

St Alban's C of E Academy



Science & Policy
2023-2024

Intent

Our science curriculum is designed with the intent that each child at St Alban's C of E Academy will become competent scientific thinkers and investigators who will encounter awe and wonder through first-hand scientific investigative experiences and approaches, which activate learning for all children. With great emphasis on providing children with a high-quality science education that offers the foundations for understanding the world through the specific disciplines of biology, chemistry and physics, our curriculum design for Science across primary school promotes specific competences including knowledge, enquiry and the working scientifically based skills. Creative pathways to learning are planned for so that children can make links to prior learning and develop depth in key skills within Science that are rich, stimulating, challenging and real life with the aim of enabling children to master learning with skills, knowledge and experiences that will remain with them for the rest of their lives. We should all champion primary science and our intent is to make sure that every child has a positive experience of science throughout their primary school education.

At St Alban's C of E Academy, we empower each child to learn enthusiastically, grow independently and explore inquisitively to fulfil their God given potential.

Our Christian distinctiveness is purposefully threaded and woven throughout our curriculum, to enable our children to flourish both within school beyond into the wider world.

For example, in EYFS and KS1 teaching will lead pupils to be inquisitive about animals including humans, investigating materials and exploring seasons. Children will show curiosity, questioning where how we grow, and what materials can be used in different ways, and who created the seasons and our world. Children will have the opportunity to begin developing scientific enquiry skills.

We create a platform in KS2 to provide children with a challenging, empowering, encouraging and reflective environment. We encourage the children to become scientific thinkers, through an enquiry based approach to support prediction making, recording of data, investigating and planning. The children have the opportunity to explore and discover through investigations that promotes curiosity and wonder.

Our Science curriculum is designed to allow each pupil to

- Achieve the best possible standards and achievements, whatever their starting point.*
- Have high levels of engagement, enjoyment and personal development in science.*
- Accesses a rich, broad and wondrous science curriculum that allows high levels of personalisation that plays to their strengths and develops specialisms.*
- Connect and build on prior knowledge leading to progression and depth.*

Implementation

The school's Long term plan, Medium term planning and coverage of key scientific skills will be used by teachers to plan, this will drive the journey of science for every year group, building on from prior learning and develop progressively key skills and developing depth.

- Provide opportunities for children to develop the process skills associated with science education as well as develop a greater knowledge and understanding of life processes and living things, materials and their properties and physical processes as described in the National Curriculum for science.*

- *Promoting enjoyment and enthusiasm for learning through real, first –hand and rich science experiences so that all children explore, question, predict, plan, carry out and make observations and conclusions about their scientific tests.*
- *Allowing children to discuss and present their work using scientific language, observations, diagrams, jottings and charts*
- *To foster positive attitudes such as curiosity, perseverance, willingness to use and appraise evidence, willingness to tolerate uncertainty, critical reflection and enthusiasm.*
- *Developing an understanding of the importance of Science in everyday life.*
- *Each class in both Key Stage 1 and Key Stage 2 will provide children a weekly science lesson, which will be a 2 hours in duration.*
- *Good science teaching builds progressively on pupils existing ideas. In order for effective delivery of science education, across weekly lessons there should develop opportunities for finding out children's ideas using a variety of elicitation opportunities.*
- *Analysing children's ideas.*
- *Providing opportunities for testing ideas, thereby possibly changing them.*
- *Providing opportunities for developing process skills so that testing is scientific.*

Learning opportunities for all children will be matched to ability, this will be achieved through a range of reasonable adjustments throughout all lesson, matched to the children's relative starting points, working interdependently to support each other through peer learning and challenging children with open-ended investigative opportunities. We use classroom assistants to support children across all ability groups and to ensure that learning is matched to the needs of individuals.

In addition, other subjects will play a part across lessons in lesson where children will be able to develop and apply their mathematical, English and computing skills. For example using mathematical skills for repeated testing of results to calculate averages in science.

