



Reviewed: May 23

To be reviewed: May 25

Rationale

Science should both stimulate and excite pupils' curiosity about phenomena and the world around them. It should also satisfy such curiosity with knowledge and, in turn stimulate more thirst for such scientific knowledge. Scientific enquiry skills should be taught alongside conceptual knowledge, so that children are able to investigate, assess and explain the world around them confidently.

Through Science, pupils understand how major scientific ideas contribute to technological change – both in the present, in the past and also in the future. They can learn how such changes impact and have impacted industry, business and medicine and the overall quality of life that these changes and discoveries can bring.

Children also learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world as a whole.

At Kirk Smeaton, we believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability. We also believe that exposing our children to the successes of a variety of famous scientists and inventors from such diverse cultural and ethnic backgrounds can help to further enhance their own knowledge, confidence and enjoyment of the subject as a whole.

Teachers will ensure that all our children are exposed to high quality teaching and learning experiences. These will hook the children's interest, enabling them to develop a sense of excitement and curiosity about natural phenomena. They will be encouraged to ask questions about the world around them and work scientifically to further their conceptual understanding and scientific knowledge.

Children will be encouraged to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes. It will provide opportunities for the critical evaluation of evidence and rational explanations, as well as opportunities to apply their mathematical knowledge to their understanding of science. Children will be immersed in key scientific vocabulary, which supports in the acquisition of scientific knowledge and understanding.

All children will be provided with a broad and balanced science curriculum that provides the opportunity for progression across the full breadth of the science national curriculum for EYFS, KS1 and KS2.

Overall Aims

We at Kirk Smeaton will aim to:

- Deliver the Science Programmes of Study of the 2014 National Curriculum and meet the Early Learning Goal which focuses on Understanding the World;
- Alongside the teaching of conceptual understanding of the science topics in the National Curriculum, we will also ensure that all children are given opportunities to work scientifically themselves by providing opportunities for them to develop and use their scientific enquiry skills;

- Ensure that science lessons are imaginative, purposeful, well managed and enjoyable. We will do this through providing a balance of practical and theoretical lessons designed to stimulate and engage their curiosity;
- Make links between science and other curriculum subjects wherever possible (researching using secondary sources, mathematical links, IT etc);
- We will also ensure that all science learning taking place in all year groups will follow a logical progression which will take them right to their entry into secondary school;
- Develop links with other local school, including secondaries, in order to share good practice and further ensure quality learning and progression.

Objectives

Our overall aims will be addressed through the following:

- Fostering concern about and active care for our environment – both locally and world-wide;
- Helping our children to acquire a growing understanding of scientific ideas and concepts;
- Preparing our children for life in an increasingly scientific and technological world;
- Developing our children’s understanding and appreciation of the international and collaborative nature of science;
- Ensuring the development of positive attitudes towards, and enjoyment of science;
- Building on their natural curiosity and helping them to develop a scientific approach to problem solving enquiry;
- Encouraging open-mindedness, self-assessment, perseverance, responsibility and an attitude of resilience;
- Building our children’s self-confidence to enable them to work increasingly independently;
- Developing their social skills to work cooperatively with others;
- Providing our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and motivation to study science further in the future;
- Giving our children a secure understanding of scientific processes;
- Helping them to acquire practical scientific skills;
- Developing the skills of investigation through opportunities to use the 5 main scientific enquiry skills (research, comparative and fair testing, observing over time, pattern-seeking and identifying, classifying and grouping);
- Providing opportunities to use other investigative skills, such measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating;
- Developing the use of scientific language through recording, researching and explaining;
- Enhance their scientific knowledge and understanding through the use of ICT in science and its cross-curricular links;
- Enabling our children to become effective communicators of scientific ideas, facts and data;
- Encouraging our children to be evaluators of their own learning journey, through the use of Unit Overviews, which children can use to assess their own understanding of each topic;
- Encouraging children to develop and embrace a healthy lifestyle;
- Facilitate opportunities to understand the world around us through outdoor learning and visits wherever possible.

