



Science Guidance



Our Vision

Here at Newfield Park Primary Academy, our vision and values are at the core of everything we do. They underpin our teaching and learning and provide an environment which prepares our pupils as confident, happy citizens.

Our school aims are:

- To provide a safe and stimulating school environment.
- To promote high standards of teaching and learning.
- To value and develop all members of the school community

Curriculum

The school's curriculum is designed to meet the needs of its pupils and its major aims are to provide all children with an education, which will help them to:

- Enable all to achieve their potential, celebrating success within a caring environment.
- Raise levels of attainment for all pupils, enabling them to achieve their personal best.
- Foster a love of learning.
- Develop confident, disciplined and enquiring learners, able to make informed choices.
- Develop an increasing responsibility in pupils for their own life-long learning.
- Foster self-esteem and personal responsibility, linked to respect for the needs and feelings of others.
- Facilitate considerate and positive relationships between all members of the school community.
- Ensure equal and inclusive opportunities in relation to gender, race, class, special needs and belief.
- Value and respect all cultures.
- Provide a safe and happy workplace.
- Promote a thoughtful attitude towards the immediate and wider environment.

Philosophy/ Rationale for Science:

This Guidance outlines the teaching, organisation and management of Science taught at Newfield Park Primary Academy. The school's Guidance for Science is based on the current



primary curriculum, which was statutory from September 2014. The implementation of this Guidance is the responsibility of all teaching staff.

At Newfield Park, we believe that the best Science teaching fosters and develops pupils' curiosity in the subject whilst also helping them to fulfil their potential. For our pupils to achieve well in Science, they need to acquire the necessary scientific knowledge and be able to enjoy the experiences of engaging and purposeful scientific enquiry in order to help them to answer scientific questions about the world around them.

The National Curriculum 2014 states:

'A high-quality Science education provides the foundations for understanding the world through the specific disciplines of Biology, Chemistry and Physics...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.'

Aims:

Through high-quality Science teaching, children are given opportunities to:

- Develop their knowledge and understanding of important scientific ideas, processes and skills and relate these to everyday experiences.
- Acquire a curious and questioning mind.
- Develop skills of observation and investigation.
- Collect, retrieve, present and communicate their findings to others in a variety of ways.

We aim to do this by:

- Delivery of high quality, interesting and engaging Science lessons.
- Using scientific contexts to develop and consolidate cross-curricular skills in English, Maths and Computing.
- Teaching Science in a global and historical context, including the contributions of significant scientists from a range of cultures.
- Developing and extending pupils' scientific knowledge, understanding and curiosity.
- Developing pupils' ability to work scientifically and involve pupils in planning, carrying out and evaluating investigations.
- Developing pupils' scientific vocabulary and ability to articulate scientific concepts clearly and precisely.
- Ensuring that all pupils are appropriately challenged to make good progress in Science.



Early Years Foundation Stage (EYFS)- Reception and Nursery:

As part of the 'Statutory framework for the early years foundation stage (2023)' children in Reception and Nursery at Newfield Park will begin to learn about Science through Understanding of the World and Communication and Language.

In Understanding the World, the Statutory Framework states:

'Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters.'

To meet this Early Learning Goal, children should be able to talk about the lives of the people around them and their roles in society.

In Communication and Language, the Statutory Framework states:

'Through conversation, story-telling and role play, where children share their ideas with support and modelling from their teacher, and sensitive questioning that invites them to elaborate, children become comfortable using a rich range of vocabulary and language structures.'

To meet the Early Learning Goal, children should be able to make comments about what they have heard and ask questions to clarify their understanding.

Organisation:

At Newfield Park Primary School, teachers plan, deliver and assess high-quality and engaging Science lessons, incorporating a range of teaching and learning styles. Teachers will provide opportunities for pupils to:

- Learn about Science, where possible, through first hand practical experiences.
- Develop their research skills through the appropriate use of secondary sources.
- Work collaboratively in pairs, groups and/or individually.
- Plan and carry out investigations with an increasing systematic approach as they progress through the school.
- Develop their questioning, predicting, observing, measuring and interpreting skills.
- To develop their skills based on the five types of enquiry.
- Record their work in a variety of ways e.g. writing, diagrams, graphs, tables and orally.
- Create cross-curricular links between Maths and Science as often as possible.
- Read and spell scientific vocabulary appropriate for their age.



- Be motivated and inspired by engaging and interactive Science displays, which include key vocabulary, working scientifically objectives and relevant questions.
- Learn about Science using the outdoor learning environment and through the teaching of outside sources.

The subject leader will set out the skills that should be covered in each year group. These will ensure the necessary coverage and progression of skills as children move through school, this will allow the objectives set out in the National Curriculum (published in Sept 2013, updated 6 May 2015) to be met.

Responsibilities:

The role of the Science lead:

The Science lead monitors and supports the coverage, delivery and assessment of Science across the school. They do this in a variety of ways:

- Book trawls
- Monitoring and evaluating assessment data recorded on Excel
- Through pupil voice- Science Ambassadors
- Staff questionnaires
- Child questionnaires
- Learning walks
- Feeding back to staff
- Creating and updating topic front covers for each year group, which displays objectives
- Monitoring and maintaining resources

Planning:

Science in the Early Years Foundation Stage is planned using the Early Years Curriculum 'Understanding of the World'.

Key Stage 1 and 2 teachers plan Science lessons using the National Curriculum 2014, PLAN Primary Science Knowledge Matrices and through the Developing Experts scheme of work.

All Science lessons have focussed learning objectives and clear scaffolding to ensure that pupils make at least good progress. Occasionally work will be differentiated to support children with additional needs.