CONTINUITY AND PROGRESSION

In foundation stage pupils will work from the Knowledge and Understanding of the world planning from the Early Years scheme of work. This planning aims to develop in pupils the crucial knowledge, skills and understanding that help them make sense of the world. It provides opportunities for pupils to carry out activities based on first hand experiences that encourage exploration, observation, problem solving, prediction, critical thinking, decision making and discussion. It provides the foundations for the science KS1 and then the KS2 curriculum. The scheme of work for KS1 and KS2 continues building on concepts and processes skills in a spiral way, ensuring that all knowledge and understanding programmes of study are covered at least once in Key Stage 1 and at least twice at Key Stage 2, and that all the process skills programmes of study are continually revisited and developed as each science unit of work is taught.

The contribution of science to teaching in other curriculum areas English Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Some of the texts that the children study in the Literacy Hour are of a

scientific nature. The children develop oral skills in science lessons through discussions (for example of the environment) and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information.

Mathematics

Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events. They use numbers in many of their answers and conclusions.

Computing

Children use computing in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the Internet. Children use ICT to record, present and interpret data and to review, modify and evaluate their work and improve its presentation. They also use e-mail to communicate their mathematical findings with other children in other schools and countries.

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. They organize campaigns on matters of concern to them, such as helping the poor or homeless. Science promotes the concept of positive citizenship.

Spiritual, moral, social and cultural development

Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for example, the effects of smoking and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

Assessment

Assessment is inextricably linked to planning and all assessments in science are used to inform future planning in order to impact on future teaching and learning.

In science, elicitation activities are carried out prior to, during and after teaching in a variety of ways to inform planning or how far ideas have progressed after a period of teaching. Formative assessment is continually on going in the form of marking pupils work and making notes on weekly planning in order to inform planning for the next lesson. These assessments are linked to the key learning objectives for the lesson.

In Early Years, profiles are kept up to date with summative assessments of pupils' achievements. For each KS1 and KS2, there is a summative record developed through the use of building blocks in order for staff to make a judgement about what each pupil has achieved at the end of each taught unit compared to national expectations. These assessments also inform future teaching.

Resources

A wide range of equipment is stored in science resource rooms for Early Years, Key Stage 1 and Key Stage 2. Within our library, reference books can be found in the science section of our library. Classroom table top displays should also display resources to aid and stimulate learning. Table top displays will also showcase scientific books related to each topic to stimulate thinking.

Health and Safety

When working with science equipment and materials during practical activities, teachers should ensure that children understand the hazards and learn how to control them, ensuring the safety of themselves and others. All teachers will assess equipment that equipment is fit for its purpose, suitable for the age of range of children and functions correctly.

Monitoring and Review

It is the responsibility of the science subject leader, Curriculum Innovation Team and the Senior Leadership Team to monitor the standards of children's work and the quality of teaching in science. The science subject leader, CIT and SLT, are also responsible for supporting colleagues in the teaching of science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. The science subject leader and CIT has specially-allocated time for fulfilling the vital task of reviewing samples of children's work and visiting classes to observe teaching in the subject.

Impact

At St Alban's C of E Academy, through our rich and broad curriculum, we are enabling children to gain the knowledge, skills and understanding they need for their future. Each of our children is individual and unique and each has a potential that we need to unlock. Our school mission statement is:

We empower each child to learn enthusiastically, grow independently and explore inquisitively to fulfil their God given potential.

At St Alban's C of E Academy, we are guided by the life and teachings of Jesus encouraging us to learn and work together to fulfil our God given potential. Our curriculum design should lead to outstanding progress for all pupils, regardless of their starting points, over time. Planned learning will

progressively build on prior knowledge and understanding and support children in producing outcomes of the highest quality.

The impact of the curriculum design should lead to outstanding progress over time at all key stages, from the children's starting points. Children should leave school at least achieving Age Related Expectations. The rich and broad curriculum and units of work will enable teachers to consistently plan lessons progressively building on prior knowledge and the development of key skills in order to deliver lessons over the highest standard and children's outcomes to be of the highest quality. Children will be confident, resilient, self-motivated, independent learners, with a thirst for challenge and depth of understanding of scientific skills and concepts.

Review

This policy will be reviewed annually by staff, SLT and Directors of the Trust/CEO.