CARE

Care, Aspire, Respect, Excel

Science

at

Winscombe Primary School

Science at Winscombe

Our vision at Winscombe is for teaching of science to encourage children to think deeply about the world around us and to be inquisitive learners and explore their understanding of why things happen the way they do. Through exciting and engaging teaching we invite the children to question their understanding whilst embedding the importance of being inquisitive and questioning everything they encounter. We strive to have a science curriculum that excites the children and encourages them to want to know more in order to deepen their understanding. Within a rich science environment children develop their ability to pose questions, observe closely, investigate, communicate and evaluate their findings. They are given the opportunity to find things out for themselves in order to deepen their understanding. At Winscombe we are ambitious in our teaching of science so that the children can thrive. Our caring attitude encourages the children to know that they can achieve.

What science looks like at Winscombe

How we teach science.

The science curriculum uses an enquiry approach, which encourages the children to think for themselves and to deepen their understanding of science by questioning what they already know and what we can find out together. Teachers focus on scientific thinking skills and use the natural inquisitive nature of children, encouraging them to deepen their understanding through experiments. Children are given the opportunity to plan and build their own experiments in order to answer questions they have on the given topic. Children will reflect on their learning and learn through what they have discovered.

Science is taught as a discrete lesson through block teaching 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. The programmes of study follow a sequence of scientific knowledge and concepts. It is extremely important that children develop a secure understanding of each key block of knowledge and concepts in order to successfully build upon their learning and progress onto the next stage with a secure scientific understanding. Pupils are immersed in scientific environments that support them to be inquisitive within these language rich environments children are exposed to scientific

terminology which they continue to build upon throughout their time at Winscombe.

Science in Early Years

We teach science in the reception class 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 Learning Goals (ELGs), which underpin the curriculum planning for children aged three to five. 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 Forest School area which allows children the opportunity to experience seasonal change, plants, animals and their habitats.

Science in Key Stage One

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 key science boxes for each science topic; Twinkl science; Hamilton Trust, 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 Two

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. Children are given a greater opportunity to think and investigate for themselves by designing experiments from start to finish based on what they want to know while linking this to the national curriculum objective.

Working Scientifically in Science

A key element of science is 'working scientifically'. Children at Winscombe have the opportunity to develop these skills from Foundation Stage right 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 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 make science exciting and motivating for our children

Science, as a core subject, has a significant place within the curriculum planning and delivery; we are passionate about ensuring that all science lessons are exciting and engaging. By sharing our passion with the children we encourage them to use a hands on investigation approach to excite them as well as to motivate them to want to know more. We explore the way science has shaped the world around us and how it will go on to impact on our future, we encourage the children to want to use their scientific knowledge to make improvements in the world today.

We ensure that all children have access to high quality educational visits linked with their science learning, examples of this include visits to 'We the Curious' (Bristol Science Museum) and inviting real scientists in to school to undertake workshops with children. We also carefully consider and select high quality resources and materials.

Additionally, the use of high quality resources ensures that children can undertake scientific experiments, which lead to further skills in analysis, questioning, drawing conclusions and writing up a report to share their results with others. Children also have access to laptops and iPads to research using appropriate websites. This approach ensures that children are motivated and engaged with science by allowing them to experience things first hand; gain insight, knowledge and understanding of key scientific concepts; build upon their ability to work independently and as a team and through self-discovery.

The curriculum coordinator also ensures writing outcomes are linked clearly to Science topics, ensuring a breadth and depth of high quality responses are able to be created in all subjects. Work is celebrated on the walls, via the school website and shared with parents through class dojo.

Importantly, linking to current research, writing and other outcomes are given a purpose, e.g. to write up an investigation and share their findings with peers, which is not only motivating, deepens their understanding of scientific concepts, but is essential in engaging our children with their learning. Another important aspect of our provision is access to high quality texts that allow all children at differing levels to access additional information and engage with topics and themes.

At Winscombe we fully immerse the children in science during 'Science Week' where we spend the week investigating and discovering the world around us. All classes get involved in a real world problem that we need to investigate, in recent years this has included an environmental issue. This is supported by STEM encouraging more children to enjoy science and shaping the future scientists.

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.

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. In the Foundation Stage, we assess children's knowledge and understanding against the key indicators identified within the EYFS understanding the world criteria.

How we help children who find science difficult

Children who find science difficult are supported in a variety of ways. Resources are differentiated to suit the needs of the child, worksheets are adapted where required and knowledge organisers used to support understanding. Knowledge organisers include key vocabulary and are created and shared with identified pupils prior to the learning taking place. These not only contain key vocabulary, but core concepts too. As with all children, first quality teaching from the class teacher is used as an important tool in ensuring the gap in attainment is lessened. As such, all class teachers operate a 'hug closely' group for children who have been identified as requiring additional support in achieving their learning outcomes. More broadly speaking, common practices applied by our classroom teachers and teaching assistant would be:

- setting common tasks which are open-ended and can have a variety of responses

- giving more time to complete tasks.

- setting tasks of increasing difficulty. Not all children complete all tasks;

- providing resources of different complexity depending on the ability of the child

- using classroom assistants to support children individually or in groups.

At the point where a child is unable to demonstrate progress in this area, a conversation with the SENDCO would take place. Please see the SEND

policy and the schools graduated response forms for further information on when a child requires additional support because there is a significant gap in their learning.

How parents and carers can help

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 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.

How we celebrate science

At Winscombe we recognise the importance of celebrating the successes of children and their learning in science. 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, with a head teacher's certificate being presented for this. This is always in recognition of effort and endeavour, alongside the application of the school's learning powers. Exciting science discoveries are shared with parents using class dojo.