GREAT SANKEY PRIMARY SCHOOL

Science Policy

'Together We Learn and Grow'

Curriculum Intent

Science stimulates, excites and satisfies pupil's curiosity about phenomena and events in the world around them. Since science links direct practical experience with ideas, it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modelling. Through our Science curriculum, we want pupils to learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

Aims:

At Great Sankey Primary School, we believe that Science is a body of knowledge built up through the experimental testing of ideas. We believe Science is a practical way of finding reliable answers to questions we may ask about the world around us. In our school, Science is about developing children's ideas and curiosity, and working with them to make sense of the world in which they live, both through investigation and 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.

Our aims in teaching Science include the following:

• Preparing our children for life in an increasingly scientific and technological world today and in the future
• To foster in children an interest in the natural world and to develop an understanding that enables them to enjoy all that science has to offer
• To enable children to know about significant discoveries in science and to appreciate how things have changed over time
• To develop their skills of cooperation through working with others
• To encourage children to raise questions and learn how to investigate these using both first-hand experience and secondary sources
• To encourage children to treat the living and non-living environment with respect and sensitivity
• To have some knowledge and understanding of scientific developments in the wider world
• To help children recognise and assess risks and hazards to themselves and to others when working with living things, materials and electricity and to take action to control them;
• To develop in children, the skills of enquiry, investigation, analysis, evaluation and presentation

Implementation - Our Science Curriculum:

EYFS:
In our Early Years Foundation Stage, children follow the designated curriculum. Science is taught through the strand of, 'Understanding the World'. Science teaching and learning is also linked to the other strands of the EYFS framework for learning. Teachers and teaching assistants support pupils to develop a solid understanding of things occurring around them in their day-to-day lives. Children are encouraged to be creative and inquisitive as they participate in activities. Pupils are encouraged to use their natural inquisitiveness, while taking part in exploratory play in specific scientific areas as well as areas that link across the EYFS framework.

Key Stage One (Year 1 and 2):

In Key Stage 1, pupils 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 and carry out fair testing. Pupils use reference materials to find out more about scientific ideas. They share their ideas and communicate them using scientific language, drawings, diagrams and tables. Science lessons in Key Stage one are either taught discretely or where possible connected to other curriculum areas. Pupils often use the outdoor areas in their science learning.

Key Stage Two: (Years 3 - 6):
In Key Stage 2, pupils learn about a wider range of living things, materials and physical processes. They make links between ideas and explain things using simple models and theories. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things as well as their personal health. They think about the effects of scientific and technological developments on the environment and in other contexts. They carry out more systematic investigations, working on their own and with others. They use a range of reference sources in their work. They talk about their work and its significance, using a wide range of scientific language, conventional diagrams, charts, graphs and ICT to communicate their ideas.

Planning:

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of 'The National Curriculum' and 'Understanding the World' in the EYFS Curriculum. Our curriculum planning is in three phases – long term, medium term and short term across two cycles as we are a 1.5 class per year group primary school. The long term plan maps the science learning topics to be covered in each term during each phase on each cycle. The medium term planning is set out in our Milestone Documents which outline the National Curriculum objectives alongside the knowledge and vocabulary necessary to teach the unit successfully using the ASE (Association of Scientific Education) planning documents and the Developing Experts scheme as a supportive resource. Teachers work together to plan engaging lessons ensuring coverage using the Milestone document for their short term planning in their phases, whilst ensuring progression across year groups.

For children in EYFS, Science is included as part of a holistic unit called Understanding the World. Topics for the Early Years children include as many elements of science as possible but as flexibility is necessary, the Foundation Stage does not require a rigid scheme.

Teaching & Learning:

Wherever possible, Science work will be related to the real world and everyday examples will be used to link understanding. Teaching has a focus upon scientific enquiry and a variety of strategies, including; questioning, discussion, marking and observation are used to assess progress. Lessons include a variety of activities to support the children's retention of scientific vocabulary and facts. These retrieval tasks aid and encourage the children to use technical language appropriately, remember important facts and make links to previous learning. These may include true/false quizzes, vocabulary bingo, share a fact etc. Lessons make effective links with other curriculum areas and subjects, especially Maths, English and ICT. Activities are planned to inspire the pupils to experiment and investigate the world around them and to help them raise their own questions such as "Why...?", "How...?" and "What happens if...?". Pupils have frequent opportunities to develop their skills in, and take responsibility for, planning investigative work, selecting relevant resources, making decisions about sources of information, carrying out activities safely and deciding on the best form of communicating their findings.

Learning Environments:

Classrooms will have displays of current Science learning, including relevant vocabulary, (with explanations when/if necessary), examples of children's learning and scientific information and stimulating questions. In a designated area within the school, Science work from across the whole school is displayed celebrating pupil learning and achievements in classes.

