Creating a community which models, nurtures and aspires to:

CARE – LEARN – THRIVE

Our Federation provides a broad and balanced education that is relevant, engaging and challenging whilst meeting the needs of our pupils. It aims to furnish them with the skills, knowledge and understanding they will need in preparation for their future lives, to be decent, proactive and happy citizens in our local and global community.

SCIENCE AT SANDFORD

At Sandford Primary School we aim to inspire all children's natural curiousity about the world around them and support them to develop the key scientific knowledge and understanding that enables them to think scientifically. We believe that all children make the best progress in Science when they have real-life, exciting and stimulating experiences which help them to understand scientific concepts. Through our development of a rich science environment, children develop their ability to pose questions, observe closely, investigate, communicate and evaluate their findings. This information explains how we approach teaching children scientific skills and knowledge. We hope it helps you understand how we work as a school, and how you as parent can best support your child's learning within these essential areas.

WHAT SCIENCE LOOKS LIKE AT SANDFORD




HOW WE TEACH SCIENCE AT SANDFORD

Here at Sandford Primary, we recognise that Science is an opportunity for pupils to demonstrate curiosity, passion and enthusiasm when exploring and making sense of the world around them. As a result, teachers provide opportunities for children to think scientifically. Science is taught weekly and as part of cross-curricular themes when appropriate, to provide further opportunities to embed learning. We recognise that Science has links with other areas of the curriculum including Geography, English, Maths, Art and Design Technology; children are given opportunities to apply their mathematical knowledge, for example, which can include collecting, presenting and analysing data.

The programme of study shows a sequence of scientific knowledge and concepts. It is extremely important that children develop a secure understanding of each key block of knowledge in order to successfully build upon their learning and progress onto the next stage with secure scientific investigative understanding threaded throughout. Pupils are immersed in scientific environments that support them to describe associated processes and key characteristics using appropriate language. Within these language-rich environments, children are exposed to scientific ‘expert’ terminology and vocabulary, which they continue to build upon throughout their primary years.

SCIENCE IN IN THE EARLY YEARS

We teach Science in the Foundation Stage as an integral part of the topic work covered during the year. As our Foundation Stage cohort is part of a mixed year class with Year 1 pupils, we relate the National Curriculum scientific aspects of the Year 1 children's work to the objectives set out in the Early Learning Goals (ELGs), which underpin the curriculum planning for our youngest children. Science makes a significant contribution to the objective in the ELGs of developing a child's knowledge and understanding of the world. This is further enhanced through the use of our outdoor pond area - which allows children the opportunity to experience seasonal change, plants, animals and their habitats - role play and visitors in school to help link key science concepts to everyday life.

SCIENCE IN KEY STAGE 1

In KS1 children continue to build on their learning from EYFS. Progression across KS1 in science is outlined by the National Curriculum (2014). In order to develop scientific learning opportunities, teachers use a range of resources and planning documents including science boxes for each science topic, ASE Plan resources, Twinkl science, STEM and Explorify. This is alongside skilful discussions and questioning to probe deeper thinking. Teachers adapt these planning tools to ensure lessons are tailored to suit the needs of their children and through this personalised approach make science an engaging subject. Working scientifically, can be seen through an investigative approach whereby children explore a Key Question posed.

SCIENCE IN KEY STAGE 2

In KS2, children continue to develop and refine their scientific skills and knowledge and understanding of more complex concepts. As above, teachers use a wide range of resources, tailored provision and skilled questioning to probe deeper thinking. In relation to working scientifically, children explore more scientific methods of testing, recording and evaluating which leads to a more precise systematic approach to investigating scientific concepts.

As we are in mixed-year classes, all pupils will revisit some scientific concepts in **one** of their Key Stage 2 classes. This provides them with the exciting opportunity to take a project-based approach, where they can research and build on current understanding gained from the previous year and gain a deeper understanding, whilst using a variety of key learning skills. For example, in Class 5, pupils who spend a second year in this class are asked to produce their own project to prove who made the most significant discovery, Newton or Archimedes, building on their work about Forces the previous year. Further, in Class 3, pupils spending a second year in this class study and respond to the question 'Which are more useful to the food chain: predators or prey?' This deepens both their knowledge of Animals including Humans unit of work, and their language and communication skills through presenting their findings to the rest of the class.

