



## **All Saints CE (VC) First School**

### **Science Policy 2024-2025**

#### **What is Science?**

Through the study of: Physics, Biology and Chemistry, Science is the beginnings of understanding the world around us. Science helps children to explain what is occurring, predict how things will behave, and analyse causes. 'Science has changed our lives and is vital to the world's future prosperity.'

#### **Intent:**

At All Saints CE (VC) First School, science should be fully inclusive to every child. Science is a highly valued area of the curriculum and is taught in line with the new National Curriculum and the Development matters document in Early Years. Through Science we aim to provide a broad, balanced and differentiated curriculum; ensuring the progressive development of knowledge, skills and vocabulary and for the children to develop a love of science. Furthermore, we aim to develop curiosity and enjoyment whilst inspiring in pupils a curiosity and fascination about the natural and man-made world and a respect for the environment that will remain with them for the rest of their lives. This includes the lessons they complete in the classroom but also the other experiences they are offered, such as educational visits, residential and enrichment days. As a result, children gain a solid scientific knowledge and understanding as well as developing the skills necessary for testing and investigating.

We strive to ensure that:

- Teachers are knowledgeable and creative in their approach to teaching science.
- Science has a high profile and is valued across the school through the use of high quality resources, interactive displays, educational visits and visitors.
- Learning is purposeful, relevant to the world around them and encourages children to make cross curricular connections.
- Children make good progress and can build on their learning.
- Children are actively involved in all aspects of experimentation, developing skills of observation, prediction, planning, investigation, interpretation, communication, questioning and hypothesising, problem solving and reflecting, critical thinking and questioning and increased use of precise measurement skills and ICT.

- Children gain enjoyment from their scientific work and to build on their enthusiasm and natural sense of wonder about the world.
- Children develop an enquiring mind, they are confident to ask questions and are enthusiastic to learn. They are encouraged to offer their own suggestions, and to be creative in their approach to science, devising their own investigations and taking lines of enquiry in a way that interests them.
- Children develop their skills of co-operation through working with others, and are encouraged where possible, to explore science in forms which are relevant and meaningful to them.
- Children collect relevant evidence and question outcomes, and build resilience to persevere as it is likely they will need to repeat results or will encounter unexpected results that do not support their hypothesis.
- The living and non-living environment with treated with respect and sensitivity.
- The need for personal and group safety is understood, by the correct usage and storage of resources.
- Children appreciate that we do not always know the answers when carrying out scientific enquiry as the world around them is continually changing and developing.
- Children are equipped with the language to be able to discuss their learning and confidently explain their scientific understanding in small groups.

### **Special Educational Needs Disability (SEND) / Pupil Premium / Higher Attainers**

All children will have Quality First Teaching. Any children with identified SEND or in receipt of pupil premium funding may have work additional to and different from their peers in order to access the curriculum dependent upon their needs. As well as this, our school offers a demanding and varied curriculum, providing children with a range of opportunities in order for them to reach their full potential and consistently achieve highly from their starting points.

### **Implementation:**

The Science subject leader is responsible for the curriculum design, delivery and impact in this subject. This included regularly meeting with staff and Governors to review and quality assure the subject areas to ensure that it is being implemented well and coverage, breadth and balance is adequate. To ensure high standards of teaching and learning in science, we implement a curriculum that is progressive throughout the whole school. Science is taught through modules linked to themes as part of the 'Sonar' curriculum. We ensure that teachers have the same expectations during Science lessons that they would have when teaching English or Mathematics and that any mathematical task (such as measuring or drawing graphs) is pitched at an age-appropriate level to ensure sufficient challenge. It is vital that any mathematical or English barriers should not impede a child's scientific learning, thus meaning dialogue learning is a central part to our science teaching.

The Science curriculum at All Saints CE (VC) First School is based upon the 2014 Primary National Curriculum in England, which provides a broad framework and outlines the knowledge and skills taught in each Key Stage. Teachers plan lessons for their class using our progression of knowledge and skills document, which incorporates working scientifically. When teaching Science, teachers should follow the children's interests to

ensure their learning is engaging, broad and balanced. Before planning a unit of work, teachers should assess children's prior knowledge and understanding to ensure work is pitched at the correct level. A variety of teaching approaches are used based on the teacher's judgement. Teaching key subject specific vocabulary is also a key part of our science curriculum. The vocabulary children will need for that unit are identified on the school's progression document and this builds upon the vocabulary they have learnt in earlier years. The key vocabulary will be identified in the vocabulary on the children's knowledge organisers.

At All Saints CE (VC) First School, we provide a variety of opportunities for science learning inside and outside the classroom. We recognise the importance that children observe and immerse themselves in their local environment to apply their learning practically to real-life situations.

### **Curriculum and Cross curricular links**

#### English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, and spoken language.

#### Speaking and listening

At All Saints First School we believe that speaking and listening is a key factor in developing children's scientific vocabulary and articulation of clear and precise scientific concepts. Speaking and listening is encouraged and assisted in every lesson to encourage children to make their thinking clear, both to themselves and others. Teachers also ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

In Early Years children learn vocabulary words linked to concepts and scientific ideas. At key stage 1, pupils read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge. At key stage 2, pupils read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

#### Mathematics

Science contributes to the teaching of mathematics, particularly the ways in which pupils collect, present and analyse data.

#### Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of PSHE and citizenship. 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, the subject gives children numerous opportunities to debate and discuss. They can organise fund raising campaigns on matters of concern to them, such as Children in Need. Science thus 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.

### Computing

Information and communication technology enhances the teaching of science in our school significantly, because there are some tasks for which it is particularly useful. It also offers ways of impacting on learning which are not possible with conventional methods. Software is used to animate and model scientific concepts, and to allow children to investigate processes which it would be impracticable to do directly in the classroom. Data loggers can be used to assist in the collection of data and in producing tables and graphs. Children use technology to record, present and interpret data, to review, modify and evaluate their work, and to improve its presentation. Children learn how to find, select, and analyse information on the Internet and on other media.

### **Foundation Stage**

We teach science in Early Years as an integral part of the topic work covered during the year. As the reception class is part of the Foundation Stage of the National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the Early Years Foundation Stage Framework 2023, which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to developing a child's understanding of the world, for example, through investigating what floats and what sinks when placed in water.

### **Teaching and learning style**

We recognise that in all classes children have a wide range of scientific abilities, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- setting tasks which are open - ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- grouping children by ability in the room, and setting different tasks for each ability group;
- grouping children by mixed ability to encourage peer support;
- providing resources of different complexity, matched to the ability of the child; Inclusion and equal opportunities

Teachers should aim to give every pupil the opportunity to experience success in learning and to achieve as high a standard as possible to fulfil their potential in the following ways:

- To use medium term plans to prepare classroom activities to challenge and involve all pupils
- To be aware about different learning styles and the need to allow pupils to be able to work in their preferred learning styles for some of the time
- To use materials for teaching which avoid stereo typing, and bias towards race, gender, role or disability
- To deal with such issues clearly and sensitively if they arise
- Provide learning opportunities that not only extend children's knowledge, but deepen their existing understanding
- Differentiate work, including lines of scientific enquiry appropriately so that SEND children are able to access the concepts and ideas covered, considering alternative methods of recording
- Differentiate work appropriately for EAL children so that they are able to access the concepts and ideas covered, considering alternative methods of recording or additional resources

**Impact:**

Within Science, we strive to create a supportive and collaborative ethos for learning by providing opportunities for children to question and investigate to discover answers for themselves and take their learning in a direction they are interested in. Our Science curriculum is well thought out and is planned to demonstrate progression. We focus on progression of knowledge and skills and discreet vocabulary progression also form part of the units of work.

We measure the impact of our curriculum through the following methods:

- Assessing children's understanding of topic linked vocabulary before and after the unit is taught.
- Marking of written work in books.
- Using dialogue learning tasks to assess children's understanding.
- Summative assessment of pupil discussions about their learning.
- Images and videos of the children's practical learning.
- Interviewing the pupils about their learning (pupil voice).
- Moderation staff meetings where pupil's books are scrutinised and there is the opportunity for a dialogue between teachers to understand their class's work.
- External moderation of children's work at the end of each Key Stage.
- Formal reporting of standards at the end of each Key Stage.
- Annual reporting of standards across the curriculum to parents.

Science assessment is based on teacher's assessment of children. This is then reported on the school's assessment document and the percentage of children working at, above and below the expected standard are identified. At the end of Key Stage 1 and Key Stage 2 the results are submitted. At the end of a unit, teachers will identify if a child is working at the

expected standard for that objective. This is then passed on to the next class teacher as a record of the child's progress throughout the year.

### **Recording of work and marking**

Children are expected to regularly record work, which focuses on the key content of the Science topic, in their Topic books. There should also be regular evidence of how the working scientifically skills are being embedded into the curriculum. This can and should be recorded through a variety of means such as:

- Written work
- Photographs
- Explanations of activities
- Presentations
- Project work
- Planning boards
- Investigational work

Where appropriate this work should be marked, following the school's marking policy, and include a next step question to deepen children's understanding of the subject.

### **Resources and Safety**

All resources are to be listed on lesson plans and linked specifically to individual lessons. Each class should have its own generic stock of equipment (particular equipment for lines of enquiry) that can be accessed when necessary. If you have any questions or requests for additional resources, please see Subject co-ordinator. The library contains a good supply of science topic books and there is access to computer software to support children's individual research. For safety we follow COSHH guidance "Be Safe" handbook, a copy of which can be found in school.

### **The Role of the Leader**

The Science subject leader will ensure the progress of knowledge and skills is being taught and that this is retained by the children. Themes will continually be revisited so that the learners are able to apply the skills they have been taught to a variety of different settings, showing independence with their learning.

The role of the Science Leader is to:

- To co-ordinate the teaching of Science within the school
- To monitor the use of the policy and medium term plans
- To ensure continuity and progression of teaching and learning throughout the school
- To monitor the impact Science teaching is having on the children's learning through book looks and pupil chats.
- To arrange, in co-operation with the Head Teacher, in-service support, advice and assistance to staff
- To order and maintain resources for in use in each year group

- To provide an action plan, linked to the school's SDP to improve progress and attainment in the subject
- To support staff and inform them of courses and developments in Science following termly subject leader updates.
- To liaise with other leaders when necessary
- To support class teachers in assessment of the subjects, using LEP grids
- To carry out other duties required by the Head Teacher where related to this role
- To provide an annual report to the Curriculum Governor for Science

**REVIEW** This policy will be reviewed annually by staff and governors

**DATE OF NEXT REVIEW** February 2025