

SCIENCE POLICY

This policy is overarched and subject to the agreed contents and conditions of the Safeguarding Children and E- Safety Policies

Philosophy

Science offers the opportunity to acquire a way of thinking and working which can serve as a basis for understanding the world in which we live, as well as providing a practical way of finding reliable answers to questions we may ask. The school endeavours to provide a broad, balanced and differentiated curriculum based upon the programmes of study as documented in the Science National Curriculum.

Practical approach

We recognise that the two main elements of the Science Curriculum involve the skills of working scientifically and acquiring scientific knowledge and conceptual understanding. Both these elements are represented in our teaching of science; the methods, processes and skills that are part of working scientifically are taught through the teaching of the Programmes of Study. Our organisation of the National Curriculum for science will allow for progression and continuity between year groups and key stages.

Aims

Science teaching should offer opportunities for children to:

- Develop scientific knowledge and conceptual understanding of important scientific ideas and relate these to everyday experiences.
- Develop and extend understanding of processes, skills and methods used in Science.
- Learn about ways of thinking and of finding out about and communicating ideas.
- Explore values and attitudes through science.
- Ask and answer scientific questions about our world and use different methods to answer them.
- Develop understanding and use of scientific terminology and vocabulary.

Knowledge and understanding

Children should:

- Be given opportunities to explore their curiosity about things they observe and experience in the world using all their senses.
- Develop their understanding of key scientific ideas using their experiences and make links between the different phenomena and experiences.
- Try to make sense of phenomena, seeking explanations and thinking carefully about ideas.
- Begin to think about models to represent things they cannot directly experience.

Processes and skills

Children should:

- Acquire and refine practical skills needed to investigate questions safely.
- Develop skills of observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing.
- Practice mathematical skills e.g. counting, ordering numbers, measuring, drawing and interpreting graphs and bar charts.
- Learn why numerical and mathematical skills are useful and helpful to understanding of the world.

Teaching

The teaching of science involves:

- Asking questions about why things happen.
- Carrying out investigations to develop understanding of scientific concepts.
- Looking closely at similarities and differences, patterns and change.
- Using different investigative skills - observation, measuring, predicting, experimenting, communicating and interpreting.
- Learning about living things and ourselves.

Teaching methods

1. The use of apparatus is recommended, particularly when introducing new concepts. Apparatus allows the children to use practical skills and learn new concepts at first hand.
2. Good science teaching includes a mixture of children's own investigations, investigations initiated by teachers, discussions and direct teaching. The most effective learning is rooted in practical work and we aim to reflect this in the balance of tasks presented to the children.
3. It is impossible to recommend one method of classroom organisation for everyone. Activities can, where appropriate, involve independent work. Generally though, some form of group organisation (ability, friendship or interest) seems to work most effectively for most teachers.

Working in groups allows the children to:

- Work collaboratively
- Solve problems
- Learn from each other
- Raise alternative ideas

Grouping allows teachers:

- Better control over resources
- To monitor progress more effectively
- To provide more effective communication with children
- To retain an effective working atmosphere

4. Effective scientific teaching also provides plenty of opportunities for working scientifically; helping children to understand the processes and methods of science and learning how to use and apply scientific skills.

Resources

- National Curriculum Document for Science
- Cornerstones 'Love to Investigate' investigation cards
- Key Stage 1 & 2 LCP Science File
- Ginn New Star Science
- There are supplementary worksheets and teacher resource books available for staff to use
- Staff use their own resources or those available in the resource room
- The outside classroom and outside garden area are also valuable resources to be used

Planning

- Science is planned within Key Stages and linked to relevant topics.
- Science is taught as a separate subject when no obvious link to a topic exists.
- Wherever possible science is integrated into other curriculum areas.
- Work is planned in termly and half termly units using the national Curriculum.
- All planning is fully inclusive of all learning needs, including more able, exceptionally able and special needs.

Recording and assessment

- Teachers make regular assessments of each child's progress and record these systematically. A record of each child's attainment against the key objectives for the appropriate year group is recorded on a tracker.
- Assessment techniques may include:
 - Observing group work
 - Specific questions to the children
 - Structured discussions
 - Observation of non-verbal skills
 - Children's written work
 - Labelled drawings/diagrams
 - Open-ended or problem solving tasks
- It is not necessary to formally assess everything we teach, but it is important to provide regular opportunities for assessment.
- At Reception age the science taught is based mainly on oral work
- In other key stage classes, recording is more specific and work is compiled in books or files
- Teacher observation of practical work and checking finished work (written, drawn etc.,) will form the bulk of the assessment
- Teacher assessment is used to inform future planning and to review children's capability

Monitoring and Evaluation

- The co-ordinator monitors delivery of science throughout the school.
- Topics are evaluated and the information used to inform future planning.
- Coverage of the programmes of study is monitored by the co-ordinator
- Co-ordinator will observe on occasions the teaching of science (times to be agreed with staff in advance).

Health and Safety

All staff that teach science will at sometime be supervising the sort of practical work which is essential to scientific activities. Teachers need to anticipate likely safety issues. They need to explain the reasons for safety measures and discuss implications with the children. Children should be encouraged to consider safety when they plan and carry out their investigations. The National Curriculum encourages teachers to promote responsibility for the health and safety throughout the Programmes of study and Attainment Targets.

As an aid to safety in school, the recommended "Be Safe" by the Association for Science Education (ASE) is available to all staff when considering the safety of activities.

Updated: 18.07.18

Signed: _____ Date: _____