Horton Park Primary

We Learn to Succeed

Science Policy

Mission Statement: We learn to Succeed

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

(National Curriculum 2014)

Intent

At Horton Park Primary School, we recognise the importance of Science in every aspect of daily life. As one of the core subjects taught in Primary Schools, we give the teaching and learning of Science the prominence it requires.

The Scientific area of learning is concerned with increasing pupils' knowledge and understanding of our world, and with developing skills associated with Science as a process of enquiry. It will develop the natural curiosity of the child, encourage respect for living organisms and the physical environment and provide opportunities for critical evaluation of evidence.

The purpose of science in our school is to develop:

- A positive attitude towards science and an awareness of the relevance of science and scientists in the real world
- Scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- An 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.
- An enjoyment of science and the wonder of natural phenomena.

What do we mean by science?

Science is a means of improving our knowledge and understanding of the universe based on the collection of evidence through:

- Observation
- Hypothesis
- Prediction
- Experimentation
- Replication
- Discussion
- Questioning

Why do we think science is important?

We believe that providing opportunities for the expression of scientific ideas, and developing scientific responses, is essential to developing children and staff as learners. Our school ethos is where everyone learns to succeed. This is best demonstrated by this statement that appears in the Diversity and Inclusion document from the Science Association,

"We want people of all backgrounds and beliefs to be able to challenge, shape and debate the impact of scientific and technological developments."

In addition to the development of the individual child's knowledge and understanding of the sciences and the world, the whole school ethos of thinking critically and developing a growth mind set allows our learners to explore concepts in greater depth across the curriculum.

BREADTH OF STUDY

Through careful planning and preparation we aim to ensure that throughout the school children are given opportunities for:

- Asking relevant questions and using different types of scientific enquiries to answer them.
- Taking part in practical enquiries, comparative enquiries and fair tests.
- Making systematic and careful observations.
- Taking accurate measurements using standard units and a range of equipment.
- Gathering, recording, classifying and presenting data in a variety of ways to help when answering questions.
- Recording findings using simple scientific language, drawings, labelled diagrams, keys and data.
- Reporting on findings from enquiries, including oral and written explanations.
- Drawing conclusions.
- Making predictions.
- Suggesting improvements that could be made.

Through our creative curriculum approach we also seek to explore and utilise further opportunities to use and apply science across all subject areas.

TEACHERS PLANNING AND ORGANISATION

Each class teacher is responsible for the science learning in their class / year group in consultation with and with guidance from the science subject leader. All planning should be completed half termly in line with the National Curriculum objectives from Year 1 – Year 6.

The approach to the teaching of Science within the school is based on three key principles:

• A unit of science to be taught every half term.

• A clear focus on the Working Scientifically strand to run throughout all units.

• An emphasis on the planning and teaching of:
  - Observing closely using simple experiments.
  - Pattern seeking.

- Identifying, classifying and grouping.
- Comparative and fair testing.
- Research using secondary sources.

Each class organises 5-8 lessons comprising of 60 minutes for science. Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom.

Medium Term

Lessons are planned using the Medium Term format, which can be adapted by the class teacher. Science is planned as a unit of work and is collected and monitored by the science subject leader termly.
EYFS planning is based on the medium term plans and delivered as appropriate to individual children with thought to where the children are now and what steps they need to take next.

INCLUSION

Science lessons are inclusive to pupils with special educational needs. Where required, children's Personalised Provision Plans may address targets. These targets may be worked upon within the lesson.

Within the science lesson teachers must not only provide differentiated activities to support children with special educational needs but also activities that provide appropriate challenges for children who are high achievers in science. It is vital that all children are challenged at a level appropriate to their ability.

Greater Depth/More Able

More able pupils are those who are achieving or have the potential to achieve the higher standards in any academic subject including the arts, sports and drama by the end of each Key Stage. This may include those children who, for whatever reasons, may be currently underachieving. At Horton Park we define the higher standards as those set by the Department for Education in collaboration with the Standards and Testing Agency.

