

Christ Church Primary School

'Starting the journey well'

As a Church of England community school, we
believe we can impact God's world for good,
grow in learning, love, wonder and faith and
seek together to flourish in the fullest way possible.

Science Policy

Imogen Blamires

Review Date: July 2023

Intent

Developing curiosity from the moment a child joins the Christ Church community is vital. We want our children to become totally immersed in the scientific world. That is why from the very beginning of their journey, we nurture their natural interests in the world around them by beginning to look at bigger questions. During nursery and reception, children begin experimenting with natural resources to hand in the local area; this could be through exploring the textures and shapes of a pinecone or by making observations about the ever-changing weather. This scientific curiosity continues to the end of their primary school journey, where they will study some of the most complex and ground breaking scientific theories ever developed.

Whilst it is crucial the children at Christ Church extend their knowledge across the science curriculum each year, it is also vitally important that they forge a secure understanding of each key block of knowledge and concept in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher-order content

We want all children to leave Christ Church thinking of themselves as scientists, therefore from the moment they join us they are provided with the experiences needed to aspire to a career in science.

From planting and watching seedlings grow in key stage one, to designing and forming our own mechanical devices in year 5, we are always taught to question, investigate and explore. At Christ Church we utilise the city we call home wherever possible. Whether this is lifting up logs to discover micro habitats in Epping Forest, beginning to learn how animals change and grow at Spitalfields City Farm, or being given an insight into innovative research at *The Centre of The Cell* in Whitechapel.

In order to create young scientists, we provide many opportunities for hands on practical investigations. We believe that these should be child led, with pupils being able to choose their own scientific tools, make their own mistakes and learn from them. Supplemented by high-quality secondary sources.

Through oracy, we aim to take away any attitudes that science or indeed further education in the subject is simply not for some children. By broadening children's understanding of what scientific 'talk' is, we are able to make the subject feel much more accessible. Using talk strategies combined with exciting images and thought provoking questions we aim to debunk the myth that only certain children will be able to have a career in science.

When children leave Christ Church they will leave being scientifically literate. We are aware that it is our duty to provide children with all the experiences necessary to consider they could have a career in science.

As a Church of England school we are determined foster respect and appreciation for God's world, we want them to understand their role as global citizens and understand the power that scientific developments can have on our fragile planet. Children at Christ Church are taught about the importance of scientific research and scientific issues in current affairs.

Curriculum

EYFS (updated for new framework)

Science is covered in the '*Understanding the World*' area of the EYFS Curriculum. It is introduced indirectly through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. Exploration of the surrounding area is a key focus and throughout nursery and reception children will be constantly observing and discussing seasonal changes, this discussion will be supported by lots of practical, outdoor play and observations alongside the sharing of high quality picture books.

The importance of a healthy lifestyle is a key teaching throughout primary school, this begins in EYFS, through careful questioning, children are taught to observe the changes in their body after exercise and introduced to healthy foods, eating habits and oral hygiene. Children are also taught to observe changes in their own body as they grow.

Hands on investigations are a constant part of the curriculum in EYFS. Children are allowed to choose and handle a range of scientific equipment when 'potion' making, they use predictive scientific language when discussing their activities, states of matter are explored through the process of baking and properties of materials are introduced through junk modelling. By the time children leave reception at Christ Church they will be able to make observations about animals and plants, explain why things occur and talk about changes.

Key Stage 1

During Key Stage 1, the focus of children's learning in science is to allow them to look more closely at the natural and humanly constructed world around them. Learning is immersive and hands on, with investigations being carried out both inside and outside of the classroom. Children are consistently encouraged to question how and why and should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions. Children are taught how to identify and classify, notice patterns, carry out simple comparative tests and use a variety of secondary sources to deepen their learning. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.

At this point in their education, most of the learning about science should be done through the use of first-hand practical experiences, for example planting and studying the growth of plants both

indoor and outdoor, or designing and making a bug hotel. However, there should also be some use of appropriate secondary sources, such as high quality books, photographs and videos. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Key Stage 2

During Key Stage 2, the main purpose of science lessons is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. Exploratory and scientific 'talk' becomes even more crucial in order to help children form their ideas and ask their own questions about scientific phenomena.

By upper key stage 2, they should encounter more abstract ideas and theories and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to tackle scientific investigations and begin to choose which field of scientific enquiry will suit the questions they are asking. Pupils should begin to choose specific scientific equipment to measure with precision and take multiple readings where necessary. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. Pupils should read, spell and pronounce scientific vocabulary correctly

Spiritual, Moral, Social and Cultural Opportunities

Science is an excellent vehicle for developing children's learning in this area. Making children aware of the wonders of the natural world whilst also showing them how science can be used to help protect it will deepen pupil's ability to treat both the planet and their fellow humans with respect.

