

Withnell Fold School



Science Policy 2024-2025

Introduction/Rationale

Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills.

We believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability.

Each pupil of Withnell Fold School has regular access to science appropriate to their age and stage of development. Emphasis is given to this as a core subject.

Our aims in teaching science include the following:

- Preparing our children for life in an increasingly scientific and technological world.
- Fostering concern about, and active care for, our environment.
- Helping our children acquire a growing understanding of scientific ideas.
- Helping develop and extend our children's scientific concept of their world.
- Evaluating their work and drawing conclusions from it.
- Developing our children's understanding of the international and collaborative nature of science.

Objectives of the Curriculum

Children will be taught a range of knowledge of skills in EYFS and both Key stage 1 and Key stage 2. As detailed in Curriculum 2014.

In brief:

EYFS

The Foundation Stage deliver science content through the 'Understanding of the World' strand of the EYFS curriculum. This involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment. Children in EYFS also carry out practical investigations and experiments. They are assessed according to the Development Matters attainment targets.

Science in Years 1 & 2 is taught as a 2 year rolling programme, including the following topics;

- Plants
- Animals including humans
- Everyday Materials
- Seasonal Changes
- Living Things and their Habitats
- Plants
- Animals including Humans
- Uses of Everyday Materials

Science in Years 3&4 is taught as a 2 year rolling programme, including the following topics;

- Plants
- Animals including Humans
- Rocks
- Light
- Forces and Magnets
- Living things and their Habitats
- Animals including humans
- States of matter
- Sound
- Electricity

Science in Years 5 & 6 is taught as a 2 year rolling programme, including the following topics;

- Animals including Humans
- Properties and changes of Materials
- Earth and Space
- Forces
- Living things and their Habitats
- Animals including Humans
- Evolution and Inheritance
- Light
- Electricity

Working Scientifically

Within our learning we aim to be as practical as possible. Investigating, exploring and testing are just some of the skills we use to work scientifically and learn. Some of the ways in which we work Scientifically across school are:

EYFS /KS1

- We question why things happen
 - We notice differences and similarities
 - We have our own ideas
 - We use our senses and look closely
 - We create representations of people and objects
 - We test our ideas
 - We talk about science subjects such as animals or natural / human made objects
 - We use equipment and tools
-
- We recognise that questions can be answered in different ways
 - We ask simple questions

- We observe closely
- We perform simple tests
- We compare things then sort / group them
- We use scientific language
- We gather and record simple data in different ways
- We talk about what we have found out
- We use simple equipment to make measurements

Lower KS2

- We ask our own questions and use different ways to answer them
- We set up our own simple tests
- We gather, record, classify and present data in different ways including drawings, labelled diagrams, bar charts, keys or tables
- We draw simple conclusions and make predictions
- We use relevant scientific language
- We make careful observations
- We use different equipment to measure accurately in standard units
- We explain what we have found out in speaking or writing
- We suggest improvements and raise further questions

Upper KS2

- We ask different types of questions
- We use relevant scientific language and illustrations
- We plan different types of scientific enquiries to answer questions
- We report and represent findings using speaking and writing, including displays and presentations
- We can set up fair tests when necessary
- We decide what observations and measurements to make
- We use results to make predictions and set up more tests (including fair tests)
- We decide how to record data and results. We can use scientific diagrams, labels, classification, keys, tables, scatter, bar or line graphs
- We use different scientific equipment to measure with precision
- We take repeat readings when appropriate

Equal Opportunities

- We ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, class, physical or intellectual ability.
- Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.
- We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.
- We draw examples from other cultures, recognising that simple technology may be superior to complex solutions.
- We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences.
- In our teaching, science is closely linked with literacy and mathematics.
- We recognise that science may strongly engage our gifted and talented children, and we aim to challenge and extend them.
- We exploit science's special contribution to children's developing creativity; we develop this by asking and encouraging challenging questions and encouraging original thinking.

Methodology / Planning, Continuity and Progression

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of National Curriculum Science and science in the Foundation stage. Science teaching in the school is about excellence and enjoyment. We adapt and extend the curriculum to match the unique circumstances of our school.

At Withnell Fold we are using the LPDS Scheme. KS1 and Foundation stage teachers should be teaching science for a minimum of one hour each week.

KS2 teachers should be teaching science for a minimum of two hours per week.

In KS 1/Foundation stage, a minimum of one third of lessons overall should include practical scientific enquiry.

In KS 2, a minimum of 50% of lessons overall should include practical scientific enquiry.

The school follows the National Curriculum for Science and uses a range of creative ideas from a variety of sources. The ideas are taken from the Lancashire planning tool, from which, Withnell Fold has created a rolling program to ensure coverage, experience and applying of a range of scientific skills. The objectives are taken from the National Curriculum and from the interim frameworks.

Teachers are expected to select, adapt and modify the model plans and suggested ideas to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

Teaching and Learning Style

Progression through the key stages is ensured by an attention to a variety of teaching and learning styles:-

- ✓ Using teaching approaches appropriate to different learning styles.
- ✓ Using, where appropriate, a range of organisational approaches, such as grouping or individual work.
- ✓ Varying subject content and presentation to match learning needs.
- ✓ Planning work which builds on pupils' interests and cultural experiences.
- ✓ Planning appropriately challenging work according to oral, as well as written, ability and understanding.
- ✓ Using materials which reflect social and cultural diversity and provide positive images of race and gender and disability.
- ✓ Planning and monitoring the pace of work so that all pupils have a chance to learn effectively and achieve success.

