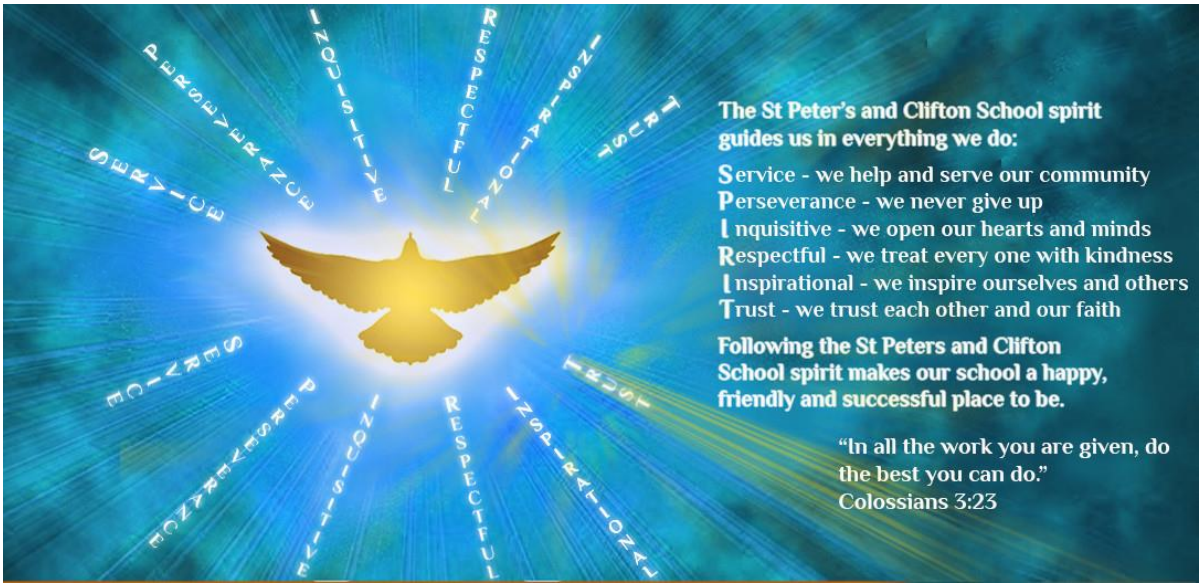
Science Policy



1. Curriculum Statement

Intent

At Horbury St Peter's and Clifton Primary School, we intend to instil the "St Peter's Spirit" in all our children. The teaching of Science in particular encourages our children to value the importance of:

Inquisitiveness

as they explore the world around them in a naturally curious way, while complementing this with the acquisition of science skills and knowledge.

The 2014 National Curriculum for Science aims to ensure that all children:

- 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 skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this

The Science curriculum at Horbury St Peter's and Clifton Primary School fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Working Scientifically skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following;

- Science will be taught in planned and arranged topic blocks by the class teacher, to have a project-based approach. This is a strategy to enable the achievement of a greater depth of knowledge.

- Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise

questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning, so that all children keep up.

- We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.

- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.

- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.

- Children throughout school become increasingly familiar with the 5 types of scientific enquiry (Fair Testing; Observation over Time; Pattern Seeking; Identifying & Classifying; Researching). Staff refer to each type of enquiry in their planning, on displays and in lessons so that children become more confident in recognising these skills and in Upper KS2 choose which skill they will need to use to answer their own questions.

- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.

- Events such as Science Day allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills.

Impact

The successful approach at Horbury St Peter's and Clifton Primary School results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. Through various workshops, trips and interactions with experts, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children at Horbury St Peter's and Clifton Primary School thoroughly enjoy science and this results in motivated learners with sound scientific understanding.

2. Teaching and Learning of Science

Class Organisation
Throughout Horbury St Peters and Clifton Primary School, Science is taught in an imaginative and largely practical and investigative way. The children benefit from whole class or group teaching as well as being encouraged to work individually: finding out information, practising skills, or thinking scientifically by themselves.

Typical Lessons
The teaching method used will vary according to the age, ability and experience of the children and the concept being taught. Learning and investigating outdoors is encouraged as much as possible. Use of scientific equipment is used by as many children in the class as possible.
Science lessons have no imposed formal structure however they may follow or contain some elements of the following structure.

