Walbottle Village Primary School
Science Policy

This document is a statement of the aims and principles for the teaching and learning of Science at Walbottle Village Primary School.

Rationale

At Walbottle, we believe that Science is a vital component of the National curriculum and recognise its importance in preparing our children for life in an increasingly scientific and technological world.

Science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Science promotes communication in a specific and precise language involving mathematical and logical thinking. It allows children to develop ways of finding out for themselves and gives them practice in problem solving.

Science in our school is about developing children's ideas and ways of working to enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. It promotes respect for the living and non- living. At Walbottle we believe that science should sustain and develop the natural curiosity of children and encourage a sense of awe, wonder and enthusiasm about the world around them.

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

Aims and Objectives

- We aim for all our children to become scientifically literate by developing their investigational skills (observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating) through structured scientific enquiry.
- We aim for every child to develop within their capabilities a growing broad understanding of scientific ideas encouraging them to aim high and take pride in their achievements.
- We aim to develop the ability of children to use their knowledge in order to understand and make decisions in an increasingly scientific and technological world and express their ideas confidently using appropriate scientific language.
- We aim to encourage positive attitudes by providing our children with an enjoyable experience of science through imaginative, purposeful, well managed lessons, so they will develop a deep and lasting interest.
- We aim to build our children's self -confidence to enable them to become independent learners and develop their social skills by encouraging them to work co-operatively with others.
- We aim to encourage scientific attitudes such as open-mindedness, self-assessment, perseverance and responsibility enabling the children to develop a scientific approach to problems.
- We aim to foster a sense of wonder and enthusiasm through direct first -hand experience building on the children's natural curiosity to help them understand how to treat living things and their environment with care and sensitivity.

Principles of science teaching

We believe that good science is occurring in our school when;

- Children enjoy learning about science. It is fun.
- Children learn practically through first hand experiences. They can “see” science happening.
- Children feel confident to ask questions and develop good enquiry skills. They develop their natural curiosity.
- Assessment is used to inform planning. Gaps in learning are identified and appropriate skills developed.
- A range of recording methods are used for the children to display their understanding.
- Science 1 skills are developed in each science lesson.
- The science is relevant to children’s own lives. It is purposeful

All teachers, staff, children and governors are aware of our science principles. The principles are reflected in the way science is taught in the classrooms and in the environment in which learning occurs.
(Principles added to policy November, 2010 following staff meeting focusing on their development).

Curriculum Organisation

During the Foundation Stage

During the Foundation stage, young children are given opportunities within the Early Learning Goals 'Knowledge and Understanding of the World to make sense of their physical world through opportunities to explore, observe and find out about people, places, technology and the environment. They are given opportunities to gather information and communicate their views. The children will develop their natural curiosity about the world starting with

themselves and places nearest to them. They will develop an increasing awareness of their surroundings.

During the Foundation stage the children learn about similarities and differences between themselves and others. They explore objects, materials and living things at first hand, comparing and contrasting their features. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. They recognise that a range of technology is used in places such as homes and schools and can select and use technology for particular purposes.

The children will develop language and vocabulary to describe the world around them developing scientific concepts through structured exploratory play.

Staff in our Early Years setting will update a book with photographs to show the practical activities they have been doing.

During KS1 and KS2

Science teaching in our school is about excellence and enjoyment. We adapt and extend the curriculum to match the unique circumstances within our school. Every class teacher will teach science on a weekly basis. Each class will complete a unit of work each half term.

The teaching requirements are;

- In KS1 classes, science is taught for a minimum of the equivalent of one hour a week.
- In KS2 classes, science is taught for a minimum of the equivalent of two hours a week.

The emphasis in our teaching of science is on first- hand experience and we encourage our children to take control of their own learning.The school focuses teaching on the National curriculum requirements. Each year group follows specified units to ensure a broad coverage of the National curriculum. These units are either delivered as a science lesson or when appropriate as part of a cross- curricular topic.

As a school we take ownership of the science curriculum delivered to our children and we are creative in our delivery of science. This involves relating it directly to the needs of our children and developing cross- curricular links with other subjects to make it more relevant to everyday life. This topic approach allows children to link ideas in meaningful contexts.

Key stage 1

Pupils observe, explore and ask questions about living things, materials and physical phenomena. They begin to work together to collect evidence to help them answer questions and to link this to simple scientific ideas. They begin to evaluate evidence and consider whether tests or comparisons are fair. They use reference materials including ICT to find out more about scientific ideas. They share ideas and communicate them using scientific language, drawings, charts and tables with the help of ICT where appropriate.

Key stage 2

Pupils learn about a wider range of living things, materials and physical phenomena. 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 and 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 including ICT in their work. They talk about their work and its significances, using a wide range of scientific language, conventional diagrams, charts, graphs and ICT to communicate their ideas.

The Role of the Science Coordinator

The role of the coordinator is largely to ensure the science curriculum is being delivered in a way which meets the learning objectives and inspires and motivates the children.