All Science lessons will consist of some form of retrieval practice, this will focus on the previous year's learning, previous unit's learning and the previous lesson's learning. This could be written, verbally or through an online platform such as Blooket.



Through the Five Types of Enquiry 'working scientifically' is embedded throughout the areas of learning in Key Stage 1 and 2, this focuses on the key aspects of scientific enquiry which enable pupils to investigate and answer scientific questions.

Areas of learning within Key Stage 1 and 2 ensure that statutory requirements are being covered through the specific disciplines of biology, chemistry and physics (teachers may also refer to the non-statutory guidance, which provides additional support).

The long-term plan outlines the details of the specific areas of learning covered in each year group over the year and the organisation of this.

Assessment and Record Keeping Procedures:

- For formative assessment teachers use effective Assessment for Learning (AfL) strategies, which are used to inform their planning and teaching.
- Teachers provide quality feedback to pupils (verbal and/or written) which clearly identifies strengths and how they might need to improve, providing gap tasks in order to consolidate and/or extend children's thinking.
- Teachers will need to provide a termly teacher assessment result using the Excel document in the assessment folder, where pupils' progress is tracked against the developing or expected levels for Key Stage 1 and 2.
- Children's work is often uploaded to SeeSaw and retained for assessment purposes, this included photographs, written work and/or oral explanations.
- Retrieval practice is an important part of assessment and is used in all Science lessons, either verbally, written or through online platforms such as Blooket.

Cross-curricular links:

Teachers are encouraged to link Science lessons to Maths and English, whenever the opportunities arise. In EYFS, children often undertake a topic, such as Space, which then links to all of the seven areas of learning and development.

Children can use their Maths skills to record their data as bar charts, line graphs and scatter graphs. They can also measure and record a variety of units of measurement and transfer mathematical vocabulary to make links in Science.

Children can use their English skills to record their findings and transfer notes made through the Five Types of Enquiry- researching secondary sources to write information texts based on Scientific concepts.

Children can use their Computing skills to record data e.g. through data loggers and decibel metres. They can also use their research skills to focus on one of the Five Types of Enquiry- research-using secondary sources.



Inclusion in Science:

Inclusion: gives all children quality formal and non-formal learning opportunities within a mainstream system that is adaptive to the needs of all learners. GOV UK, 2018

At Newfield Park, we believe every child has an equal right to a rounded education that allows them to achieve their full potential. Teachers ensure that they adopt an inclusive approach to their Science planning and teaching, ensuring that pupils of all abilities and backgrounds have an equal opportunity to make good progress and enjoy Science.

All children are entitled to receive and benefit from a Science curriculum that is appropriate and which recognises their individual needs, irrespective of gender, race, disability or special abilities. All pupils have an equal entitlement to become independent learners.

Three principles for inclusion TES Magazine (2022):

- Setting suitable learning challenges.
- Responding to pupils' diverse learning needs.
- Overcoming potential barriers to learning and assessment for individuals and groups of pupils.

At Newfield Park, we recognise that some of our children may have more than one area of significant need and that teaching and learning will need to be skillfully adapted to meet those needs. This may be accomplished by:

- Planning lessons to ensure that all tasks can be appropriately scaffolded or differentiated to accommodate children with SEND, ensuring that children with SEND can access the same, or similar, tasks as the rest of the class, in line with the curriculum.
- Using a wide range of Wave 1 teaching strategies – this may involve the use of additional equipment, thinking time, pre-teaching, using peer support, providing writing frames, using coloured overlays/print, breaking instructions down into small chunks, visual timetables, setting clear goals and/or building relationships.
- Making reasonable adjustments so that pupils with physical difficulties can access all learning activities.
- Translating instructions and tasks as appropriate to accommodate children who have English as an additional language.

Pupil Premium:

Newfield Park is committed to addressing the additional needs of children who may come from disadvantaged backgrounds and/or who receive additional Pupil Premium funding. Staff understand the importance of quality teaching for all, identifying potential barriers for learning and exploring varied teaching methods and interventions to achieve the best outcomes.



Staff regularly use data to track and monitor progress and seek to engage parents in all areas of their child's learning. Strategies at the core of our practice include collaborative learning, high quality feedback, metacognition techniques, raising aspiration, the use of digital technologies and increasing their culture capital.

Safeguarding:

Newfield Park is committed to providing an environment where everyone feels safe. Children are encouraged to share any worries and concerns that they may have and know who to approach if they feel unsafe. Through varied teaching and learning experiences children learn how to keep themselves safe as part of our broad and balanced curriculum.

All school staff will adhere to Newfield Park's Safeguarding Guidance/Procedures during Science lessons and refer issues to one of the DSLs (Designated Safeguarding Leads) where appropriate.

Visitors are welcomed into school to add valuable insights to children's learning. All visitors who come into school must hold a current DBS certificate and are supervised at all times by a member of school staff. All adults will be made aware of the school's Safeguarding Guidance and Procedures.

Health and Safety:

Teachers must plan safe activities for Science and complete a risk assessment, if necessary. Teachers and teaching assistants need to be aware of health and safety procedures, when using equipment/food in Science lessons.

Pupils must be aware of the need for personal safety and the safety of others during Science lessons.

Resources:

Science resources are stored in a store room situated in KS1.

The subject leader must be informed of any changes regarding Science resources i.e. missing or broken resources and/or when new or replacement resources are required.

A staff resources questionnaire is sent out annually in order to keep resources up-to-date.

Cross reference with other policies:

Newfield Park is a Rights Respecting School the following rights will be supported by the teaching of Science:

- All children have the right to education.
- All children have the right to find out things and say what they think, through making art, speaking and writing unless it breaks the rights of others.
- All children have a right to an opinion, for it to be listened to and taken seriously.