



Christ Church CE VC Primary School

“Together we learn - Together we grow - Together we flourish”

Some seeds fell on good earth and produced a harvest beyond wildest dreams.

Matthew 13:8

Science Curriculum Policy

Date ratified:

Ratified by:

Review date:



Introduction and subject definition:

Science at Christ Church is an engaging subject which encourages pupils to be inquisitive about the world around them. As well as developing a strong fundamental understanding of various scientific concepts, children should be equipped with the experience, vocabulary and skills to carry out lines of scientific enquiry. This document outlines provision for science teaching in KS1 and KS2.

Intent:

Together

Our curriculum aims to:

- capture children's natural curiosity about the world around them;
- excite children about the awe and wonder in their everyday life and those beyond their grasp;
- develop a connected knowledge and skills base;
- enable children to be able to explain natural phenomena.

Learn

Our carefully sequenced curriculum aims to:

- establish in-depth understanding and recall of key concepts;
- support children to build scientific knowledge (substantive knowledge) in order they can explain and remember facts, models, laws and theories;
- provide opportunities to develop working scientifically skills (disciplinary knowledge) ensuring they know how scientific knowledge becomes established;
- ensure there is interplay between substantive and disciplinary knowledge so children not only know the science but they also know the evidence for it and can use this knowledge to work scientifically;
- develop understanding of scientific enquiry and build connected skills;
- know and use key technical vocabulary accurately;
- use technology to support understanding, research and scientific enquiry.

Grow

Our holistic, child-centred curriculum aims to:

- explore a variety of scientists from different backgrounds;
- consider opportunities for sustainability within science;
- link science to children's everyday life;
- begin to consider ethics in some elements of science.

Flourish

Our exciting and memorable curriculum aims to:

- use our outdoor area to support learning and encourage awe and wonder in our immediate area;
- invite experts and scientists into the school to share their knowledge and passion;
- enrich children's experience with a biennial STEM theme week;
- investigate and make connections with the local area;
- give opportunities to visit a variety of places such as, museums, farms, arboreta etc.

Implementation:

At Christ Church there is a clear and comprehensive plan in line with the National Curriculum. Children in KS1 and KS2 are taught using the Plymouth Science Scheme which is altered and tailored in order to suit the particular cohort. Children progress from year group to year group, often revisiting and building on prior knowledge in a spiral fashion. Children are taught the different types of knowledge: substantive (models, laws & theories) and disciplinary (how to work scientifically). Knowledge and skills are regularly visited so children know more and can remember more thus the new knowledge becomes part of an emerging conceptual structure.

At all ages, science at Christ Church is predominantly a practical subject, with children developing skills and knowledge through first-hand experience of experiments and practical activities. Each year children will be taught a range of scientific enquiries and will develop their working scientifically skills.

Whilst science is taught as a discrete subject at Christ Church, cross-curricular links are also often a part of the subject to ensure an inter-connected curriculum which enables children to develop stronger links in their learning, with children utilising skills such as digital literacy, graphs or building with a range of materials.

There are some topics within science which benefit from being taught across the year as either part of a longitudinal study or segmented into less complex parts.

Children will access resources to acquire learning through science equipment, digital technology, practical experiences, photographs, online learning, expert visitors and educational visits etc. Children will use a range of resources to develop their knowledge and understanding that is integral to their learning.

Within the curriculum there is opportunity to explore and learn about scientists both past and present. It is important that children are aware that being a scientist encompasses a broad range of jobs and people from many different backgrounds are scientists. Scientists are studied within the units and also as part of the wider curriculum.

The progression of vocabulary is central to the understanding of science. There are technical words which are taught during each unit and revisited frequently.

As with all other subjects, we have an ambitious curriculum in science and seek to scaffold children so they are able to grasp and understand key concepts that their peers are working on.

Being good global citizens and being stewards of the Earth is also a key part of Christ Church science. Through the subject and the work of the school's eco-council, children learn about a range of issues affecting people and the planet as a whole.

Impact:

Our science plan ensures that children achieve a good understanding of the National Curriculum through spiral learning, with learning being built on and added to each year. There is a clear learning progression which details vocabulary so teachers know 'where' the children have come from and what the next steps beyond their unit will be.

By the end of each unit, children should be clear in the key concepts and have had any misconceptions addressed.

The eco-council is well attended (with all children having the chance to share suggestions through their representative) and the children have achieved genuine success in implementing change to practices in the school to make it more environmentally friendly.

Curriculum organisation:

Science is taught as a discrete subject and is typically part of the weekly timetable. However, there are some objectives which benefit from being taught as a block or as a longitudinal unit across the year.

Science teaching follows the programs of study for KS1, lower and upper KS2. Where possible, science topics are chosen to form an inter-connected curriculum but can also be a stand-alone.

