

Whybridge Junior School

SCIENCE POLICY

Subject leader: Miss T Pettican

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VISION FOR SCIENCE:

Whybridge junior school aims to ensure that every child is able to understand and critically evaluate scientific problems within the curriculum and wider world. We seek to provide a fun, engaging curriculum where children can explore, discover, question and enjoy.

MISSION STATEMENT:

The study of Science is a continuous process by which children develop an understanding of the world around them, through an active interaction with their environment. Science is concerned with the investigation of the variety and processes of living organisms, and the laws and structure of the environment, which sustains them. It requires all the senses to explore and investigate life processes, materials and physical processes.

AIMS:

Children should:

- Work purposefully, showing curiosity and perseverance and relating their work to everyday experience.
- Develop the ability to ask questions, predict, hypothesise, observe measure and manipulate variables, interpret their results and evaluate scientific evidence.
- Begin to develop attitudes essential to the learning process.
- Communicate their findings appropriately in written, visual or oral form.

The objectives of teaching Science in our school are to enable children to:

- Develop in the children enquiring minds. We aim to have them asking relevant questions and following up those questions.
- Develop their powers of observation, their ability to identify patterns and relationships, to recognise similarities, differences and changes, and to make comparisons.

- Develop their ability to plan and undertake investigations, using equipment (including computers and other sources of ICT) correctly, to devise fair tests, to recognise and control variables, to interpret and check results.
- Develop their ability to relate their previous experience and to apply scientific concepts and skills, to designing ways of solving problems and planning investigations, and to predict outcomes, draw conclusions and formulate hypotheses.
- Introduce children to a wide range of ways in which investigations and results may be reported and recorded, orally, graphically, in written or printed form, or through drama. To develop their ability to record systematically and in more sophisticated ways.
- Develop their ability to collect, sort and classify objects and information.
- Develop their manual skills, their ability to use measuring instruments and simple apparatus.
- Link aspects of science with other curriculum areas to reinforce and extend science skills and concepts, and to show how science relates to everyday life.
- Ensure continuity and progression in the development of scientific skills throughout the school.

By providing a progression of carefully selected practical investigations and direct experiences, we aim to develop the children's science skills, scientific enquiry, knowledge and understanding.

By providing access to secondary resources, such as books, iPads, computers and videos, their skills, knowledge and understanding will be reinforced and extended.

The development of a scientific approach to problems involves not only the acquisition of skills, but also a set of attitudes. It is our aim to develop the following attitudes through encouragement and example.

- ❖ An enquiring mind and an attitude of curiosity.
- ❖ Perseverance
- ❖ Open mindedness.
- ❖ Independence in thought and learning.
- ❖ A respect for evidence
- ❖ A readiness to reflect critically.
- ❖ An appreciation and respect for living things and the environment.
- ❖ A willingness to co-operate with others, suggest ideas and to respect others' views.
- ❖ To develop their enthusiasm by widening their interest and enjoyment.

TEACHING & LEARNING:

The school's Scheme of Work will ensure that all pupils cover the statutory requirements for science as laid out in the New National Curriculum documents, including the new Working Scientifically criteria.

Planning

As a school we use Active Learn, Science Bug to aid our planning and other resources available online such as The National Stem Centre and Royal Society of Chemistry.

These plans have been devised to ensure continuity and progression throughout Key Stage 1 and Key Stage 2. Opportunities for 'Working Scientifically' as an ongoing learning process will be provided in all areas of study as appropriate.

The staff will meet in year groups to plan and review the science being taught and discuss approaches and strategies to implement the Scheme of Work.

Time Allocation

Schools have considerable flexibility in how they deliver the curriculum, working within the statutory requirements.

Following the time audit carried out within the school, the time allocation for science is as 2 hour sessions per week – this can either be blocked sessions or split over two one hour sessions.

Teaching and Learning Styles

A variety of teaching styles will be employed, including whole class, group and individual, depending on the content and aims of the activity. The composition of the groups in group work will vary according to the demands of the task.

Some of the group and individual work will be of a differentiated nature, catering for the variety of abilities found within the class. We ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- ❖ Setting tasks, which are open-ended and can have a variety of responses.
- ❖ Setting tasks of increasing difficulty (we do not expect all children to complete all tasks).
- ❖ Providing resources of different complexity, matched to the ability of the child.
- ❖ Using classroom assistants to support the work of individual children or groups of children.

The teacher might decide to undertake Science work related to a school visit, a special event, a history or geography topic or a children's story.

ASSESSMENT:

The teacher in order to cater for the needs of the pupils and to plan future work will assess all pupils. Written or verbal feedback is given to the child to help guide his/her progress. Older children are encouraged to make judgments about how they can improve their own work. Assessment for learning requires teachers to inform the children of their next steps and use the school marking policy.

The children are assessed using assessment tool kit provided by Science Bug. This will not be in the form of a test. Children's learning also tracked through the use of CAT sheets and Sims linking the program of study. These are recorded on the school SIMS database at the end of every term. This is available to all members of staff and can be used to plot a child's progress throughout the school. These assessments are also used to identify any areas of the curriculum which need more attention.

HEALTH AND SAFETY:

Teachers should pay particular attention to those activities, which may raise health and safety issues and make the children aware of appropriate procedures within the classroom. Reference should be made to the Science booklet 'Be Safe', which is located in the Science resource area. Staff should also be aware of any relevant issues raised in the school's Health and Safety Policy.

SEN PUPILS:

At our school we teach science to all children, whatever their ability and individual needs. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our science teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details see individual whole-school policies.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process for SEND looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation- so that we can take some additional of different action to enable the child to learn more effectively. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs.

Intervention through our school's SEND offer will enable the children to access the curriculum and teachers will carefully plan suitable activities and approaches to help children achieve their full potential.

We enable all pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities outside the classroom (a trip to a museum, for example) we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

ICT OPPORTUNITIES:

Computing enhances the teaching of science in our school, because there are some tasks for which this is particularly useful. It also offers ways of impacting on learning which are not possible with conventional methods. Software is used to animate and model scientific concepts, and to allow children to investigate processes, which it would be impracticable to do directly in the classroom. Data loggers and iPads are used to assist in the collection of data, to review, modify and evaluate their work, and to improve its presentation. Children learn how to find, select, and analyse information on the Internet and other media. Visualisers are used for children to see investigations in real time.

RESOURCES:

The science resource area contains: -

- ❖ A variety of equipment and materials including specific items relating to the New National Curriculum.
- ❖ Various textbooks, reference materials, posters, photographs and videos.
- ❖ Computer software and other Computing equipment, for example Data Loggers, Intel Microscope and digital camera are also available to support children's individual research.
- ❖ Science Bug online resources, for example videos.

The science co-ordinator is responsible for reviewing and updating resources. The science co-ordinator, together with the Head Teacher, Deputy Head Teacher and outside agencies, will arrange and provide INSET for the staff of the school to meet the needs of the school and individuals. The provision of science equipment is reviewed annually with a view to updating and replacing as necessary. Money from school fund is available for purchasing perishable items as required.

CROSS CURRICULAR OPPORTUNITIES:

There are opportunities in science to link to other areas of the curriculum such as Math and Computing. Through the Learning Challenge Curriculum and Hamilton Planning framework, teachers can plan extra curricular links with our topic work. Learn Chemistry's 'Topic Webs' are also used to help build in cross-curricular links.

MONITORING:

Work is monitored throughout the year. Staff evaluate the work covered in year groups, and inform the science coordinator of any relevant issues/comments relating to the planning and resources. The subject leader is also responsible for supporting colleagues in their teaching throughout the year and during the 5 Week Plan.