



Chapelford Village Primary School

Science Policy

Learn

Achieve

Respect

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POLICY



Chapelford Village Primary School Science Policy

Science Education at Chapelford Village Primary School:

Aims and objectives:

There are four main aims to this policy:

- To establish an entitlement for all;
- 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 subject.

Introduction:

The importance of science to the curriculum

The aim of science teaching at CVPS is to teach an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way they do through the children asking scientific enquiry questions. We believe that science promotes communication in a specific and precise language involving mathematical and logical thinking and they begin to appreciate the way science will affect their future on a personal, national, and global level. It allows children to develop ways of finding out for themselves and gives them practice in problem solving.

At CVPS, Science makes a significant contribution to SMSC and the promotion of the fundamental British values by showing the children that different opinions need to be respected and valued. Children are taught to understand how scientists from a range of cultures have had a significant impact globally; we also teach them to investigate these past discoveries and by doing so, to develop the skills of enquiry, analysis, interpretation and problem solving.

Expectations:

Throughout the school, we expect that 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. Children in each year group, will be assessed against key assessment criteria and teachers will make an informed decision whether individuals are emerging, expected or exceeding for each key skill. 85% of children in each class should achieve at least the expected level within their year group.

The aims of science and how these contribute to the school's aims.

Our school aims to:

- To foster in children an interest in the natural world and to develop an understanding that enables them to enjoy all that science has to offer;
- To enable children to know about significant discoveries in science and to appreciate how things have changed over time;
- To develop their skills of cooperation through working with others;
- To encourage children to raise questions and learn how to investigate these using both first hand experience and secondary sources;
- To encourage children to treat the living and non-living environment with respect and sensitivity;
- To have some knowledge and understanding of scientific developments in the wider world;
- To help children recognise and assess risks and hazards to themselves and to others when working with living things, materials and electricity and to take action to control them;
- To develop in children, the skills of enquiry, investigation, analysis, evaluation and presentation.

Planning and Progression

For our curriculum planning, we follow the national curriculum for science and plan this in three phases: long-term, medium-term and short-term.

The long-term plan maps the science learning topics, including the skills and knowledge to be covered in each term during each key stage. It also breaks these topics down into the different science elements: Biology, Chemistry and Physics. These science topics link with other areas of the children's learning in class, where possible. Moving forward in KS2, an increasing emphasis is placed on independent scientific enquiry. We teach knowledge, skills and understanding set out in the National Curriculum through the corresponding PoS.

As a basis for our medium-term planning, we use the knowledge strips and learning questions from the Curriculum with Unity Schools Partnership (CUSP) and begin each science topic with a pre-learning, using quiz style questions from CUSP and progressive vocabulary. We ensure that the relevant KSU are taught and developed within the weekly lesson when it is planned by the class teacher.

When planning for the term, teachers will plan a range of activities to progress the scientific skills. These skills are: Planning, communication and sources; Enquiring, testing, obtaining and presenting evidence; Observing and recording, and Considering evidence and evaluation. These skills will also progress throughout each year group and can be found on the progression of skills document. In this way, the children will begin to be able to discuss the skills they have learned, rather than always discussing the activity they have completed, which will provide children with further vocabulary they need to become confident scientists. Children of all abilities have the opportunity to develop their skills and knowledge in each unit and through planned progression built into the Science curriculum, we offer them an increasing challenge as they move through the school.

Teaching and Learning

Science at CVPS focuses on enabling children to think as scientists. We place an emphasis on asking questions; knowing more, remembering more and applying more, and following a scientific enquiry through the children planning their investigations and evaluating their own results to inform their conclusions about why certain things

happen. In each key stage, we give children the opportunities to visit science workshops or arrange for visitors to come into school where the children can become amazed by the wonders which occur in our natural world. In addition, we encourage visitors to come in and talk about their expertise and career in one of the three areas of science: Biology, Chemistry and Physics.

We recognise and value the importance of stories in science teaching and the evidence behind them. We focus on helping children understand that scientific events have been interpreted in different ways and that we should ask searching questions such as 'how do we know?' about information we are given.

Early Years Foundation Stage

We teach science in reception class as an integral part of the topic work covered during the year. Science makes a significant contribution to the ELG objectives of developing a child's understanding of the world. This will be taught through child initiated and adult directed activities in the indoor and outdoor provision.

Inclusion

To ensure that all children make at least expected progress for their ability in science, all children follow the same lesson structure and are given the same knowledge strip as support their communication of knowledge and they are taught the same vocabulary to focus on. All children are grouped into mixed ability science groups in order for them to have the opportunity to work as a team, emphasizing the importance of practical workings, to encourage discussion and debate within science and to allow all abilities to support each other as we recognise that an ability in either maths or English may not be the same for science. Teachers provide a range of both independent and grouped tasks for the children as well as suitable ways for children of different abilities to access difficult ideas: e.g. for low attaining children by narrowing the way information is recorded, by increasing the degree of support through their own advice, by using relevant resources or by the use of other adults; Teachers should challenge higher attaining pupils by expecting them to interrogate more demanding sources, by expecting them to work with greater independence and by raising expectations about how they might communicate their ideas; Teachers use a range of teaching styles in each lesson in order to match the range of learning styles represented in a typical class.

