



**A place to shine ...**

***Let light shine out of darkness and God's light shine in our hearts***

***2 Corinthians ch4, v6***

### **Science policy and Guidance**

Consultation that has taken place	October 2020
Date formally approved by governors	October 2020
Date policy became effective	October 2020
Review date	October 2021
Person responsible for implementation and monitoring	Rachael Gibson

**'Great are the works of the Lord, studied by all who delight in them' (Psalm 111 verse 2)**

## **Rationale**

We live in an increasingly scientific and technological age where children need to acquire the knowledge, skills and understanding to prepare them for life in the 21st century. At Central Walker Church of England Primary School our vision is to give children a science curriculum which enables them to discover and explore the world around them and fosters in them a respect for the environment. The curriculum aims to inspire children's natural curiosity through investigations which allow for collaborative learning and mind-blowing fun! Science helps them to think, make decisions, ask questions, solve problems and take responsibility and they will acquire these skills by following the programs of study in the National Curriculum.

## **Aims**

We aim to equip children to use themselves as starting points for learning about science, and to build on their skills and enthusiasm throughout their time at Central Walker Church of England Primary School. We encourage and enable teachers and pupils to be creative in their approach to science, enabling children to develop a body of transferrable skills.

Science is taught discretely to ensure the children gain a depth of knowledge and build upon their learning and skills of the previous years. Teachers develop weekly plans using the PiXL Science programme to support planning and resources. Working scientifically skills are embedded into lessons to ensure these skills are being developed throughout each phase. New vocabulary, key questions and challenging concepts are introduced through direct teaching. Lessons make effective links with other curriculum areas and subjects, where appropriate.

Learning in science means that pupils are acquiring an understanding of key scientific concepts that enables them to be used in unfamiliar situations. They are developing skills of imaginative but disciplined scientific enquiry including systematic observation and measurement, making and testing hypotheses, planning and carrying out investigations competently and safely and drawing inferences from evidence.

## **Objectives**

### **In KS1 scientific learning experiences should enable pupils to:**

- ask questions, e.g. How? Why? What will happen if ...?
- use focused exploration and investigation to acquire scientific knowledge, understanding and skills;
- use both first-hand experience and simple secondary sources to obtain information;
- use ICT to collect, store, retrieve, and present scientific information.
- relate their understanding of science to domestic and environmental contexts;
- consider ways in which science is relevant to their personal health;
- consider how to treat living things and the environment with care and sensitivity;
- explore the nature of scientific ideas and relate these ideas to the evidence for them..

### **In KS2 scientific learning experiences should enable pupils to:**

- ask questions related to their work in science;
- use focused exploration and investigation to acquire scientific knowledge, understanding and skills;
- use both first-hand experience and secondary sources to obtain information;

- use ICT to collect, store, retrieve and present scientific information;
- use their knowledge and understanding of science to explain and interpret a range of familiar phenomena;
- consider the part science has played in the development of many of the things they use;
- relate their understanding of science to their personal health;
- consider ways in which living things and the environment need protection;
- obtain evidence to test scientific ideas in a variety of ways;
- recognise that science provides explanations for many phenomena.

### **Arrangements for planning**

The responsibility for co-ordinating planning across key stages is with the subject coordinator. Teachers are provided with a long term plan and a Science Progression Document. The phase leader will work with teachers to ensure coverage of the National Curriculum Programmes of Study each year and this will be recorded on the Long Term Topic Plan.

The class teachers are responsible for using the identified National Curriculum Programmes of Study in the Science Progression Document alongside PiXL resources for their year group and developing it into weekly plans with medium Term planning provided by PiXL.

Each teacher has been given a progression document which states clearly the expectations for each topic and working scientifically in their year. This should be used to support planning to ensure prior knowledge is understood and that there is appropriate progressive coverage across all year groups.

Weekly plans should show:

- Learning objectives taken from the Science Progression Document.
- Success Criteria written by the teacher to ensure skills and knowledge coverage taken from Science Progression Document.
- Identify a variety of teaching styles to be used.
- Identify a Working Scientifically strand as a focus each session to ensure there are opportunities for Practical Scientific Enquiry (using the PiXL Working Scientifically ideas from the Probing Questions Document to ensure coverage).
- Lesson content and delivery.
- Key Questions (Taken from the PiXL Probing Questions and Working Scientifically Document).
- Differentiation
- Scientific Vocabulary to be taught and re-capped in each session (using PiXL Quick-Fire Science Recall Cards and/or vocabulary progression grid).
- Use PiXL PowerPoint to support planning and teaching.

