



Science Policy

2022- 2023

Intent:

Science makes an increasing contribution to all aspects of our lives. Children are naturally fascinated by everything in the world around them and Science makes a valuable contribution to their understanding. At Pentland Infant and Nursery School we feel it is important that children are given the opportunity to explore and understand the world in which they live.

Science at Pentland Infant and Nursery School is about giving children the tools to develop their ideas and ways of working that enable them to understand the world through investigation with independence, resilience and enjoyment.

At Pentland Infant and Nursery School we believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic, origin, gender, class, aptitude or disability.

The national curriculum for Science aims to ensure that all pupils:

- develop enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life today and for the future
- develop lively, inquiring minds with the ability to question
- to build on pupils' curiosity and sense of awe of the natural world and for them to care for the world in which they live
- to use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science
- to introduce pupils to the language and vocabulary of science
- to develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- to extend the learning environment for our pupils via our environmental areas and the locality
- 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.
- to promote a 'healthy lifestyle' in our pupils.

Equal Opportunities and Inclusion:

All children have equal access to the full Science programme of study that satisfies the National Curriculum 2014 requirements. It is important for all children to experience a range of scientific activities in ways that are appropriate to their needs and abilities. Special provision is made in exceptional cases.

Teaching and learning:

At Pentland Infant and Nursery School we base our teaching on the National Curriculum Programmes of Study and this is particularly helpful with ensuring that there is continuity and progression.

The National Curriculum document for Science sets out a clear, full and statutory requirement for all children. It determines the content of what will be taught, and sets attainment targets for learning. The programmes of study set out what should be taught at Key Stage 1 and 2 and The Foundation Stage programmes of study for Understanding of the World are set out in the EYFS.

Implementation:

Children learn by playing with things in their world. They pick up clues about what they see, touch, smell, taste and hear in order to make sense of it all. Eventually they come to conclusions which they match up with all the experiences they have had. Children take a second, careful look at the world. By talking

together children can be encouraged to explore and observe so that they can group objects and events and look for similarities and differences. They measure and record the things they have found out in ways that make sense to them so that later they can talk to other people about what they have discovered. They are encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Early Years Foundation Stage:

At Pentland we have Preschool and Nursery classes. Children enter Reception classes in the September after their fourth birthday. The EYFS sets out the learning objectives for the seven areas of learning:

- Physical Development
- Expressive Arts and Design
- Personal, Social and Emotional Development
- Literacy
- Understanding of the World
- Communication and Language.
- Mathematics

The EYFS aims to give the children knowledge and skills so they can begin the National Curriculum.

Key Stage 1:

At Pentland Infant and Nursery Science is taught as a discrete lesson and as part of cross-curricular themes when appropriate. Science has links with other areas of the curriculum including Geography, English, Numeracy, Art and Design Technology.

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage.

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. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils' engagement with and motivation to study science.

Key stage One Programmes of Study:

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Overview of units taught in KS1:

	<u>Autumn 1</u> <u>Superheroes</u>	<u>Autumn 2</u> <u>Fantastic</u> <u>Fairy tales</u>	<u>Spring 1</u> <u>Frozen</u> <u>Planet</u>	<u>Spring 2</u> <u>Space</u>	<u>Summer 1</u> <u>The Great</u> <u>Outdoors</u>	<u>Summer 2</u> <u>Land Ahoy!</u>
<u>Year 1</u>	<p>Human Senses Name body parts and recognise common structures between humans and other animals. Learn about the senses, the body parts associated with each sense and their role in keeping us safe.</p>	<p>Everyday Materials Identify a range of everyday materials and their sources. Investigate the properties of materials and begin to recognise that a material's properties define its use.</p>	<p>Seasonal Changes Seasonal changes and typical seasonal weather and events. Learn about the science of day and night and recognise that the seasons have varying day lengths in the UK.</p>		<p>Plant Parts Identify and describe the basic parts of plants and observe how they change over time.</p>	<p>Animal Parts Learn about fish, amphibians, reptiles, birds, mammals and invertebrates. Identify and describe their common structures, diets and how animals should be cared for.</p>
<u>Year 2</u>	<p>Human Survival Learn about the basic needs of humans for survival, including the importance of exercise, nutrition, and good hygiene. Learn how human offspring grow and change over time into adulthood.</p>	<p>Uses of Materials Uses of everyday materials and how materials' properties make them suitable or unsuitable for specific purposes. Explore how materials can be changed.</p>	<p>Habitats Explore local habitats to identify and name living things and begin to understand how they depend on one another for food and shelter.</p>		<p>Plant Survival Observe the growth of plants, recording changes over time and identifying what plants need to grow and stay healthy.</p>	<p>Human Survival Learn about the basic needs of humans for survival, including the importance of exercise, nutrition, and good hygiene. Learn how human offspring grow and change over time into adulthood.</p>

We are following the cornerstones scheme of work currently. You can also see the national curriculum document for the full programme of study that the school will follow.

Assessment:

Teachers will assess children's Science work in a variety of ways to ensure they gain a full understanding of what each child has learnt, and what is needed to progress their understanding. Teachers will use the statements on Target Tracker system to support them to make an overall judgement of children's scientific

ability. Additionally, teachers will observe, provide written and oral feedback. In EYFS learning journals are used to record children's progress and attainment. These will inform the class teacher's planning for future lessons. At the end of a unit of work, the class teacher makes a judgement about the children's achievements on Target Tracker. Progression in science is discussed in pupil progress meetings and relevant targets and actions are considered. Teachers are also encouraged to use Rising Stars progression statements to inform planning. In addition, teacher assessments are recorded as part of KS1 data which is reported to parents and the Local Authority.

Assessment should:

- Be formative and summative
- Be used to inform the teacher for future planning
- Promote continuity and progression
- Form the basis for reporting to parents
- Be based on observation, participation and written outcomes

Recording Children's recording will take many forms according to the nature of the activity:

- Verbal
- Pictorial
- Diagrammatic
- Graphical
- Written
- Symbolic
- I.C.T.
- Photographic

Impact:

Children at Pentland are excited and enthralled during Science lessons. Children have a love for Science when they leave Pentland Infant and Nursery School. They show an appreciation for anyone working in a role where science is incorporated. Our progression in Science skills ensures progress across the school. The children at Pentland Infant and Nursery School are confident in using Working Scientifically skills. Science is incorporated in English and Maths lessons to ensure the whole Science curriculum is being taught.

Health and safety

Children should be taught the correct and safe use of equipment and the carrying out of simple safety procedures as a fundamental part of their science lessons. A risk assessment should be carried out in line with school policy in regards to any school trips or experiments out of school grounds. Safety equipment is available in the science cupboard. The school grounds and surrounding areas offer a great resource for staff and pupils. It is the teacher's responsibility to ensure any investigations carried are done so in a safe way for the protection of their class.

Review

This policy was written by the Science Co-ordinator following discussions with the teaching and support staff at Pentland Infant and Nursery School. This policy will be reviewed annually by the science curriculum leader.

The policy will be reviewed again in September 2023

