

Science at St. John's C of E Primary School



We want to inspire and engage our children through a meaningful, hands-on approach to science which encourages them to question, investigate and make links to the world around them.

We encourage children to be curious and ask questions about the world around them. They will learn through practical meaningful activities that link to real world problems. We expect children draw on prior knowledge from previous year groups to ensure progression of key skills. All children are challenged and supported to ensure misconceptions are addressed and every child makes good progress. Children show respect and resilience when working collaboratively and discuss and share ideas.

To use **BOUNDARIES** to follow safety rules in the lesson.

To be **RESILIENT** when investigations lead you in a different direction.

To be **FOCUSED** so that investigations are carried out accurately.

To **RESPECT** that all ideas are valid and important and working collaboratively.

To **SELF-REGULATE** by understanding things don't always go to plan.

To be **INDEPENDENT** by planning their own investigations.

LOVE exploring, questioning and investigating.

RESPECT our peers by listening to them and working collaboratively.

Show **COURAGE** when faced with new learning and challenges.



Intent, Implementation and Impact Statement

Intent

St John's Primary School's science curriculum aims to ensure that all children are given a strong understanding and of the world around them alongside developing the knowledge, skills and vocabulary to help them to think and work scientifically, ask questions and problem solve.

Progression of both substantive knowledge and disciplinary skills is woven through the entire school with areas of knowledge taught multiple times throughout both Key Stage 1 and Key Stage 2. This ensures that children build upon prior knowledge and vocabulary, supports all children especially those who have had less exposure to scientific concepts and discussion, and helps embed knowledge into the long-term memory.

We want our children to work and think like scientists by:

- Being curious and asking questions about the world around them.
- Learning through practical meaningful activities that link to real world problems.
- Drawing on prior knowledge and vocabulary from previous year groups to ensure progression of key skills.
- Challenging and supporting to ensure misconceptions are addressed and that every child makes good progress.
- Teaching and modelling how to show respect and resilience when working collaboratively and discussing and sharing ideas.
- Linking learning to the uses and implementation of science in the world today in order to engage and excite children and develop the scientists of tomorrow.

In Early Years, children will gain substantive scientific knowledge through the 'Understand the World' Development matters statements and Early learning goals, while also learning valuable disciplinary skills such as asking questions, observing closely and problem-solving skills that will support them in their further science learning in Key stage 1.

Implementation

The National curriculum statutory requirements splits the Science curriculum up into four subheadings or strands:

- Substantive knowledge:
 - Biology
 - Chemistry
 - Physics
- Disciplinary skills:
 - Working scientifically

At St John's, we have a clear scheme of progression for substantive knowledge and disciplinary skills across each year group and key stage. As a Hampshire school, we follow the HIAS Hampshire Learning Journeys which ensures that by breaking down the knowledge and vocabulary and introducing it sequentially, that our children's abilities to make links and draw upon pre-existing knowledge is supported and developed. This means it is more likely that what they are learning, moves into their long-term memory. This leads to a deeper understanding of the concepts taught. The Science Learning Journey units have been carefully ordered to ensure maximum opportunities for progression both within years and across years. CPD and around using the HIAS Learning Journeys and coaching ensures that teachers continue to develop not only a strong subject knowledge but supports with teacher confidence and the understanding of support and challenge in science and effective assessment for learning.

Within Early Years, knowledge of the natural world in line with Development Matters statements leading towards the Early Learning goals are built into our everyday practice. Through child led interests and interactions, we explore the natural world around us together to ensure that every opportunity for high quality learning is maximised. Through the development of our Early Years curriculum, we have ensured that it is spiral based, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning.

When planning science, teachers take into consideration the starting points and prior knowledge of their cohort. This is ascertained in many ways from mini quizzes and discussions to mind maps and the use of pictures. Learning is then planned with this knowledge in mind, using the substantive knowledge from the HIAS learning journeys. Through weekly lessons, substantive knowledge is taught using a variety of approaches, as appropriate for the context. This may be practical and hands on, explicitly taught or by using secondary sources. Problem solving through investigations and tests happens once the children have gained the substantive knowledge. This is key for ensuring that they can apply their knowledge to problems solving, make predictions based on what they know, explain results and is also a key assessment point for teachers.

Impact

The effective planning and teaching of science, which is in line with our knowledge and skills progression and uses the HIAS learning journeys allows us to ensure that pupils have access to an exciting, relevant and challenging curriculum. The adaptation of both starting points and throughout the learning journey means that the needs of our children are met in order for them to make good progress as well as be supported and challenged in their learning. Introducing substantive knowledge, disciplinary skills and vocabulary sequentially maximises progress, ensures that prior knowledge is recapped and built upon and also supports teachers to identify and fill any gaps. This also allows teachers to assess children against the National curriculum expectations for Science.

The impact of continuous CPD for teachers means that strong subject knowledge is developed. Teachers feel more confident to plan and teach engaging and successful lessons where all children make good progress regardless of needs. Teachers are better equipped to identify potential assessment points and plan effective questioning to support and move learning on. Through careful planning, teachers identify and address potential misconceptions quicker. This also leads to better progress across the school.

After implementing the Science curriculum, children should leave school equipped with a range of knowledge and skills to enable them to study Science with confidence at Key Stage 3. We aim to encourage children to be curious about the wider world of science and inspire all children to be eager to continue to develop their scientific skills.

The expected impact of following our Science curriculum is that children will:

- Be curious and ask questions about the world around them.
- Learn through practical meaningful activities that link to real world problems.
- Draw on prior knowledge from previous year groups to ensure progression of key skills.
- Be challenged and supported to ensure misconceptions are addressed and that every child makes good progress.
- Show respect and resilience when working collaboratively and discuss and share ideas.