Mastery of the curriculum requires 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.

Developing mastery with greater depth is characterised by pupils' ability to:

- Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely.
- They should build up an extended specialist vocabulary.

- They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data.

EQUAL OPPORTUNITIES

Horton Park is committed to equality of opportunity. All children will be provided with a progressive, stimulating science curriculum irrespective of gender, ethnicity, soci-economic background or special educational needs as in line with the school's equal opportunities policy.

PUPILS' RECORDS OF WORK

Children are taught a variety of methods for recording their work in science including: writing, drawing, bar carts, tables, labelled diagrams, classification diagrams and through the use of scientific language. All children are encouraged to work tidily and neatly when recording their work. When drawing charts, graphs or lines children should be encouraged to use a pencil and ruler at all times.

EYFS record informally within the setting. For example:
- On the playground
- On whiteboards
- Using jigsaws
- Physically

Staff in Foundation use photos to ensure records of each child's achievements are maintained.

MARKING

Marking of children's work is essential to ensure they make further progress. All work is marked against success criteria, in line with the school's marking policy, and includes 'Now' steps. Work is to be marked once completed before a child starts the next piece of work in accordance with the school marking policy. Children are encouraged to self-evaluate their work and given time to respond to the 'Now' steps. Children in KS2 are encouraged to provide a 'Top Tip' after the completion of work if this is appropriate.

PUPIL ACHIEVEMNET AND FEEDBACK

Teachers make regular assessments of each child's progress and record these systematically. A record of each child's attainment against the key objectives for the appropriate year group is recorded on classroom monitor termly.

Short term

Children's class work is assessed frequently through:
-regular marking
-analysing errors
-questioning
-discussion
-plenaries

This is used to inform future planning and teaching. Lessons are adapted readily and planning is evaluated and annotated in light of these assessments. The teachers update their findings regularly using Classroom Monitor and this will be used to monitor progress during termly monitoring conducted by the science lead.

Long term
Science assessment will be monitored termly and end of year data will be required on classroom monitor to provide the learners with an age related expectation by the end of the year.
Y6 can be selected for a sample science monitoring visit.

Reporting to Parents
The annual report to parents will include information re: progress and attainment and future targets in the subject.

Monitoring and Evaluation

Monitoring will be carried out by the science subject leader as follows:
1. **Auditing Planning**: Access to all planning, relating planning to the National Curriculum and evaluating appropriateness. Also through formal and informal classroom observations.
2. **Monitoring of work:** Analysis of pupil's work in work scrutiny and discussions with pupils and class teachers.
3. **Monitor the Quality of teaching**: Analysis of planning related to the Framework and classroom observations re. Effectiveness of planning in practice.
4. **Auditing Resources**: Annual risk assessment and ongoing evaluation of resources. Monitor use of resources.

The subject leader will:

- Lead by example showing a thorough understanding of the subject
- Offer support to teachers in assessment, planning, teaching and delivery
- Work alongside the Headteacher to monitor and evaluate teaching and progress
- Identify training and development needs, plan and deliver training.
- Resource science throughout school, prioritising spending in consultation with staff and in accordance with the subject action plan and SIP.

Children will be encouraged to:

- Enjoy science and see its relevance for life.
- Understand what their next steps are, and be able to evaluate their progress towards them.
- Develop
- Working scientifically skills in a range of contexts
- Use scientific vocabulary with confidence.
- Use their knowledge to ask questions, observe, record findings, investigate and present findings.

Parents will:

- Be encouraged to develop positive attitudes to science and actively support their children when project homework is given linked to science
- Be well informed of their children's progress through annual reports and parents meetings.

Review Process

Headteacher reports outcomes of monitoring and evaluations to the Governing body yearly. Subject leader monitor delivery in practice and related planning; feeding back outcomes and development points to staff as appropriate.