Park Brow Primary School

Happy - Respect - Pride - Caring - Potential

Park Brow Community Primary School

Science Curriculum Policy

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Our curriculum has been reviewed in the light of national developments, including the new Primary Curriculum published in Autumn 2014. (To be read in conjunction with the Creative Curriculum Policy)

Intent

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.

Science Curriculum Development

The whole school curriculum has been organised and established in full consultation with all teaching staff. Staff took the "ingredients" of the new National Curriculum and decided together how these ingredients could be put together in the most exciting and effective way. It is regularly reviewed and developed in accordance with the DfE guidelines, the School Improvement Plan, and following consultation with Governors, Parents, Children and Teaching Staff.

Aims

Our Science Curriculum is...

- Underpinned by clear aims, values and purpose
- Broad, balanced and has clear progression in subject knowledge and skills.
- Prepare our children for life in an increasingly scientific and technological world.
- Foster concern about, and actively care for, our environment.
- Help develop and extend our children's scientific concept of their world.
- 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 scientific enquiries that help our children answer scientific questions about the world around them.
- Equip children with the scientific knowledge required to understand the uses and implications of science today and for the future.

Scientific Skills

- Give our children an understanding of scientific processes.
- Help our children to acquire practical scientific skills.
- Develop the skills of investigation – including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Develop the use of scientific language, recording and techniques.
- Develop the use of ICT in investigating and recording.
- Enable our children to become effective communicators of scientific ideas, facts and data.

Developing Science within a Creative Curriculum

Through a collaborative approach, staff developed and planned exciting themes for each half term that inspire, challenge, incorporate and promote our school values. We have created a skills and knowledge based continuum which includes coverage of the new National Curriculum. This is part of a broadly balanced curriculum which meets the needs of Park Brow's pupils. The development was driven by the school setting and local, national and international developments.

Curriculum Drivers

In addition to the content that is driven by the curriculum objectives we have developed curriculum drivers – Key elements that form relentless, consistent threads that run through our curriculum. These were devised by staff to meet the wider needs of our children specifically as they go forward in their lives.

For each science topic, alongside the curriculum content, we will be planning for and teaching sessions that develop

- Knowledge of the world
- Possibilities
- Emotional awareness

Cultural Capital

Teaching staff are encouraged to broaden the experience of the topics for their children through promotion of the outdoor curriculum, off-site visits, visitors into school and shared experiences with the wider school community, e.g. involvement with parents/carers, local, national and international school.

The science curriculum is delivered through stand alone science sessions with a balance between direct teaching and child-led exploration.

Children have the opportunity to take part in after school science club.

We are working towards earning the Primary Science Quality Mark.

Planning

Long, medium and short term planning formats were devised to incorporate National Curriculum requirements, milestones of achievement and our own school enhancements e.g. curriculum drivers.

Teaching

Key Stage 1

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.

Lower Key Stage 2

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

'Working scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

Upper Key Stage 2

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read, spell and pronounce scientific vocabulary correctly.

Monitoring and Assessment

A comprehensive assessment system is in place. Children are RAG rated against the national curriculum objectives; either greater depth (dark green) expected standard (green), working towards (yellow) or working towards expected standard (red). These milestones are taken directly from the National Curriculum expectations for each year group. End of year data from each year group is collated and used to inform planning in order to close gaps in knowledge, skills and understanding. Opportunities for children to revisit prior learning will be planned in systematically using online interactive quizzes.

Safety

It is important that children are taught the rule of safety in science from a young age so that it becomes integral to their experiments and investigation. Materials and equipment need to be treated with respect and care and we endeavour to make sure all children do this. When carrying out scientific activities, children should treat their classroom as though it is a fully equipped science laboratory. AS a school we have adopted the ASE's safety guidance, Be safe!

Equal Opportunities

Science is planned to meet the varied needs of all learners regardless of their gender, background, and culture, physical or cognitive development. Learning objectives are set to meet these needs in line

with our Special Needs policy. Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias. We recognise that science may strongly engage our greater depth pupils, and aim to challenge and extend them.

For our Greater Depth pupils we will expect:

- Teachers to provide teaching and learning experiences that encourage pupils to think creatively, explore and develop ideas, and try different approaches. Pupils should be encouraged to set their own questions, offer ideas, suggest solutions or explanations, and reflect on what they have heard, seen or done in order to clarify their thoughts.
- Greater independence in working, e.g. a pupil to be able to carry out their own simple scientific enquiry.
- Provide opportunities within Science for pupils to develop their skills in other areas, such as intrapersonal skills (for example, opportunities to use initiative), and interpersonal skills (for example, leadership and group membership). These opportunities also relate to the key skills of working with others and improving own learning and performance.
- Opportunities to make the school more environmentally sustainable.
- Liaise with Kirkby High to provide Gifted and Talented Workshops.

Use of ICT

We use ICT widely in science. Children are given the opportunity to practice science skills and enhance their presentation using carefully-chosen software, as well as the internet. ICT equipment is used for enquiry work, including microscopes with digital cameras, video capture of images and activities, and data logging.

Links with Other Subjects

In our topic-based teaching approach, we use cross-curricular links to science whenever we can. Science relates especially well to curriculum subjects such as literacy, mathematics, computing and design and technology.

Responsibilities and Roles

The Headteacher and Governing Body has overall responsibility for the Science Curriculum, supported by the Curriculum lead and subject lead.

The Subject lead is responsible for overseeing the delivery of the Science Curriculum through:

- Regular formal and informal discussions with staff.
- Monitoring planning to ensure curriculum coverage
- Carrying out book scrutinies alongside planning to ensure cross-curricular links are optimised.
- Ensure progress is being made within the science topics.
- Regular reviews of the curriculum through staff and pupil questionnaires and open dialogue.
- Making changes where necessary.
- Formulating an action plan to move the school forward

All teaching staff are responsible for the planning and delivery of the curriculum on a day-to-day basis and for making cross-curricular links where appropriate. Staff make amendments to planning in order to optimise learning opportunities when they arise.

Monitoring and Review

Monitoring and review takes place on a regular basis in accordance with the School Monitoring cycle, the School Improvement Plan and the Science Action Plan.

Updated May 2023 by G. Barry

To be reviewed summer term 2024.