Science Policy

It is our aim in Science that children are given opportunities to observe, record and draw conclusions about the world around them. We hope to introduce children to the basic elements of experiments and investigations and help them to become more inquisitive. This policy outlines the teaching and learning of Science at St Aloysius Primary Federation. The implementation of the policy is the responsibility of all teaching staff and will be monitored by the Science Co-ordinator and Head Teacher.

Aims and Purposes

Through teaching Science children are given opportunities to:
Develop their knowledge and understanding of important scientific ideas, processes and skills and relate these to everyday experiences.
Acquire a curious and questioning mind.
Develop skills of observation and investigation.
Collect, retrieve, present and communicate their findings to others in a variety of ways.

Strategies

These aims and purpose are taught through:

1. Knowledge and Understanding

Children should:

- Be curious about things they observe, experience and explore the world about them with all of their senses.
- Use this experience to develop their understanding of key scientific ideas and make links between different phenomena and experiences.
- Begin to think about models to represent things they cannot directly experience.
- Try to make sense of phenomena, seeking explanations and thinking critically about claims and ideas.

2. Processes and Skills

Children should:

- Acquire and refine the practical skills needed to investigate questions safely.
- Develop skills of predicting, asking questions, making inferences, concluding and evaluating based on evidence and understanding and use these skills in investigative work.
- Use practical mathematical skills in real contexts.
- Learn why numerical and mathematical skills are useful and helpful to understanding.

3. Language and Communication

Children should:

- Think creatively about science and enjoy trying to make sense of phenomena
- Develop language skills through talking about their work and presenting their own ideas using sustained and systematic writing of different kinds.

- Use scientific and mathematical language including technical vocabulary and conventions and draw diagrams and charts to communicate scientific ideas.
- Read non-fiction and extract information from sources such as reference books, CD-ROMs or the Internet.

4. Values and Attitudes

Children should:

- Work with others, listening to their ideas and treating these with respect.
- Develop respect for evidence and evaluate critically ideas, which may not fit evidence available.
- Develop a respect for the environment and living things and for their own health and safety.

Organisation

Teachers are responsible for the teaching of science. It is taught in units (incorporated within topic work) through a combination of whole class teaching, group and individual work. The units are based on the QCA Science Scheme with scope for teacher's own initiatives and ideas.
Teachers will encourage our children to have skills of observation, discussion, debate and research.
In order to ensure the children receive a balanced science curriculum it is essential that elements from each of the Attainment Targets be taught each year, with particular emphasis on Scientific Investigation.
During the Foundation Stage children begin to explore the world around them, with specific science work covered through the Early Learning Goal 'Knowledge and Understanding of the World'.
Throughout our science teaching we hope that our children will develop a sense of awe and wonder about the world around them.

Assessment

Formative assessment is used to guide the progress of individual pupils in science. It involves identifying each child's progress in each area of the science curriculum, determining what each child has learnt and what therefore should be the next stage in his/her learning. Teachers in the course of their teaching usually carry out formative assessment informally.
Suitable tasks include:

- Small group discussions, usually in the context of a practical task.
- Specific arrangements for particular pupils.
- Individual discussions in which children are encouraged to approve their own work and progress.
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Summative assessment takes place at the end of each term and at the end of each academic year, when a level of the child's attainment is given. This assessment may be carried out through discussion and/or assessment sheets. At the end of each Key Stage the assessment is carried out through SATs. For Year 2 children this is based on teacher assessment and for Year 6 children there is a formal written testing addition to teacher assessment.
Wherever possible experimental and investigative work should form the basis for the teaching of science. Children should be given as many opportunities as possible to carry out investigations and experiments. During each term an AT1 assessment should be carried out.
The assessment of AT1 (experimental and investigative work) will rely on a mixture of evidence from pupils' everyday practical work throughout the key stage and other more independent investigations carried out by the pupils.

Record Keeping

Informal notes on the child's progress in science are made in teacher's planning files. At the end of Key Stage 1 a level is given for each child's attainment in Science. At the end of each academic year children in Key Stage 2 children are given a level for each Attainment Target, which is recorded on their assessment sheets. This allows the pupils progress to be tracked through the school.
Reporting to parents is done termly through parents' evenings and annually through a written report.

Progression

Planning in science is a process, which involves all teachers. This includes:

- The School Improvement Plan which is the foundation for curriculum planning, developed through collaboration between the staff, and approved by the governors.
- Schemes of work for science which are developed by year group staff.
- Teacher's planning is collected and monitored.

The Foundation Stage follow the Stepping Stones towards Early Learning Goals, which begins to develop children's awareness of scientific understanding and investigation.
In order for children to make progress in Science, teaching should provide opportunities for children as they move through the Key Stages to progress:

- From using everyday language to increasingly precise use of technical and scientific vocabulary, notation and symbols.
- From personal scientific knowledge in a few areas to understanding in a wider range and of links between these areas.

Resources

Central resources in science are the responsibility of the Science Co-ordinator who has a budget available. Science equipment is audited annually. Consumables are replaced and discussions with staff determine if there are any other pieces of equipment required in order to enhance the teaching and learning of science. Children are encouraged to value and take care of all equipment.
Central resources houses a range of resource books. Books which are pertinent to a particular year group can be found in relevant classrooms.

The role of the Science Co-ordinator

The Science co-ordinator is to:

- Take lead in policy development and support with Schemes of Work.
- Support colleagues in their development of work plans, and implementation of the Scheme of Work.
- Monitor the resources in science and advise the Head Teacher of any action needed.
- Take responsibility for the purchase and organisation of central resources for science.
- Keep up to date with developments in science education and disseminate information to colleagues as appropriate.
- Monitor the teaching and learning of science throughout the school.

Differentiation and Additional Educational Needs

The study of science will be planned to give pupils a suitable range of differentiated activities appropriate to their age and abilities. Tasks will be set which challenge all pupils, including the more able. For pupils with SEN the task will be adjusted or pupils may be given extra support.
The grouping of pupils for practical activities will take account of their strengths and weaknesses and ensure that all take an active part in the task and gain in confidence.
Extra curricular activities for Gifted & Talented pupils are identified and pupils given the opportunity to attend these.

Equal Opportunities

All children are entitled to access to the science curriculum in line with the schools policy for equal opportunities. Children who show a particular ability and flair for science, who work more quickly through the levels of the National Curriculum are extended through the use of more challenging problems and investigations.

All children have equal access to the Science Curriculum, its teaching and learning, throughout any one year. This is being monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups

Health and safety

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers, and the Science Co-ordinator will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for all practical activities. The Headteacher will review the risk assessments annually.

Policy Review

This policy will be reviewed bi-annually or as necessary in view of government or LA initiatives, analysis of assessments or curriculum development.