Key Stage 1 teachers must plan and deliver 1 .5 hours of Science per week and Key Stage 2 teachers must plan and deliver 2 hours of Science per week.

## **Arrangements for monitoring the delivery of the curriculum**

It is the coordinator's responsibility to review planning, undertake book scrutinies and carry out learning walks or lesson observations.

Planning scrutinies can be done at any time, as the plans must be available on the 'Teacher drive' at all times.

This information and data should be reviewed with:

- the class teachers;
- the coordinator for Planning, Recording and Assessment.

It is the role of the Head Teachers and Science coordinator to monitor the quality of teaching and learning.

## **Quality of Teaching**

All lessons must have clear learning objectives, which are shared and reviewed with the pupils effectively.

A variety of strategies, including questioning, discussion, concept mapping and marking, are used to assess progress. The information is used to identify what is taught next.

Pupils are exposed to a different Working Scientifically Strand each week which is identified by the teacher:

- General/asking questions
- Observing changes over time
- Comparative and fair tests
- Identifying and classifying
- Looking for naturally occurring patterns and relationships
- Recording and reporting findings (KS2)
- Researching and using secondary sources

Activities inspire the pupils to experiment and investigate the world around them and to help them raise their own questions such as "Why...?", "How...?" and "What happens if...?".

Activities develop the skills of enquiry, observation, locating sources of information, selecting appropriate equipment and using it safely, measuring and checking results, making comparisons and communicating results and findings.

Lessons make effective links with other curriculum areas and subjects, especially Literacy, Numeracy and ICT.

Activities are challenging, motivating and extend pupils' learning.

Pupils have frequent opportunities to develop their skills in, and take responsibility for, planning investigative work, selecting relevant resources, making decisions about sources of information, carrying out activities safely and deciding on the best form of communicating their findings.

## **Quality of Learning**

Attention should be given to the pace at which pupils are gaining scientific knowledge and skills, the extent to which they show interest and curiosity, are able to cooperate, show skill in communicating information and ideas and in solving problems, demonstrate responsible attitudes towards safety and show a respect for living organisms and the physical environment.

Learning in science means that pupils are acquiring an understanding of key scientific concepts that enables them to be used in unfamiliar situations. They are developing skills of imaginative but disciplined scientific enquiry including systematic observation and measurement, making and testing

hypotheses, planning and carrying out investigations competently and safely and drawing inferences from evidence.

They are learning to appreciate the powerful but provisional nature of scientific explanation and the processes by which models are created, tested and modified in the light of evidence.

They are studying the practical applications of science and how these are changing the nature of society and the economy. They are exploring some of the moral dilemmas that scientific discoveries and technological developments can cause.

### **Allocation of Resources**

The coordinator will carry out regular audits and identify the resources needed to support delivery of the Programmes of Study. It is the responsibility of teachers to identify a 'half term' in advance any resources needed for future topics. This will allow the coordinator adequate time to order any necessary resources.

### **The Schools Arrangements for Staff Development**

It is the responsibility of the science coordinator to identify the staff development needs that are required to deliver an effective science curriculum.

### **Assessment, Reporting and Recording Arrangements**

#### **Assessment**

It is valuable to informally observe children while they are engaged in learning activities, by talking to them about what they are doing and about their science understanding. Particular attention should be paid to assessing children's Scientific Enquiry skills. This can be done through observing, questioning and marking pupil's work.

A year Group Target Overview should be displayed inside the front cover of pupil's Science books which children and teachers can refer to.

Teachers across the school should assess children using Learning Ladders. The children's attainment will be shared with the subject leader termly.

#### **Recording**

Science work is recorded in Science books in KS1 and KS2. Pupils should be given the opportunity to record their work in a wide variety of ways. Work is marked in accordance with the school's marking policy.

The recording of Practical Investigations will show progression throughout the school.

#### **Reporting**

Reporting to parents is done regularly through parent consultations and annually through a written report.

#### **Special Educational Needs**

Differentiation can be planned in terms of learning objectives, tasks, teaching methods, grouping, teacher intervention and resources. There should be a balance of open-ended and structured tasks for all pupils. Planning should take into account children's targets.

#### **Health and Safety Issues**

See Health and Safety Policy for guidance. All teachers are expected to complete the appropriate documentation before taking a group of children on a field trip.

#### **Community Links**

The coordinator will promote community links and advise staff of suitable contacts, places to visit, visitor, local employers and agencies to support this area of the curriculum. The school promotes parental involvement.