

BARNBY DUN PRIMARY ACADEMY

POLICY

for

SCIENCE

‘Science stimulates and excites pupils’ curiosity about phenomena and events on the world around them. It also satisfies this curiosity with knowledge. Because science links direct practical experience with ideas it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modeling. This is a spur to critical and creative thought. Through science pupils understand how major scientific ideas contribute to technological change impacting on industry, business and medicine and improving quality of life. Pupils recognize the cultural significance of science and trace its world wide development. They learn to question and discuss science based issues that may affect their own lives, the direction of society and the future of the world.’

RATIONALE

Children are naturally inquisitive, eager to explore and find out more about the world around them. Science can help their understanding both of their immediate environment and beyond. The learning and teaching of science at Barnby Dun Primary Academy aims to develop a pupils interest, curiosity and concern for their natural environment and their skills in dealing with it. In our school we have an underlying ethos of providing a variety of meaningful first hand experiences, and science teaching is approached as much as possible in this manner. The school fosters the development of enquiry, exploration and observations with stimulating context through a wide range of experiences. The pupils work independently and with others to ask questions and find out why things happen in the way that they do. Pupils learn to appreciate the way science contributes to today's understanding of our world and how it will affect the future on a personal, national and global level.

AIMS

1. To develop a positive approach to science.
2. To ensure the progression of skills, knowledge and understanding.
3. To help children to recognise the importance and relevance of science in everyday life.
4. Experience equal opportunities regardless of ability, class, culture, gender, race or religion.
5. To use scientific skills of investigating and experimenting to test ideas.
6. To develop confidence in the selection and use of scientific equipment.
7. To develop the skills to observe and measure accurately.
8. To recognize and use scientific vocabulary.
9. To develop a deep understanding of science.
10. To communicate effectively with others.
11. To reflect critically on the way evidence has been gathered and used in testing ideas.
12. To satisfy the requirements of the National Curriculum, in a way which furthers the knowledge and understanding of the pupils.

OBJECTIVES

In order to achieve these aims we have the following objectives:-

1. To plan and carry out scientific investigations, considering the appropriate equipment to be used and the fairness of the investigation.
2. To observe, apply, investigate, interpret and hypothesise.
3. To interpret results and evaluate scientific evidence and present their conclusions clearly and accurately.
4. To record findings using a variety of forms such as drawings, tables, charts and written format, and where appropriate, develop and apply their ICT capability.
5. To formulate explanations.
6. To use exploration skills to carry out self enquiry using the outdoors, Barnby Woods.

SKILLS TO BE DEVELOPED

At Key Stages 1 and 2 experimental and investigative science is comprised of three strands which run through all work covered.

The three strands are:-

1. Planning and experimental work
 - a) Turning ideas into a form which can be investigated through
 - i) Speaking and listening
 - ii) Questioning
 - how?
 - where?
 - when?
 - why?
 - what happens if?
 - b) Considering the usefulness of hypothesising and predicting when planning.
 - c) Devising experiments.
2. Obtaining evidence
 - a) Observation through all the senses
 - identifying similarities and differences.
 - grouping and classifying observations.
 - use of equipment to amplify the senses.
 - b) Measuring skills.
 - estimating
 - more precise use of equipment
 - c) Use of equipment.
 - developing wider use of resources

3. Considering the evidence.
 - a) Investigating skills
 - pattern and relationship
 - b) Making simple comparisons.
 - c) Recording
 - developing a more systematic approach
 - developing a wider range of recording methods.
 - d) Explanation and interpreting
 - drawing conclusions
 - evaluating
 - checking results
 - e) Communicating clearly.

POLICY IN PRACTICE

Curriculum

Most of the science work for Key Stages 1 and 2 is taught through a cross curricular, topic based approach though separate subject teaching may take place alongside the main body of work. Work is carefully planned from the NC programmes of study to meet the required statements of attainment and thus ensure progression.

We help children to become aware of the world around them from an early age.

In our grounds there are two well planned nature areas which are rich resources for learning, providing opportunities for observing seasonal change and habitats, as well as plant and pond life. Also in the grounds is a bank of leaf litter which can be utilised for environmental work.

