

Brookfield Academy



Science

Policy

2016/2017

Introduction

Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation and using and applying process skills. This policy was updated in January 2015 and will be reviewed annually in relation to existing school policies, and the national Curriculum.

What is Science?

Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us.

Through science in our school we aim to:

- Encourage the development of positive attitudes to science.
- Deliver the National Curriculum Science in ways that are imaginative, purposeful, well controlled and enjoyable.
- Help in developing and extending the children's scientific concept of their world and encouraging them to ask deeper questions about the world around them.
- Deliver clear and accurate teacher explanations and skilful questioning. Provide guidance but at the same time allowing children the freedom to explore as independently as possible.
- Make strong, purposeful links between science and other subjects.
- Use ICT in a meaningful way to extend learning.
- Develop the use of scientific language, recording and techniques. Enable children to become effective communicators of scientific ideas, facts and data whilst becoming experts at analysing the data they collect.
- Develop the following skills of investigation – observation, measuring, predicting, hypothesising, experimenting, communicating and interpreting.

Teaching and Learning of Science

Content of the Curriculum

Science is important because:

- It is a body of knowledge essential to our understanding of the world around us.
- The process of scientific investigation forms the basis of the most intellectual enquiry.
- The skills and knowledge of science have a wide application in everyday life.

Science is a core subject in the National Curriculum. The fundamental aims of the National curriculum are to ensure that all pupils;

- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.

- Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.
- Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Children in the Early Years setting are taught the required science elements of the EYFS document (found under the Understanding of the World), through cross curricular themes.

Planning and delivery

Planning in science is a process in which all teachers are involved in to ensure that the school delivers full coverage of the current National Curriculum and Early Years Foundation stage requirement. The whole school overview and long term planning is based on the programmes of study that provide a basis for termly and weekly planning. The topics set out, provide a vehicle to deliver the Science Curriculum and ensure that the programmes of study are covered. It ensures progression between year groups and guarantees topics are revisited and developed. Teachers are expected to adapt and modify the model plans to suit their cohort, own teaching, the use of any support staff and the resources available.

Recording:

The science curriculum is delivered through co-operative group work, individual work, and whole class teaching.

Within this structure there will be: -

- Whole class and group discussions and presentations.
- Demonstrations, explanations and instruction by teachers to groups, individuals and the whole class as well as child-led when possible.
- Practical activities to advance and consolidate knowledge and skills.
- Problem solving and investigation tasks.
- Scientific work should be recorded by the children in a variety of ways e.g drawings, scribed or verbal, recordings in books, graphs, photographs and diagrams.

ICT in Science

The provision for the use of ICT in science at Brookfield is good and all teachers work to maximise the use of resources in their teaching. The children are given the opportunity to research, plan, predict, test and improve their ideas using relevant ICT resources to improve understanding, aid communication and enhance presentation.

I.C.T provides various opportunities to investigate (e.g. Discovery Dog, virtual experiments, Concept Cartoons, Digital microscope, the Internet, etc) and to interpret results (e.g. spreadsheets,

databases, graphs). It helps to develop more independence and can provide an excellent extension and challenge for more talented pupils, whilst supporting others where necessary.

- Curriculum Long Term Map:

Each half term each Year is given a 'topic' which most foundation subjects (including science) are linked. This provides strong opportunities to develop cross curricular links.

Assessment

Individual children's levels of attainment are recorded using ongoing teacher assessments and using end of year group expectations (KS2 and KS1). Children's subject knowledge and understanding and level of competence and aptitude for scientific investigation are assessed and recorded against Age Related Expectations.

Feedback to pupils about their progress in science is achieved through the marking of work.

Management and Development

Science education throughout the school is led by the Science Co-ordinator. The role of the Leader entails updating knowledge and the latest developments in science teaching and learning, monitoring school resources and giving support to colleagues as appropriate. The Science Leader, leads meetings and discussions related to science issues, e.g. Science Week, monitoring programs, carries out book scrutiny and raises questions to maintain excitement and curiosity about natural phenomena.

Moderation and Monitoring

At Brookfield we moderate and monitor science as a part of our self-evaluation approach to maintaining standards and supporting staff in their teaching.

Moderation

Science moderation involves analysis of children's work in relation to the National Curriculum learning outcomes and expectations across the school. Science moderation achieves the following:

- Evidence of learning outcomes
- Understanding and agreeing expectations for science knowledge and conceptual understanding
- Two science investigations per term

Monitoring

Science monitoring achieves the following:

- It is the responsibility of the science Leader to monitor the standards of children's work and the quality of teaching in Science.
- It gives the science Leader an insight in to areas of strengths, enabling good practice to be shared among colleagues.

- The science leader is to attend Local Authority meetings to inform staff about current developments in the subject.
- Provide a strategic lead and direction for the development of the subject in the school.
- It allows the science leader to set targets, demonstrating the schools commitment to self-evaluation and improvement of standards in science.

Resources

All science resources are stored centrally in the Resource Room. In order to deliver high quality science, resources and apparatus must also be of a high quality. An additional role of the Science Co-ordinator is to ensure that consumables are replenished, resources are of a high quality and that damaged resources are replaced.

Environmental Awareness

At Brookfield we realise the importance of teaching our pupils to care for the environment. The school will continue to recycle waste paper. A 'Nature Area' also exists within the school grounds and includes areas where children can study minibeasts and habitats. There is also a pond in KS2. They are taught the importance of their impact on the environment and have used the area for studying plants, habitats, rocks and soils.

Equal Opportunities

At Brookfield we work to ensure that all children have the opportunity to gain scientific knowledge and understanding regardless of gender, race, and class, physical or intellectual ability. We will ensure that expectations do not limit pupils' achievements and that assessments do not involve any cultural, social, linguistic or gender bias.

Health and Safety

The teacher should be clear as to the purpose of the work and ensure that any testing that needs to be carried out complies with the Health and Safety procedures and has been practised prior to the lesson. Safety hazards should be pointed out to the children at the beginning of any work.

Language

Teachers should use the correct scientific vocabulary at all times. Children need to be encouraged to understand and use the appropriate terminology when presenting a scientific justification, argument or proof. Key vocabulary is selected from the science framework and included in the planning.

Review Date

The Brookfield Academy science policy is to be reviewed annually by the Science leader.

- Next review July 2017