Bishop Perrin Church of England Primary School

Science Policy

Non-Statutory Policy

Our school is a Church of England School and works in partnership with our two local parish churches, St Augustine's and Ss Philip & James'. We aim to reflect the values, traditions and beliefs of the Christian Faith and therefore our Spiritual Values underpin everything that we do.

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1 INTRODUCTION

This policy reflects the school's values and philosophy in relation to the teaching and learning of **science.** It sets out a framework within which staff can operate and gives guidance on planning, teaching and assessment.

Science is a core subject within the National Curriculum. The subject consists of Programmes of Study which are divided into Key Stage 1, Lower Key Stage 2 and Upper Key Stage 2.

2 INTENT

At Bishop Perrin School, our science curriculum is designed to encourage curiosity, exploration and wonder of the scientific world. We endeavour to provide a progressive curriculum, which is based on the key scientific skills, allowing for practical activities which are challenging and engaging for all. Children will develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Working Scientifically skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

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. At the end of Key Stage 1 and 2, most children are expected to have met the Interim Teacher Assessment Framework objectives.

The teaching of science aims to:

- Develop a curiosity about the world in which we live.
- Develop questioning skills through practical approaches to investigative work.
- Develop and use "working scientifically" skills when carrying out investigations.
- Draw conclusions from their work and evaluate the evidence gathered.
- Record their findings as accurately as possible in appropriate ways for their age and ability.
- Work co-operatively with others, valuing and respecting their opinions.
- Develop an understanding and appreciation of all living things.
- Develop an understanding of scientific vocabulary

The teaching of science will develop the key scientific skills of:

- Planning and carrying out investigations
- Hypothesising and predicting
- Observing and measuring
- Obtaining and considering evidence
- Presenting results by appropriate means including use of ICT.
- Evaluating results and drawing conclusions.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge.

3 PLANNING AND ORGANISATION

In order to achieve these aims, science is organised into a scheme of work based on the current programmes of study from the National Curriculum. In the Foundation Stage, topics are arranged to ensure coverage in all areas of learning and development, whilst KS1 and KS2 follow their programmes of study. Organising the teaching of science topics in this way ensures continuity and progression throughout the school and enables children to build upon existing knowledge. The teaching of science is linked to the current class theme and where not, should encourage the development of "working scientifically" skills. Within the themes, teachers will look to link science with other subject areas to provide cross-curricular links including: English, maths, computing and art, design and technology, music, PE and humanities – geography and history.

All class teachers are responsible for the teaching of science. Topics are taught through a variety of methods: practical investigative work, exploration, demonstration and research. Teachers need to use their flair, enthusiasm, professional knowledge and judgment, to identify the most suitable, enjoyable and safest methods appropriate for the work being conducted.

Science is planned as a series of five lessons per half-term linked to the theme where possible. Each lesson will have a learning question linked to the learning objective and may have a working scientifically objective too. These 5 learning questions form the baseline assessment used to assess the children at the start and end of the unit.

EYFS

In the EYFS, knowledge and understanding of science is embedded in thematic learning through the 'Understanding the World' learning area of the EYFS Profile with a focus on children's experience and understanding of the world around them. Through the development of 'Characteristics of Effective Learning' the curriculum builds foundations for engagement with science process skills.

Planning is used to:

- Set clear, learning objectives and achievable goals
- Ensure work is matched to pupils' abilities, experience and interests.
- Ensure continuity, progression and subject coverage throughout the school.
- Evaluate and assess pupil progress.
- Inform future planning and provide criteria for the evaluation of teaching and learning
- Ensure that at least two practical enquiry based investigations/experiments where pupil are encouraged to formulate their own questions for investigation are planned for.

Time allocation
Science is time-tabled for one hour per week in Key Stage 1 and 2 but may occasionally be joined together for a two hourly session when required.

4 ORGANISATION AND TEACHING

Within classes, pupils are taught in a combination of ways, i.e. individually, collaboratively in groups (ability and mixed ability) or in classes according to the learning task.

The organisation will vary greatly depending on a number of factors:

- Space available
- Type of activity
- Safety and the degree of supervision needed
- The children's experience and ability
- Use of time and additional help available

Children will be encouraged to use a variety of means for communicating and recording their work. They will be provided with opportunities for evaluating the activities they have carried out and be given discussion time to articulate scientific concepts, use scientific vocabulary, and interpret and consider the results they have observed.

Lessons are taught using a retrieval activity (using the learning questions taught previously) at the start to assess understanding and small steps and modelling activities for the new learning.