Structure

- Planning for science teaching is a process in which all teachers are involved to ensure that the school gives full and progressive coverage of the National Curriculum and Science in the Foundation Stages. Science teaching and learning in our school is about excellence and enjoyment. We adapt and extend the national curriculum to match the unique circumstances of our school and environment. Our planning is based on an eclectic approach;
- Teachers are supported and guided by both the Head and Science Lead, to ensure that they are confident in both their knowledge and their abilities to impart this knowledge. We use 'Planbee' as a basic structure for our topic coverage and staff use this as a basis for their medium term planning. Other tools are also used and shared. We subscribe to 'PZAZ' – a scheme which is not prescriptive, but innovative and can be used to enhance teacher knowledge and ideas as well as providing videos, investigation links and suggestions for teaching. We also embed the use of 'Explorify' and 'The Natural Curriculum' which ensure cross-curricular links to science teaching are embedded within our school;
- Links with other local primary schools and secondary schools are established and used in order to ensure high quality teaching and learning and the sharing of ideas and knowledge are utilised to enhance our school's provision in science;
- All teachers teach science through a combination of discrete science lessons and a more thematic, topic based approach. Particularly in KS2, science is sometimes taught during a maths lesson, PHSE sessions and specifically in terms of researching and presenting information, through English and ICT.

Inclusion

Science is taught within the guidelines of Kirk Smeaton's inclusion policy:

- We ensure that all our children have the opportunity to gain scientific knowledge and understanding, regardless of religion, gender, race, class and physical or intellectual disability;
- Our expectations for our children do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias;
- We aim to teach science in a broad local, global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds;
- We value science as a vehicle for the development of language and mathematical skills, and we encourage our children to talk and record constructively about their scientific experiences;
- We recognise the particular importance of first-hand experiences for motivating all children and in particular those with learning difficulties;
- We understand that science may strongly engage our gifted and talented children, and we aim to embrace this and to both challenge and extend such children;
- We exploit science's special contribution to the development of children's curiosity and creativity and we develop this by asking and encouraging challenging questions and original thinking – we ensure all children have a voice and can express opinions and ask questions.

Assessment and recording in science

- When beginning new science topics, we try to start where the children are at. This means an assessment of what they already know and any prior learning. We also use this as an opportunity to address any misconceptions in our future teaching. In most classes, particularly KS2, this is

undertaken by utilising a 'beginning of unit quiz', or by children having the opportunity to fill in KWL (What I think I know, what I want to find out and latterly, What I have learned) grids;

- We use AFL (Assessment for Learning), where children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve;
- We have a positive marking policy, making it clear either verbally, or on paper, where the work is good and how it could be further improved. We use support staff to aid lower ability children and also to enable mixed ability groupings in many science based tasks and experiments. Where reading and writing is an issue, we also ensure that these factors are not limiting where science learning is concerned. Tasks for such pupils can be undertaken with adult support, and by using speaking and shared writing strategies so that all pupils are given a voice and can express their knowledge and opinions;
- We have a tracking system which takes into account both the conceptual National Curriculum objectives and the working scientifically skills. These are completed and updated at the end of each science unit (usually each half term). The school's science coordinator monitors progress through the school by analysing this data and giving feedback regularly;
- We have regular monitoring sessions. The science coordinator and the Head will sample children's work through book looks, pupil voice discussions, photographic evidence placed on dojos and teacher discussions. Much of this is informal and is used to enhance and further teaching and learning throughout school;
- We make use of staff meetings to pass on CPD in science with the coordinator and the Head regularly and also use such times to facilitate whole school discussion, share ideas and good practice and highlight any issues/problems;
- Reports to parents are given face to face each term and written once a year, and these describe each child's attitude to science, his/her progress in conceptual and scientific understanding;
- Parents are also kept informed via our dojo system. Practical science activities are shared regularly on the platform and also serve to provide evidence of teaching and learning where written evidence is not appropriate.

Health and Safety

- Risk Assessments are carried out for any activities which are outside the usual remit of primary school science;
- We also ensure the information in the 'Be Safe' ASE Education guidance is adhered to.