual pupils.
  - 3) to communicate achievement and identify areas for further development to pupils, parents and teachers.
  - 4) to evaluate the effectiveness of teaching and learning.
- Assessment is an integral part of teaching and learning and based upon teachers' judgements of pupil attainment and progress. Assessment is built in to the planning of learning experiences and clearly related to the learning outcomes

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(I can statements) that are proposed. Assessment activities should be wide ranging and matched to the pupils' ability i.e. differentiated by task or by outcome, through appropriate support and resource provision. Lesson/weekly plans will be annotated with the teachers' judgements to inform future planning.

### **Forms of Assessment**

Teachers will use a variety of methods to record achievements and progress in science, such as

- Class tick list to ensure coverage of skills.
- Initial assessments from the pre-learning challenges to elicit children's scientific ideas and to inform planning.
- End of unit written assessments and post learning challenges.

### Resources

The science resources are stored centrally in the DT area. The resources are organised in labelled topic boxes. The coordinator is responsible for maintaining, auditing and purchasing Science resources but all staff are responsible for returning resources to the Science area, immediately after use.

### Health and Safety

The school and teachers are aware of the need for safety in all science activities. Staff follow the guidelines set out in the Essex Code of Practice. The science coordinator will inform staff of any new information/guidelines.

### Equal Opportunities

Each child will have equal access to science regardless of gender, ability, including gifted and talented children, race or social class and have the opportunity to make the greatest progress possible. Other cultures have made significant contributions to scientific findings over the ages and the children should be made aware of this.

### Special Education Needs

At St. Luke's Primary School we recognise the responsibility of all schools to provide a broad and balanced curriculum for all pupils. In science the National Curriculum is the starting point for planning a curriculum that meets the specific needs of individuals and groups of pupils. We have adopted the statutory inclusion statement on providing effective learning opportunities for all pupils. When planning teachers will modify, as necessary, the National Curriculum programmes of study to provide all pupils with relevant and appropriately challenging work at each key stage, in order to provide a more inclusive curriculum which:

- A. sets suitable learning challenges
- B. responds to pupils' diverse learning needs
- C. overcomes potential barriers to learning and assessment for individuals and groups of pupils.

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### **A. Setting Suitable learning challenges**

Teachers will teach the scientific knowledge skills and understanding in ways which suit their pupils' abilities. Where necessary knowledge, skills and understanding may be chosen from earlier or later key stages so that individual pupils can make progress and show what they can achieve. Where pupils with special educational needs make extensive use of content from an earlier key stage we recognise that there may not be time to teach all aspects of the age-related programmes of study.

For pupils whose attainments are significantly below the expected levels a much greater degree of differentiation will be necessary. In these cases teachers may use the programme of study as a resource or to provide a context in planning learning appropriate to the age and requirements of their pupils. For pupils whose attainments significantly exceed the expected level, teachers will plan suitably challenging work. They may draw on material from higher levels of study or plan differentiation by extending the breadth and depth of study in science or plan work which draws on the content of other subjects.

### **B. Responding to pupils' diverse learning needs**

At St. Luke's Primary School teachers planning will set high expectations and provide opportunities for all pupils to achieve so that all pupils can take part in lessons fully and effectively.

In order to ensure that they meet the full range of pupils' needs teachers are aware of the requirements of the relevant equal opportunities legislation, including the Sex Discrimination Act, 1975; the Race Relations Act 1976; and the Disability Discrimination Act, 1995.

Teachers will take specific action to respond to pupils' diverse needs by;

- a. creating effective learning environments
- b. securing their motivation and concentration
- c. providing equality of opportunity through teaching approaches
- d. using appropriate assessment approaches
- e. setting targets for learning which build on pupils' knowledge, experience, interests and strengths and are attainable and yet challenging and help pupils to develop their self-esteem and confidence in their ability to learn.

### **C. Overcoming potential barriers to learning and assessment for individuals and groups of pupils.**

Where particular pupils have learning and assessment requirements which go beyond the provision described above, and which must be addressed in order to overcome barriers to learning, for example as a result of a special educational need, disability, or linked to the pupils' progress in learning English as an additional language teachers will take account of these requirements by;

- a. making provision where necessary to support individuals or groups of pupils to enable them to participate effectively in the curriculum and assessment in both classroom and fieldwork activities.
- b. Taking account of the type and extent of the difficulty experienced by the pupil. In many cases the action necessary to respond to an individual's requirements for curriculum access will be met through greater differentiation of tasks and materials,

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consistent with school-based intervention as set out in the SEND Code of Practice. Where pupils need access to specialist equipment or adapted activities teachers will refer to and implement the pupils' statement of special educational needs and work closely with representatives of other agencies who may be supporting the pupil. Teachers will also help pupils to manage their behaviour and help individuals to manage their emotions so that they can take part in learning science effectively and safely.

See also School Policy Document for S.E.N.D.

## INSET

The science coordinator in conjunction with the Senior Management team will determine the needs of colleagues and attempt to address them in the planning of the curriculum and staff development. Where appropriate external agencies will be asked to provide school based support and members of staff will attend relevant courses, reporting back on what they have learned to the rest of the staff.

## **Strategies for Implementation**

### **Aspects of Teaching and Learning**

Time-tabling and planning should ensure that:

- Sufficient time is allocated to deliver the curriculum through regular class lessons in science either as a subject in its own right, or as a curriculum driver for broader topic work, including lessons taught through Mantle of the Expert.
- Outside visitors, trips and curriculum weeks may be used to enthuse pupils and stimulate their interest. These may include visitors such as Mad Science.
- The local area, including on-site resources such as the pond, will be fully utilised. This may also link to work in other curriculum areas, such as Geography.

### **Monitoring and Reviewing**

The coordinator uses the two year rolling programmes and engages in informal discussion with staff to ensure that the best use is made of resources and funds.

Samples of work and copies of medium-term plans are collected and kept in a file.

The coordinator looks at displays around the school to identify especially valuable examples of study. Photographs of special events and visits also provide a rich source of evidence of teaching and learning.

### **Links with other school policies**

The science policy incorporates the aims of the following policies:

Equal Opportunities

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Special Needs  
Health and Safety  
Teaching and Learning  
Gifted and Talented