- Starter – an item (picture, video clip, collection of items, etc) is often used to stimulate discussions, generate questions and motivate learners. It is also used to determine what they already know, recap on what has been learnt so far and what will be discovered next. Introduction of key vocabulary.
- Teaching- introducing new concepts or skills, building on previous concepts/skills either directly to the whole class or through group or individual work.
- Practical tasks/Investigative work- working as part of a group or individually carrying out tasks working scientifically (scientific enquiry skills, finding out answers/solutions to questions or problems and being encouraged to think scientifically).
- Recording- writing up experiments at age appropriate levels. Writing about what they have found out including drawing charts, tables, diagrams and using ICT where appropriate.
- Interpreting findings and data including graphs, charts, diagrams and tables.
- Communicating- pupils share ideas, knowledge and what they have discovered with each other, the teacher, other classes and adults as appropriate. Both verbally and within their work using appropriate acquired vocabulary.

Planning
Planning is the responsibility of the class teacher with help from the Science Co-ordinator (who also ensures progression and continuity throughout school). The Early Learning Goals will inform planning for children in Foundation stage; the National Curriculum programmes of study in all other year groups. When teachers plan they take into account our Science Code of Conduct. The Science Curriculum Map and Long term plans show which topics are taught when by which year groups. Progression of Science documents show how skills and knowledge are carefully arranged throughout school to ensure children's skills and knowledge are advanced.

Planning is used to:
- set clear, achievable goals;
- ensure that work is matched to pupils' abilities, experience and interests;
- ensure that there is continuity within each year group
- ensure progression, continuity and subject coverage throughout the school;
- provide criteria for assessment and evaluation of teaching and learning;
- provide real experiences through which pupils can learn

As the class teacher plans the teaching of science, he/she will consider how the curriculum will be differentiated. Consideration will be given to:
- pupil groupings, e.g. ability or mixed ability groups; or group, paired or individual activities;
- resources, e.g. different equipment for different levels of ability;

- pupil activity, e.g. different group tasks, different pupil roles and responsibilities, different allocations of time and variation of pace within the lesson to meet the needs of different levels of ability;
- other opportunities, e.g. extra-curricular / cross curricular activities, club links and interest groups

3. Assessment

Any assessment undertaken will be used to inform teaching in a continuous cycle of planning, teaching and assessment. Assessment of both scientific knowledge and skills are equally important.

Formative teacher assessment has always been an integral part of good practice, its main purpose being to enable the teacher to match the task set to the abilities and needs of the pupils as they progress and to ensure children are meeting national curriculum expectations and achieving their full potential. Science knowledge is assessed throughout and at the end of units. The teacher will assess the children's knowledge based on National Curriculum expectations laid down in their own medium term plans. The outcomes are recorded stating whether the children are working at, above or below age related expectations. For Science Enquiry, children are tracked using the OTrack software and each term summative data is recorded to enable the Science Co-ordinator to track groups of children that need support and at the end of year to look at areas of Science Enquiry that need more work.

4. Science Code of Conduct

In consultation with all staff and a Science Advisor a Science Code of Conduct was agreed upon:

Science lessons in our school will be:

- Engaging and exciting with a real sense of purpose
- Led by children's questions
- Well thought out, well prepared and well resourced
- Filled with open questions

5. Safety in Science Activities

We accept that we must all plan safe activities for science. We must make our children aware of the need for personal safety and the safety of others during their investigations. We encourage them to reflect on safety issues themselves to help reinforce teacher direction.

Staff follow guidance on health and safety issues based on advice given in the "Be Safe!" Guide. This provides model risk assessments for activities in primary science. A copy is located in the central science store for staff to refer to.

For any queries regarding health & safety in science, please contact:

CLEAPSS®, The Gardiner Building, Brunel Science Park, Kingston Lane, Uxbridge UB8 3PQ
Tel: +44 (0)1895 251496

E-mail: science@cleapss.org.uk
Website: https://science.cleapss.org.uk/helpline/

6. Role of the Coordinating Team

• To be role models and demonstrate good practice.
• Keep the written policy document up to date and evaluate the content and method.
• Encourage and support staff in the implementation of the agreed procedures and monitor the progression of activities and consistency of approach.
• Arrange INSET as appropriate to meet the needs of individuals and the school.
• Purchase and organise all Science resources, ensuring they are readily available and well maintained.
• Monitor teachers' planning as part of on-going subject monitoring and evaluation of practice.
• To be aware of national and local developments through reading relevant materials and attending courses as appropriate.

7. Equal Opportunity

We are committed to providing a teaching environment conducive to learning. Each child is valued respected and challenged regardless of ability, race, gender, religion, social background, culture or disability.

8. Inclusion of Children with SEN

We aim to provide a supportive and flexible atmosphere in which all children are enabled to achieve success. This demands that skills required for the task are appropriate for the child. We must be aware of the difficulties such children may experience, provide appropriate resources and be flexible in our approach and expectations, particularly in recording.

Policy Ratified: 09/07/20
Mel Ward – Science Co-ordinator