Subject on a page: Science

At Hollywell Primary School, we encourage children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes.

Intent – we aim to...

- To build on children's natural curiosity and inspire them to observe, question and draw conclusions about the wider world.
- To provide children with an enjoyable experience of science so that they will develop a deep and lasting interest.
- To help children develop the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- To enable children to become effective communicators of scientific ideas, facts and data.
- To help children gain an understanding of scientific processes and facilitate the acquisition of practical scientific skills.

Planning and implementation: How do we achieve our aims?

Science teaching at Hollywell Primary School is about excellence and enjoyment. Science lessons are planned in order to inspire children, encourage them to develop a thirst for knowledge and an understanding both of themselves and their environment. Science is all around us and it is essential that children develop an enquiring and creative mind.

Physics Biology Chemistry Scientific enquiry

Planning and teaching

A whole school approach

Science is taught as a discrete subject in planned and arranged topic blocks. Those are clearly sequenced and follow a progressive programme of study based on National Curriculum objectives. We believe that this project-based approach will enable the achievement of a greater depth of knowledge.
Teachers ensure that science planning builds upon the knowledge and skills development of the previous years as well as preparing the children for the next step of their science journey.

The wider curriculum

Although Science is taught mostly as a discrete subject, it is directly linked to the programmes of study for English, Mathematics and Computing. In addition to this, the staff at Hollywell Primary School strongly believe that all children should be given the opportunity to enrich their cultural capital This is achieved by offering the children a wide range of extra-curricular activities including trips to places of interest and visitors in school to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
Motivating and hands on activities as well as regular events, such as British Science Week and timetabled GROWTH enrichment including Forest School , allow all children to broaden and consolidate skills and knowledge in the wider world.

Celebrating curiosity

Planning involves teachers creating engaging lessons, involving high-quality resources to aid understanding of conceptual knowledge. Detailed knowledge mats including key vocabulary are shared with the children at the beginning of each unit. Retrieval is an integral part of each science lesson and often involves low stakes quizzes in order to consolidate and assess prior learning. Lessons offer problem solving opportunities which allow children to apply their scientific knowledge and find out answers for themselves. Children are encouraged to ask their own questions and they are given opportunities to use their scientific skills and research strategies to discover the answers.

Working scientifically

Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics. Scientific Knowledge, Conceptual understanding and Scientific Enquiry are incorporated within each unit of work.

An inclusive curriculum

At Hollywell Primary School, we encourage all learners to do their best. Our Science curriculum is designed and adapted so that it is accessible to all including children with special educational needs, those with disabilities, those learning English as an additional language (EAL) as well as those with special gifts ad talent. For example, additional resources are provided to aid investigations and verbal or alternative methods of recording are offered to those unable to articulate their understanding and observations in writing.

The Science curriculum

Early Years Foundation Stage

Children explore science topics through making predictions, using their senses, learning how to care for the environment and investigating materials and their properties. Science is taught through the strand of 'Understanding the World'. Science teaching and learning is also linked to the other strands of The EYFS Development Matters 2020.
Teachers and teaching assistants support children to develop a sound understanding of what is occurring around them in their day-to-day lives. Children are encouraged to be creative and inquisitive as they participate in activities both indoors and outdoors. They are offered opportunities to use their natural inquisitiveness, while taking part in exploratory play in specific scientific areas as well as areas linked to the EYFS framework.

Key Stage 1

Children observe, explore and ask questions about living things, materials and the world around them. They begin to work together to collect evidence to help them answer questions, find patterns, classify and group objects, research using a variety of sources and carry out fair testing. Children use reference materials to find out more about scientific ideas. They share their ideas and communicate them using scientific language, drawings, charts and tables. Most of the learning in science is done through the use of first-hand practical experiences, but appropriate secondary sources such as books, photographs and videos are also used. They also draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Lower Key Stage 2

The main focus of Science teaching in Lower Key Stage 2 is to enable children to broaden their scientific view of the world around them. They do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions.
The children are encouraged to ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information.

Upper Key Stage 2

The main focus of Science teaching in Upper Key Stage 2 is to enable children to develop a deeper understanding of a wide range of scientific ideas. They do this through exploring and talking about their ideas, asking their own questions about scientific phenomena as well as analysing functions, relationships and interactions more systematically.
At this stage, the children encounter more abstract ideas and begin to recognise how these help them to understand and predict how the world operates. They also begin to recognise that scientific ideas change and develop over time.
Children are involved in selecting the most appropriate ways to answer Science questions using different types of scientific enquiry such as observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out fair tests and finding things out using a wide range of secondary sources of information. Children are asked to draw conclusions based on their data and observations, to use evidence to justify their ideas, and to use their scientific knowledge and understanding to explain their findings.

Inspiration

Assessment

How and when?

At Hollywell Primary School, we believe that assessment starts by involving pupils in discussing learning objectives and criteria for success. Children's scientific knowledge and understanding is assessed continuously through questioning, discussion and observation during lessons, both verbally and in written form. Summative assessment also takes place during retrieval practice activities at the beginning of each lesson. Focused assessment takes place at the end of each unit with the children completing POP tasks. Teachers use assessment to advance pupils' learning by adapting the pace, challenge and content of activities but also by providing time for children to reflect on and assess their own work. Working scientifically skills are mostly assessed through observations.

Impact

Children understand the role of science in their life. Science matters!

Children are inquisitive learners: they think independently, they raise questions, they carry out investigations, they solve problems and draw conclusions.

Children are confident learners: they have the confidence to use a wide range of equipment and accurate scientific vocabulary.

Children are active and resilient learners: they enquire and explore and test their ideas against evidence.

Children are adventurous learners: they take part in intellectual challenges, risk taking and speculation to develop their scientific understanding.

Children are successful learners: outcomes for Science at the end of each Key Stage is in line or above national average.