Our Approach to Science

The essential elements describing how science is taught in our school are described below.

- ✓ We use Computing widely in science. Children are given the opportunity to practice science skills and enhance their presentation using carefully chosen software.
- ✓ We use Computing for enquiry work, including microscopes, digital cameras, voice recordings, video capture of images and activities, and data logging.
- ✓ We have planning and investigation templates which teachers use with the children to teach the process of these skills.
- ✓ We use **concept cartoons** as a way of challenging children's understanding of key topic areas or key skills. They may be used in a variety of ways such as individual assessment, group conversations, an extended writing opportunity, creating an interest in a lesson / topic, etc.
- ✓ Other resources include subscription websites, a wealth of books with interactive cd's for the whiteboard and teachers own favourite resources.
- ✓ The school combines these secondary sources with first-hand scientific enquiry and practical activity to build children's enthusiasm and knowledge in science skills.
- ✓ We encourage children to ask and answer their own questions as far as practicable.

Key Skills

The teaching of science provides opportunities for pupils to develop the key skills of:-

- ✓ Giving our children an understanding of scientific processes.
- ✓ Helping our children to acquire practical scientific skills.
- ✓ Developing the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- ✓ Developing the use of scientific language, recording and techniques.
- ✓ Developing the use of Computing in investigating and recording.
- ✓ Enabling our children to become effective communicators of scientific ideas, facts and data.
- ✓ Application of number, through collecting, considering and analysing first-hand and secondary data.
- ✓ Improving own learning and performance, through reflecting on what they have done and evaluating what they have achieved.
- ✓ Problem solving, through finding ways to answer specific questions with creative solutions.
- ✓ Taking in to account any health and safety issues
- ✓ Relating the work we have done in school to real life.

Differentiation

Differentiation will take place in order to meet the needs of all children within the school in their science work.

The Science rolling program is carefully structured to ensure progression throughout the school so that children learn through a variety of experiences.

Individual teachers will plan their lessons with the needs and interests of each of the children in mind. Activities may differentiate in structure, or by outcome. In mixed-age classes, opportunities will be given to stretch all abilities and ages, wherever possible. This may include revising work from the previous key stage and accessing higher levels of study.

Special Educational Needs

Staff will take specific action to provide access to learning for pupils with special educational needs by:-

- ✓ providing for pupils who need help with communication, language and literacy in science, e.g. use of ICT.
- ✓ liaising with representatives of agencies who may be supporting the pupil.
- ✓ differentiating tasks and materials, consistent with school-based intervention, as set out in the SEN Code of Practice, or with a statement of special educational need.

Health and Safety

- ✓ Children are taught to recognise that there are hazards in living things, materials and physical processes, and assess risks and take action to reduce risks to themselves and others.
- ✓ Staff are aware of the school health and safety policies.
- ✓ Appendix CLEAPSS "Model Health and Safety Policy for Science in Primary Schools"
- ✓ available on the server in teachers folder, curriculum risk assessments in the science folder.
- ✓ Risk assessments for some equipment are available on the network for staff to refer to.

SUPPORT STAFF

Teaching assistants and helpers will work under the direction of the class teacher. Their input is invaluable and will help the teacher to plan and carry out differentiated tasks.

Role of the Subject leader

- ✓ To work together with members of staff to plan a rolling programme of units of work which match the requirements of the National Curriculum.
- ✓ To review the programme as part of an on-going process, taking into account any changes in the requirements.
- ✓ To suggest how to incorporate Working Scientifically requirements into the scheme of work - KS1 and KS2. To monitor this and give support where necessary.
- ✓ To review and update the science policy when required.
- ✓ To review and update the rolling programme when required.
- ✓ To suggest and order resources.
- ✓ To prepare development plans in line with the School Development Plan.
- ✓ To lead staff meetings, INSET activities, give advice and in-class support, when required.
- ✓ To monitor the development of science throughout the school through observation of planning, teaching and children's work.
- ✓ To report to Governors when required, through written report as per S.D.P.

There will be opportunities given for professional development of the co-ordinator as appropriate, including:-

- ✓ Working with all age groups within school when release time allows.
- ✓ Personal reading and attendance on courses.
- ✓ Opportunities to visit other schools.
- ✓ Access to external INSET/Advisory Teachers

Assessment

Attainment in science is assessed by making judgements on the children's knowledge of concepts, skill understanding and ability to apply what they have learned in a variety of situations. Judgements are made on how well the children show they have understood a particular topic and if they can relate this to something else in their life. Also their ability to think scientifically and suggest a way to find something out ie: suggest a question that can be investigated and suggest an investigation that will give an outcome. Their knowledge and understanding is measured against 'Age Related Expectations' and 'Working Scientifically' grids which are hierarchical.

Teachers will use informal assessments as well to inform their planning.

The school uses the LPDS foundation / core subject materials along with the Interim frameworks. Teacher assessments are made each term and the information is passed on to the head teacher and the science co-ordinator in order to track pupil's progress and standards.

Reviewed – September 2024

Next review – September 2025