5 ASSESSMENT, RECORD KEEPING AND TARGET SETTING

In all classes, teachers use their professional judgement and information from children's ongoing work to assess how they are progressing in Science at the end of each academic year. Teachers should use observations, questioning, work in books and performance in class to inform their assessment judgements.
Teachers should use an assessment task - involving the five learning questions from the unit - at the start of a new unit and the same assessment task at the end of the unit to show progress. These are planned for in theme

plans. At the end of each science unit of learning, the class teacher will assign a judgement of 1, 2 or 3: 1 - meaning 'has not met' the expected standard (less than four questions correct in the assessment activity); 2 – meaning 'has met' the expected standard (4 or more questions correct); and 3 - meaning 'working at the expected standard in greater depth' (five questions correct). This information will be entered onto Integris at the end of each half-term. This will provide an end of year judgment for science knowledge which will then be recorded on the class profile on Integris.

At the end of the year, science assessment levels are sent out to parents in their child's report.

6 SPIRITUAL, MORAL, SOCIAL AND CULTURAL

Teachers look for opportunities to develop a sense of wonder in science. There are also opportunities to explore famous scientists from different cultures in some themes. Theme planning ensures that scientists from ethnic backgrounds and women are represented. Children's interests will be encouraged and taken into account when planning lessons.

7 EQUAL OPPORTUNITIES

All children have equal access to the science curriculum and resources, regardless of gender, race, ethnicity, religion or ability. Displays and references to Science in society show positive role models of gender, race, ethnicity and disabilities.

Where appropriate, teachers are reminded to provide children with information relating to important scientific figures, for example: Charles Darwin, Marie Curie, Edward Jenner, Louis Pasteur, Helen Sharman.

8 HEALTH AND SAFETY

At all times SAFE USE of equipment will be emphasised. Where appropriate, lessons will begin with a reminder for the children of safe and sensible ways of handling equipment and resources. Where animals, mini-beasts and flora are being used, children will be reminded to treat all living creatures sensitively and with respect in order that they may be returned to their natural environment.

If chemicals such as household substances are to be used, children will be reminded about handling these sensibly, avoiding touching their eyes or mouths until they have washed their hands thoroughly using soap. During investigations where substances maybe mixed together or where fumes maybe given off, children will be reminded not to deliberately inhale large quantities of fumes and staff will ensure that classrooms are well ventilated.

Where heating materials may be necessary, it is suggested that staff demonstrate these activities. Where appropriate, only upper school pupils will carry out such investigations and then only with strict supervision. Any activity where heating is involved will be carried out using candles, which will be placed in a holder to prevent it from falling; this in turn will be placed on a large metal tray filled with sand. A fire extinguisher will be readily available and children with long hair will be instructed to tie it back securely.

Science is and should be a fun and enjoyable activity, as long as basic safety checks are carried out, and children are made aware of any potential hazards.

9 RESOURCES

General science resources and equipment are kept in the science Cupboard in the creative arts room. For each theme studied, there is relevant science equipment in each theme box. Children will not be asked to collect or return resources to this area without supervision from a member of staff or other significant adult. The science leader is responsible for the overall maintenance of the resources.

Additional resources in the form of books, posters and training materials are also kept in the cupboard.

10 MONITORING AND EVALUATION

The purpose of monitoring and evaluation activities is to raise the overall quality of teaching and levels of pupil attainment.

The science leader will be responsible for:

- Producing an agreed subject policy and monitoring a scheme of work which are compatible with the school's overall curricular aims and which meet the statutory requirements;
- Providing advice to teachers on appropriate resources, training, teaching strategies and approaches to assessment;
- Developing an overview of the science curriculum in the school to ensure that pupils experience a sufficient variety of key entitlement experiences and that the school policy is put into practice;
- Co-ordinating the purchase, organisation and storage of appropriate science resources;
- Monitoring approaches to assessment to ensure that there are a sufficient variety of tasks;
- Assisting with the regular evaluation and monitoring of the quality of provision in the subject and reviewing the science policy and key stage plans as appropriate;
- Planning and taking part in science learning walks and providing feedback to SLT and staff;

- Keeping abreast of recent developments in the subject, attending relevant in-service courses and participating in the planning and delivery of school-based INSET, staff meetings and discussions.

Class teachers will be responsible for:

- Participating in the collaborative development of science planning, Schemes of work and lesson plans which meet the criteria agreed by the school and which ensure that pupils encounter a range of key entitlement experiences;
- Reporting to parents on pupils' progress in science;
- Regularly ensuring that all children have access to practical science lessons.
- Participating in the collaborative review of the effectiveness of the units of work.
- Using the learning questions to produce assessment activities and retrieval activities for the start/end of unit and the start of each lesson