In foundation, science teaching follows the objectives outlined in the FYFS framework and involves more play-based learning. Certain activities and resources provided in the classroom to facilitate play-based learning will support different science topics. Science learning tends to be very practical at this age range- pupils experiencing forces, for example, through play with cars and ramps.

Continuity and progression:

Each year group has assigned units which must be taught within that year group. There are certain units which the subject leader has dictated the order of to ensure that children have the requisite knowledge but others have been mapped to support an inter-connected curriculum. Within each unit are statutory and non-statutory objectives.

Substantive and disciplinary knowledge is clearly mapped across the school and is frequently re-visited during science teaching as a whole as well as within units. Technical vocabulary is also mapped alongside the above.

Time allocation:

Key Stage 1 & 2 classes teach at least one hour of science per week per is typically more. However, timings are not dictated as some objectives are more complex so do not fit arbitrarily into a 'neat' timetable. Therefore, teachers have the autonomy to allocate the timings they see fit in order to elicit the best understanding thus outcomes for the children in their class.

Teaching and learning strategies:

A range of approaches to teaching are employed to capture the interest of all pupils.

As often as possible, science lessons should be practical, allowing children the chance to work scientifically and explore the different scientific enquiries for themselves. This enables them to develop a concrete understanding of various scientific processes.

When not practical, a range of engaging resources should be used to help capture children's interests. Concrete models should be used to support pupils' learning of scientific processes.

Work in books should be of a high standard and should demonstrate a range of different learning activities. Pupils should be able to show their understanding in various different methods.

High-quality questioning is an important aspect of effective science teaching. Teachers should role-model effective questioning for pupils to encourage their growth as inquisitive learners. Questioning should also be used to learn existing misconceptions in order that future teaching can address them.

Role of the subject leader:

The subject leader, has a range of responsibilities in overseeing science at Christ Church. These include:

- Ensuring provision of the science curriculum through monitoring and planning of topics;
- Maintaining high standards of learning through observations, book scrutinises and feedback to staff, sharing good practice;
- Monitoring pupil engagement with the subject and providing an outlet for pupil voice through regular pupil interviews;
- Keeping up to date on developments within the subject, disseminating these to members of staff;
- Attending subject-specific training cascading this to staff;
- Arranging school trips, visitors and being part of the STEM week team;
- Maintaining resources, ensuring the school has enough to deliver the curriculum;
- Bidding for additional resources where a need is identified;

- Championing science across the community;
- Building enthusiasm, engagement and excitement in science.

Cross-curricular learning:

Science includes a lot of opportunities for cross-curricular learning. Science teaching should regularly make use of skills from other areas of the curriculum.

Measurement and data plays an important part of most investigations.

Careful observation also plays a part of science and this can be brought in to support learning in art.

In computing, opportunities exist for children to research scientific topics as well as using software to help present data.

As a healthy living school, pupils are also taught about good nutrition and exercise through science, PE and PSHE.

Health and safety:

Health and safety is a top priority for the school and this is especially important in science learning, where different materials and methods used in practical activities may pose a risk. Class teachers are responsible for risk-assessing any activities they undertake. All staff must be aware, in particular, of children with allergies or similar needs.

Class teachers are also responsible for risk-assessing any subject visits and must notify visitors etc of any medical needs within their class.

Teachers should not be afraid to take risks with activities they plan- the focus should be on planning stimulating and fun activities. However, risks should be mitigated and managed to the greatest extent possible.

The school subscribes to CLEAPSS which supports practical science in schools by providing ideas but also very clear risk-assessments and guidance.

Equal opportunities and inclusion:

Christ Church firmly believes that all pupils should be able to access learning.

Activities should also be planned with individuals in mind. 'Scaffolding' must be found for pupils who are unable to access the core offer of the lesson.

It is also essential that teachers consider the social and cultural backgrounds of the pupils in their class. Teaching should be sensitive, and opportunities should be taken to make learning relevant to pupils of all backgrounds.

Community links:

Science learning is shared in a variety of ways with the community. Open classrooms are held, allowing parents to come in and see the learning children have been doing. Experts from the community are encouraged to come in and share their knowledge with classes. Children can also gain a scientific understanding of their local area, for example, by studying the life processes involved in growing food locally. There is a biennial STEM week where members of the local and scientific community are invited into to school to lead workshops and work with children.

Assessment, recording and reporting:

Science is assessed using Plymouth Science assessment materials or assessed alongside the 'sticky' knowledge identified at the outset of the unit. Assessments can be presented as a paper document or as an online test.

Parents are informed of children's engagement and effort in science through a written annual report and is also discussed at any of the three annual parents' evenings.