At Christ Church, our mission statement is at the heart of everything we do, and '*impacting God's world for good*' is something the children take to heart in their science lessons. This could be by learning about the impact of climate change when studying animals and humans, to researching new ways to use less plastic when learning about properties of materials. Thinking about how our scientific studies can help influence these young minds to change the world for better is at the forefront of all our teaching.

'*Growing in love, learning faith and wonder*' is a brilliant anchor for us to get our children 'hooked' into science. Through studying planets and places beyond our Earth during year 5, or marvelling at the burst of colour from our bulb planting activities in year 1, where there is science at Christchurch, there is wonder.

Health and Safety

The school's policy for visits and excursions will be adhered to for all trips. A copy of the Health and Safety policy can be found in the school office. Risk assessments are carried out for all trips, any scientific equipment required for use in scientific investigations is checked regularly and investigations are always carried out in a safe manner.

Ensuring Continuity and Progression in Learning

Whilst knowing more is an integral part of continuity and progression, it is nevertheless just one element of it and merely sequencing subject content will not ensure on its own that our pupils become better scientists. To ensure continuity and progression for all pupils, the curriculum is carefully organised from nursery to year 6 ensuring that our pupils' knowledge and understanding of science develops because:

- Expected subject outcomes in terms of developing as a young scientist increase in complexity and level of challenge as detailed above and are used as the starting point for all planning of content delivery and learning and teaching enquiries;
- There is increasing breadth and scale of study through the curriculum moving progressively from exploring the natural world in their local area to marvelling at the planets in our solar system, informed by the guidance of the National Curriculum;
- The curriculum becomes progressively more complex developing from discrete facts and bodies of information to conceptual awareness and generalised knowledge about more abstract ideas;
- The mastery and application of scientific skills occurs in more precise and complex contexts;
- The focus of what pupils learn becomes gradually more issues based enabling them to explain links, patterns and processes and be more informed and mature in their thinking and self-reflection in terms of recognising the importance of attitudes and values about contested matters;
- Teachers use the 'Progression in Language' document to plan for opportunities to use increasingly ambitious oracy skills;

- The use of 'Forever Knowledge' documents ensures that teachers and pupils can revise prior knowledge from previous year groups and can clearly see when new content is introduced.

Marking and Assessment

The science co-ordinator will oversee planning and monitor pupils' work termly providing feedback on strengths and on areas on improvements, both individually and as a whole school. At the end of each unit, the key knowledge, understanding, and where appropriate fieldwork skills, will be assessed by the class teacher and recorded on the schools' proforma. Pupils are assessed as either WTS (Working towards) or EXS (Expected). Skills Progression documents are used to inform teacher judgements. At the end of each academic year, the teachers track assessment on Integris using the same judgements.

Assessment will be undertaken using the following methods:-

- Observation of pupils
- Talking with pupils
- Marking written work
- Self-assessment
- Peer-assessment
- The evaluation of discussion using the 'Working Scientifically' document

Please also refer to the School Assessment Policy.

Inclusion – EAL, SEN/D, lowest 20%, exceeding

Christ Church Primary School Community is a place where everyone should feel included. This means that everyone has an equal opportunity to develop their full potential. Work is differentiated to assist in children's learning in terms of:

- learning outcomes
- tasks
- teaching methods
- resources

In class, this should be evidenced by:

- Tasks being broken down in small steps, giving children achievable goals;
- Vocabulary and key concepts being pre-taught;
- Word banks and visual cues being provided, using software such as *Inprint*;
- Activities that reinforce children's understanding of the subject;
- The more able children should be given open-ended tasks and opportunities for further research and more challenging study.

Non-Negotiables

- A science investigation week once per half term in order to make science teaching more memorable.
- An oracy link to open each science lesson and support exploratory talk.
- Basing one guided reading session around a high-quality non-fiction science text and introducing each science topic with an ERIC hook.
- Pre teaching to SEN/EAL children.
- A selection of high quality nonfiction textbooks to be accessible in each classroom based on current topic. (Tower Hamlets Library Service)
- To aid scientific writing, discussion stems to be used when creating scientific writing after an investigation.
- Key vocabulary and scientific phrases on your science wall – these should only be added once the word/concept has been introduced in a class session.