Danson Primary School

Science Policy

Nurture-Believe-Inspire Achieve

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Science Policy

Aim:

Here at Danson Primary School we believe that the subject of science is a systematic investigation of the physical, chemical and biological aspects of the world we live in and beyond. It relies on first hand experiences and on other sources of information. Through science, we can help the children develop a sense of inquisitiveness and enquiry about the world around them. Scientific processes and problem solving activities will be used to develop pupils' understanding of fundamental concepts. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum.

Objectives:

We believe that a broad and balanced science education is the entitlement of all children. 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.
- Helping develop and extend our children's scientific concept of their world.
- To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life.
- To build on pupils' scientific approach to problems, curiosity and sense of awe of the natural world
- Encouraging open-mindedness, self-assessment, perseverance and developing the skills of investigation – including: observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- To introduce pupils to the language and vocabulary of science To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- To develop pupils' use of computing in their science studies.
- Making links between science and other subjects
- To use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science

Learning Outcomes

The following learning outcomes are derived from the aims above and will form the basis of our decisions when planning a scheme of work.

To develop a knowledge and understanding of science and its processes

- To develop a knowledge and appreciation of the contribution made by famous scientists to our world

- Knowledge of the world including scientists from different cultures
- To encourage pupils to relate their scientific studies to applications and effects within the real world
- To develop a knowledge of the science contained within the programmes of study of the National Curriculum.

To build on pupils' curiosity and sense of awe of the natural world

- To develop in pupils a general sense of enquiry which encourages them to question and make suggestions
- To encourage pupils to predict the likely outcome of their investigations and practical activities

To use a planned range of investigations and practical activities to give pupils a greater understanding of scientific facts and concepts

- To provide pupils with a range of specific investigations and practical work which gives them a worthwhile experience to develop their understanding of science
- To progressively develop pupils' ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a 'fair test'.

To develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts

- To introduce pupils to the language and vocabulary of science to give pupils regular opportunities
- To use the scientific terms necessary to communicate ideas about science
- To develop pupils' basic practical skills and their ability to make accurate and appropriate measurements within practical activities give pupils opportunities
- To use a range of simple scientific measuring instruments such as thermometers, force-metres and more advanced instruments such as microscopes and data loggers to develop their skill in being able to read them.

Principles of Teaching and Learning and Inclusion:

Planning and Adaptation

The study of science will be planned to give pupils a suitable range of adapted activities appropriate to their age and abilities. Tasks will be set which challenge all pupils, including the more able. Where possible, Science will be linked to the humanities topic that is being studied if this will maximise learning opportunities.

Science will also be taught as discrete units and lessons where needed to ensure coverage. Teachers will base their planning around the Kent Science Scheme. This scheme provides teachers with a clear guide for progression, both within the current unit being taught and between year groups, suggest teaching sequences and activities and ensure that science is taught on a mostly practical foundation.

Teachers are however free to use any other resources, activities or ideas from other science schemes to reinforce their science teaching. Children's prior knowledge, interests and related vocabulary will be discussed at the beginning of each topic through the use of knowledge organisers. Clear expectations/learning objectives will be discussed at the beginning of each lesson and children will be encouraged to assess their own knowledge and understanding and begin to identify what they need to learn next. Wherever possible, science will be put into a real-life context, relating to everyday examples to help pupils understand.

EYFS

Pupils will explore science topics through making predictions, using their senses and investigating materials and their properties. 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, 2021.

Teachers and teaching assistants support pupils to develop a solid understanding of things occurring around them in their day-to-day lives, such as changes occurring when mixing ingredients to make a cake or animals found living in the garden. 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.

More Able

At Danson Primary School we ensure that good adaptation provides challenging activities for all pupils. For the more able, we aim to plan for the opportunity to extend and develop their thinking skills in every lesson. At times, more open-ended investigations are set. More able pupils are consistently challenged with probing questions from the teacher either within the whole group teaching or individually. The children will be encouraged to communicate their ideas in ways of their choosing.