Inclusion:

The school plans carefully to ensure that all pupils' needs are catered for as teachers provide opportunities for all pupils to achieve by providing equality of opportunity through teaching approaches and creating effective learning environments. We are aware of how important adaptation is in order to allow all children access to the curriculum. We take account of 'Individual Education Plans' for those children who may have special educational needs alongside any requirements of children who have an EHCP.

Pupils with diverse learning needs are provided for through:

- Liaison with SENCO and outside agencies, e.g. educational psychological services
- Appropriate intervention (As set out in the Code of Practice)
- Allowing pupils access to specialist equipment and approaches where necessary
- More-able pupils are planned for appropriately
- Continuous consultation with and involvement of parents

Our full 'Equal Opportunities' and 'Inclusion' policies can be found in our policy file.

Impact

Assessment and Record Keeping:

Much of the work done in lessons will be of a practical or oral nature and, as such, recording will take many varied forms. Children in Year 1 may use a class floor book until they are able to confidently record in an individual book. Feedback is provided to pupils as an aid to progression and to celebrate achievement. Next step comments in a child's book must be relevant to the learning objective to help children to better focus on future targets and to move their learning on. It is imperative that children are given the time to improve their work and teachers will support children by scaffolding improvements as necessary.

At the end of each of topic / unit, it is expected that teachers will assess pupils' understanding, application and retention of knowledge and effective use of key vocabulary. Assessments should be taken from Developing Experts, Learning by Questions or Concept Cartoons so that an overall teacher assessment judgement can be given on our school tracker. Assessments will take into account a range of evidence, including; evidence in pupil books, observations and pupil discussions.

Resources:

Investment has been made to stock and resource equipment to allow observations, investigations and measurements to be carried out in small groups. Science equipment and resources are taken to the classroom by staff and pupils are coached in the safe and considerate use of equipment and materials.

Health and Safety:

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers, Teaching Assistants and the Subject Leader will check equipment regularly and report any damage, taking defective equipment out of action. Where needed and when necessary, risk assessments will be completed prior to practical and investigative work. These can be found and adapted from the Association for Science Education and in the GSP Staff Share.

Cross-Curricular Links:

We aim to link science to other subjects in as natural a way as possible. For example:

ICT
At both key stages this involves the pupils using ICT to: locate and research information using relevant sources (Internet etc); record findings (using text, data and tables); log changes to the environment over time (data logging equipment); gain confidence in using calculators, cameras and tape recorders, as well as computers and other devices.

Literacy
We are aware of the importance of writing in Science and encourage the children to record their investigations, ideas, thoughts, explanations etc using appropriate writing structures, technical vocabulary and accurate grammar eg bullet points for lists.

Mathematics
Mathematics and Science have some very close links and the teaching of many aspects of mathematics crosses with those of science. Measuring, data handling, weighing and capacity all fall into this category and staff are able to use these areas to reinforce the children's knowledge.

Where possible, links are made with TCAT secondary schools and use of the TCAT 'Fab Lab' for STEM.

The Role of Subject Coordinator:

The Subject Leader should be responsible for improving the standards of teaching and learning in Science through:

- Monitoring and evaluating pupil progress – see below
- Provision of Science at GSP
- The quality of the Learning Environment
- Taking the lead in policy development
- Supporting colleagues in their CPD
- Auditing, purchasing and organising resources
- Keeping up to date with changes in the subject – attending local SLP network meetings and training regularly

Monitoring and evaluating

All teachers are responsible for monitoring and progress of the children in their care. However, the subject leader under the direction of the Headteacher and Deputy take a lead in this. The SLT and the Science subject leader is responsible for monitoring the standard of children's work and the quality of the teaching of science. The science leader is also responsible for supporting colleagues in the teaching of science, for being informed about the developments in the subject and for providing a strategic lead and direction for the subject in the school. Monitoring activities are undertaken throughout the year. These include:

- Pupil/teacher voice questionnaires
- Working walls
- Monitoring of science books
- Samples of planning

Subject leadership time is allocated to undertake monitoring and developments. Termly reports are written for Headteacher and governors.

Relevant Policies & Documents:

This policy should be read in conjunction with the other following key policies and documents to ensure effective implementation:

- Marking and feedback policy
- Teaching and learning policy
- Equalities Policy
- Health and Safety Policy
- Assessment Policy
- Primary National Curriculum for Science 2014

Policy Review:

The subject policy is reviewed regularly by the subject leader and SLT in light of any changes to the curriculum or national / local initiatives. Any changes made to the policy are done in conjunction with the Headteacher and ratified by governors.

Useful Resources & Appendix:

Home | www.ase.org.uk | - Association for Science Education

Science Curriculum - KS1, KS2, KS3, KS4 & EYFS | Developing Experts – Developing Experts Support

| STEM – Concept Cartoons

PLAN Knowledge matrices (Teacher) | PLAN (planassessment.com) – Planning Matrices