Whilst we recognise that there are close links between science and other curriculum areas, we are also aware that to fully cover the programmes of study, it is occasionally necessary to approach some aspects separately. These specific parts which may not be easily incorporated into the main theme can be approached either as a mini topic or through an investigation. In KS 1 these investigations will often take the form of practical activities designed to build on existing skills and introduce new ones. At KS 2 with many of the necessary skills developing, we intend that all children should experience a minimum of six open investigations per year.

INCLUSION / EQUAL OPPORTUNITIES

It is important to ensure that, through careful planning, the needs of all children are met.

Children of all abilities can benefit from the study of science. All children will be given the opportunity to develop their abilities to their fullest extent regardless of age, gender, race, cultural or linguistic background or any physical or sensory disability.

Safety

It is important to instill basic safety regulations into the children to encourage their independence. Ultimate responsibility for the planning and carrying out of safe activities however rests with each individual teacher. Children should be taught how to use equipment correctly and encouraged in the awareness of safety, not only for themselves, but for others.

Information Technology

In line with the National Curriculum ICT has an integral role in the science curriculum. Children should be taught to use ICT equipment as good practice in science, whether it be the internet for research, retrieval for sorting databases, branch diagrams or keys to using data loggers for monitoring and controlling, sound, light and temperature. All pupils are actively encouraged to use ICT through science as long as the equipment has been demonstrated and explained first.

ORGANISATION OF TEACHING AND LEARNING

We believe the best way to learn is through “first hand” experience.

We feel it is important that children are helped to make sense of their new experiences through discussion and application of their learning to different situations. To do this we need to provide a supportive environment where children:

- are willing and able to put forward their ideas knowing they will be listened to.
- are not afraid to ‘have a go’ or make mistakes.
- are willing to ask for help, both from their peer group and the teacher.

Planning

Work is planned individually or in year groups from the programmes of study, and is delivered mainly through the topics. This ensures that cross-curricular links, especially with technology, maths, geography and English are observed.

We highlight the specific aspects of a PoS to be covered on a half termly/termly planning sheet, which is then centrally stored for reference. Planning grids also assist individual teachers in ensuring work is covered.

Differentiation

In each class there is a wide variety of ability and therefore a variety of needs. As we approach all areas of learning in a child centred way, our planning for differentiation ensures that the strengths of the individual are used to build self confidence and maintain motivation.

ASSESSMENT, RECORDING AND REPORTING

Assessment of children's achievement is made through:-

- 1] Observation of their performance of tasks in the classroom.
- 2] Talking and discussion; comments and answers to "open" questions.
- 3] Ongoing teacher records of:
 - work covered.
 - evidence of concepts understood.
- 4] Samples of children's work.

Recording of children's progress is made through:

- teacher records
- reports to parents.

Collection of Evidence

Some significant pieces of work which illustrate achievement at a particular level should be retained as evidence and put in the children's folders. These may include record sheets from the science assessment folder which is currently being redeveloped. Staff are encouraged to use this if they need help on borderline judgements.

End of Key Stage Assessment

Teachers should keep sufficient records for each child to enable them to feel confident that the final teacher assessment level in a PoS broadly reflects attainment across the statements of level. Assessments are made in line with level descriptions to ensure correct pitch.

Whilst assessment will be ongoing it will be formalised at the end of each key stage. For KS 1 and KS 2 this will be done by teacher assessment.

To support teacher assessment a portfolio of children's work will be compiled. These pieces of work have been selected for retention after moderation meetings, when agreement has been reached as to the NC Level of Attainment. The portfolio will be used as a point of reference for staff and will be updated on a regular basis.

Management

It is the role of the science leader to maintain an overview of the science curriculum and ensure progression and co-ordination.

The lead teacher will support colleagues who are planning science activities, and as far as possible be a resource of science knowledge for the whole school.

Day to day storage of resources and acquisition of new equipment and materials are further aspects of the role.

All staff members are responsible for ensuring that through thorough planning and teaching, appropriate NC programmes of study are covered, and the achievements of each child are recorded and reported to the parent and next teacher.

Close liaison between staff is most important so that experience, skills and knowledge are built upon, ensuring each child's development and progression.

Evaluation

We recognise the need to regularly review our policy, amending or updating it according to changes in the NC requirements.

Reviewed April 2016

Next review April 2017