WORKING SCIENTIFICALLY IN SCIENCE

A key element of science is ‘working scientifically’. Children have the opportunity to develop these skills from Foundation Stage through to Year 6. In Foundation Stage, children work scientifically through exploring scientific concepts, observing closely, noticing patterns and verbally evaluating in discussion with teachers and peers. Throughout KS1, children continue to build on these skills and progress onto identifying and classifying, using their observations from simple tests to suggest answers to questions, gather and record data to help in answering questions through first-hand and secondary sources. In KS2, children continue to develop and refine their scientific skills and begin to apply more complex concepts such as, fair and comparative testing this leads to more detailed recording, evaluating and presenting of data through a systematic and scientific approach.

HOW WE ASSESS SCIENCE

Assessment for learning is continuous throughout the planning, teaching and learning cycle within science. We use key assessment tasks to assess topics covered. This encompasses a key question which enables children to fully explore a concept from the content taught and also enables teachers to assess understanding and their ability to demonstrate their working scientifically skills. We also assess children’s work in science by making judgments as we observe children during lessons, through skilful questioning, reflecting on written work through discussion with children and when appropriate, scribing responses so that children can demonstrate their scientific understanding, this breaks down barriers for children who find recording difficult. In Years 2 and 6, teachers are required to use teacher assessment to formally assess whether children demonstrate a ‘secure’ understanding of key scientific concepts this evidence base is taken from children’s learning throughout each key stage. In order to moderate judgements, we use the ASE PLAN documentation to provide worked examples of children exemplifying a child ‘working at the expected standard’ within each year group. At the end of each year, teacher’s make a formal comment on each pupil’s progress in science on their end of year report. Assessment in Science is based upon scientific knowledge and understanding, rather than achievement in English or Mathematics. In the Foundation Stage, we assess children’s knowledge and understanding against the key indicators identified within the EYFS understanding the world criteria.

How Parents and Carers can help their children with Science

A child’s life outside of school can have a huge impact on their ability to retain the knowledge they learn in school. As parents and carers, you are in the best position to encourage and nurture your children's natural interest in Science.

It is to you that they pose their first scientific questions and engage in scientific enquiry. Practically, some of the best ways to support your child in science is to work alongside them, show enthusiasm and to explore with them. Be active in their learning. Take time to explore areas of interest such as going on a nature walk; going on a bug hunt; making a rocket or floating and sinking objects in the bath.

Make use of the world around you as this will help children to make connections and develop an ‘awe and wonder’ of the world, which is integral to building a good scientific learning attitude.

Other things you can do:

- Share your passion of the world – get out in nature; and explore the world around you, don’t worry if you can’t answer all the questions, use this as an opportunity to research together.
- Read newspapers and science magazines, that allow your child to research about things they are interested in; National Geographic for children is a child friendly way of reading and researching that help children recognise that science is all around them.
- Visit places like the Science History Museum, The Wild Place or The Eden Project to find out more about the world we live in.

HOW WE CELEBRATE SUCCESS IN SCIENCE

Here at Sandford, we recognise the importance of celebrating the successes of children and their learning in science. Furthermore, we strive to break stereotypes and actively encourage girls and minorities to enjoy STEM subjects, whilst educating all of our pupils about the many incredible achievements of female and black scientists across history. A science focus is celebrated as part of our Celebration Assemblies, children can celebrate and join in fully with the learning of their peers. In class, our science displays enable celebration of the work undertaken by our children. On occasion, teachers will also feel certain pieces of work or a child’s scientific skills or attitude deserve special recognition, therefore they may have recognition from their Crew team members, Science Lead, Head of School or even the Executive Headteacher, linked to the school’s learning powers. With permission, we may use the school website or Class Dojo to celebrate the work undertaken in science.