These responsibilities will include:

- To advise the Head teacher and Governing Body on the future development of Science at Walbottle Primary School.
- To plan, write and keep under review policy documents/guidelines which will incorporate the requirements of the National Curriculum.
- To be responsible for the implementation of the policy documents and to monitor the teaching and learning and the development of Science throughout the school, with particular regard to continuity, achievement and progression.
- To evaluate continuity, breadth, achievement and progression across the whole school by monitoring the teachers' long-term planning and pupils' work to ensure that appropriate learning outcomes and activities are planned.
- To observe and provide support and advice for colleagues on classroom practice and children’s science development.

- To be aware of and promote appropriate use of the computer in the field of Science, including links with Information Technology.
- To encourage and foster equal opportunities for all children in the field of Science.
- To purchase, order, audit and maintain teaching resources whilst managing a delegated budget.
- To keep up to date with current developments in the field of Science in primary education through reading, courses and visits and disseminate information to colleagues as appropriate.
- To enrich the science curriculum through the provision of learning days, science weeks and clubs and the use of visitors and organised excursions.

Planning

Long term planning is based on the cycle of units one unit per half term.

Medium term planning involves planning the units in greater detail and adapting them to meet the needs of the class including incorporating where applicable into a topic based approach. Lessons are based on the medium term plans. WALT (objective) and WILF (success criteria) are clearly identified by the teacher along with key scientific vocabulary and key questions.

All teachers aim to teach science in ways that are imaginative, purposeful, well managed and enjoyable. Classroom organisation and teaching styles are flexible according to the skills and/or concepts being taught. Although group investigations are appropriate for much of the science work being undertaken, sometimes there is a need for whole class teaching for example where a new skill or technique is being taught. KS2 Children are expected to carry out at least 2 full scientific enquiries per term, taking increasing responsibility for their planning, carrying them out and recording/ interpreting results.

Cross-curricular links

Although science is taught as a subject in its own right we recognise that it can enrich many other areas of the curriculum and provide an important context for developing skills. We actively seek to develop these connections whether by using a topic based approach or by incorporating literacy, mathematical or foundation subjects in science lessons.

Display

At Walbottle, we acknowledge the vital role displays play in science education and where ever possible provide interactive displays so the children can

continue their learning through first hand investigations. Our aim is to use displays as a medium to extend the children's thinking as well as allowing them to take pride in what they have achieved. All classes in KS1 & 2 have a science display. These are updated each time a unit is completed.
Displays can be used as

- A starting point for an investigation.
- A means of extending an investigation.
- To extend thinking through provoking questions.
- To develop problem solving skills.

We recognise the importance of Information Technology in displays by using photographs, data handling and word processing to record and extend investigations.

Record Keeping and Assessment

As teachers, we are constantly using formative assessments in science to inform our teaching on a regular basis. We mark each piece of work positively and provide a verbal or written comment to indicate how well the children have achieved their learning objective. Children are encouraged to reflect on their own work in the classroom and think critically about what they have achieved. Pupils are levelled termly according to their achievement in science and the overall level is recorded on the annual report to parents. Children who are not succeeding or children who demonstrate a high ability in science are identified and supported.

Reporting

All parents receive an annual report on which there is a summary of their children's efforts and progress in science.

Resources

Resources are shared across school. We also use the school grounds, which includes the science garden as a valuable resource and recognise the importance of organised visits and speakers to enrich the curriculum.

Equal Opportunities

At Walbottle, we are committed to ensuring that all our children have the same opportunity to become scientific regardless of gender, race, class, physical disabilities or religion. Our science lessons are taught within the school's equal opportunities policy. We carefully consider the delivery, content and resources used in science to fulfill this.

SEN

We include all S.E.N. children as fully as possible in the class science lessons. Science activities can be differentiated by task, outcome or in terms of support or additional resources to meet the needs of these children. Flexible groupings may also be used so that the children can work in mixed ability groups supporting each other in their learning. Teachers use differentiated questioning to target these pupils allowing them to make a valuable contribution to the lessons. Alternative means e.g. photographs, pre prepared tables are also used to aid these children in recording their findings. Tasks can be broken down into small steps, giving children achievable goals.

Gifted and Talented

Gifted and Talented children are provided with opportunities to promote and develop their learning further. More able pupils are taught within their own class. Their learning is extended by careful differentiation of the main activity or by providing suitable extension or problem solving activities to develop their thinking further. These can take the form of open-ended tasks and opportunities for further research and more challenging study. We aim to ensure all pupils are challenged to their full ability in every science lesson.

Annual learning days are an integral part of the school year, where gifted and talented pupils throughout the school are involved in a variety of challenges requiring them to apply their scientific knowledge. All gifted and talented pupils are also encouraged to join the school science club to further develop their science expertise.

Social Cohesion

Where appropriate links are made in Science and cross curricular subjects to help children learn about and understand how the local, regional, national and international community in which they live has changed and developed into the global community in which we all now live. 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.

Health and Safety

Health and safety is of paramount importance in science and as teachers, we ensure children are taught to use equipment in a safe and responsible manner. When engaged in field work children are expected to behave in a considerate, responsible manner showing respect for other people and the environment. For outside visits there will always be more adult support and qualified staff in First Aid. Risk assessments will be completed for visits outside of school premises.

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