Teaching Science to children with SEND

Science forms part of the school curriculum policy to provide a broad and balanced education to all children. We enable all children to have access to the full range of activities involved in the learning of science. Children with SEND are further supported in their mixed ability groups by their peers.

Resources

The school has a central store where there are labelled boxes of equipment for units of work. These contain scientific equipment for use in experiments, books and models. The school also has a contract with Winsford Education library, which provide us with books, DVD's and models to support the unit being covered by individual classes. In addition to this, all teachers have access to the online resources of CUSP, Curriculum Visions for

reading texts and can find further non-fiction texts in our school library.

Assessment, Recording and Reporting.

Teachers making initial assessments during the pre-learning stage of a science topic. All children are given a pre-learning task with up to 6 multi-choice questions taken from the CUSP curriculum, which relate to each of the objectives from the National Curriculum and also a pre-learning vocabulary check, where children are asked to write down the definitions of key vocabulary which will be taught throughout the unit. During the topic, teachers assess children's work in science by making assessments as they observe them working during lessons. They record the progress that children make by assessing the children's work against the Learning objectives and KSU. On completion of a piece of learning, the teacher comments on the piece of work in line with the school's academic guidance policy. At the end of a science topic, the children are then given a post-learning task, similar to the pre-learning stage to monitor the progression of the children's knowledge of the topic and vocabulary. Teachers will alter the initial 6 questions from the pre-learning if the children require more of a challenge after the topic has been taught. Finally, the teacher makes a judgement as to whether the key skills for science are emerging, expected or exceeding for the relevant year group. At the end of the academic year, a written report is given to all parents, which makes comments on the achievements of the children in their science learning.

Each child's piece of work will include a learning goal linked to the objectives from the National Curriculum and a skills sticker relating to the skill that has been taught in the lesson if appropriate. This will clearly show the range of skills being taught across the half term and will support the children in becoming confident with this vocabulary.

The subject leader for science keeps samples of children's work and displays in a portfolio. These demonstrate what the expected level of achievement is in science for each year group in the school.

Monitoring and evaluating

All teachers are responsible for monitoring and progress of the children in their care. However, the subject leader under the direction of the head teacher takes a lead in this. The SLT and the Science subject leader is responsible for monitoring the standard of children's work and the quality of the teaching of science. The science leader is also responsible for supporting colleagues in the teaching of science, for being informed about the developments in the subject and for providing a strategic lead and direction for the subject in the school.

Monitoring activities are undertaken throughout the year. These include:

- Pupil voice
- Teacher voice questionnaires
- Working walls
- Monitoring of science books
- Lesson observations
- Samples of planning

Subject leadership time is allocated to undertake monitoring and developments. Termly reports are written for headteacher and governors and SLT supports to analyse pupil data. A portfolio shows evidence of progression and samples of work from around the school.

Home Learning

Home learning is set within the guidelines of the school's home learning policy. In KS1 and KS2 the children are set open pre-learning tasks, separate to those given in school, for their next science topic. This can be linked to any part of their new learning and takes the form of the children researching and investigating an area of interest to them within the challenge question given by the teacher. They present their home learning in a creative way of their choosing. Teachers should ensure that a science learning question based on the CUSP curriculum is offered to the children on a regular basis.

Safe Practice

All staff adhere to the school's health and safety policy and particular note must be taken of the policy relating to the safe practice on visits and school field trips. A risk assessment will be made, as part of the planning process, before any potentially dangerous scientific activity is undertaken. Children will be informed of any risks or hazards but will also be encouraged to assess and identify risks for themselves. Children will be shown how to use scientific equipment safely. Safety glasses will be used where appropriate.

The Learning Environment

A class display should be provided outlining the area of science: Biology, Chemistry or Physics and the science topic title from the National Curriculum, key vocabulary with sound buttons to support the development of phonics, knowledge mat taken from CUSP, images, questions given from the teacher and contributions from the children as the topic is taught. A selection of books, both fiction and non-fiction should be on display along with relevant equipment for the children to handle where available. A website should also be displayed to encourage further independent learning. Children are expected to produce one piece of work per week as evidence of their learning and this should be displayed as their learning journey along with the 4 skills posters, where appropriate, which should be attached to the relevant work. Displays around the school should provide equal opportunities for celebrating children's learning and achievements in science-based learning.

Review

This policy will be reviewed in line with the school policy review programme.