Equal Opportunities and SEND

Curriculum planning will ensure that all pupils have an equal opportunity to take part in the full scheme of work and its associated practical activities regardless of gender or cultural background. Children with disabilities or Special Educational Needs are given the necessary support to enable them to achieve their full potential in science.

Cross-curricular Science Opportunities

Teachers will seek to take advantage of opportunities to make cross-curricular links. They will plan for pupils to practise and apply the skills, knowledge and understanding acquired through Science lessons to other areas of the curriculum.

Contribution to spiritual, moral, social and cultural development

Pupils learn about themselves and the variation amongst individuals throughout the primary curriculum. They learn about health and hygiene during their KS1 science study and begin to learn about sexual reproduction, including puberty, in Year 5.

Science provides the opportunities to develop informed attitudes to many topical issues. By doing so, young people in primary schools can begin to develop mature, responsible opinions and values. In science, opportunities should be taken to discuss aspects of environmental awareness with the aim of developing responsible attitudes to waste disposal, resource depletion, wildlife conservation etc. Pupils also have the chance to investigate living things and a respect for all organisms should be taught.

Progression

Pupils' scientific skills and knowledge gained at Key Stage 1 will be consolidated and developed during Key Stage 2. Pupils in Key Stage 1 will be introduced to science through focused observations and explorations of the world around them. These will be further developed through supportive investigations into more independent work at Key Stage 2.

The knowledge and content prescribed in the National Curriculum will be introduced throughout both key stages in a progressive and coherent way. Learning objectives will be taken from our school scheme 'Kent Science Scheme' to ensure that appropriate progression is embedded between year groups and that scientific learning is not repeated.

The five lines of scientific enquiry have been promoted with children identifying which enquiry they are covering at the start of each lesson. The lines of enquiry are recorded in their books next to the learning objectives by using a specific widget.

To ensure children make progress in science, teaching should provide opportunities for children, as they move through Key Stages 1 and 2 to progress in the following areas:

- 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 of areas and of links between areas
- From describing events and phenomena to explaining events and phenomena
- From explaining phenomena in terms of their own ideas to explaining phenomena in terms of accepted ideas or models
- From participating in practical science activities to building increasingly abstract models of real situations
- From unstructured exploration to more systematic investigation of a question; from using simple drawings, diagrams and charts to represent and communicate scientific information to using more conventional diagrams and graphs, including use of ICT

Enrichment:

Here at Danson Primary School we endeavour to expand children's experience of Science by having our annual Science Week during the academic year. During Science Week, the children will be given a theme to focus on and will complete a range of activities based on this theme throughout the week.

In addition to this, Danson Primary School has close links with Bexley Grammar School. Students from Bexley Grammar come into the school and work with the children focussing on the different strands of science throughout the year.

Recording & Assessment

We aim to ensure that pupils understand what is required of them and what they need to do to improve. Learning objectives and success criteria are shared with the children at the beginning of lessons and reviewed at appropriate intervals. Clear guidelines are given on what is expected for each piece of work.

At the beginning of each unit of work, teachers will initially assess children's prior knowledge, through the use of pre-task

Recapping on a previous lesson's learning is covered at the start of each lesson with questions, diagrams or pictures for children to respond to. Summative judgements are given by teachers at the end of each science unit taught. This will take place at the end of every term. Whereas formative statements are highlight as the unit progresses on the school's assessment program. All assessment in science is monitored by the subject leader.

Science Displays

Every Classroom should have a clear/visible science display with the name of the current unit along with relevant scientific vocabulary. Wherever possible, displays should be interactive with prompts and questions with children's work available to see.

Resources

Science equipment and resources are kept in the Science cupboard. Boxes are sorted into each unit that is taught. All Science equipment should be returned to the Science Room and put away neatly.

Health and safety

All science activities will adhere to the school Health and Safety Policy.

Policy Owner	**Science Leader**
Approver	**Deputy Head Teacher and Head Teacher**
Date Approved	**February 2024**
Next Review	**February 2025**