Science Policy

Policy Information

Date of last review:	2.6.26	**Review period:**	2 yearly or as needed
Date ratified by Local Governors:		**Policy owner:**	Mrs D Carney

Reviews/revisions

Review date	Changes made	By whom
2.6.26 June 2028	Sections added: 2. Aims 3.1 Implementation through Teaching and Learning 3.2 Implementation through resources 3.3 Implementation through Professional Development and Training 3.4 Implementation of Vocabulary and Oracy 5. Inclusion and Equal Opportunities 6. Community and Enrichment Opportunities 7.Sustainability and Environmental Awareness 9. Spiritual, Moral, Social and Cultural Development 10. British Values Sections edited and revised 1. Intent 3. Implementation 4. Impact and assessment 8. Health and Safety 11. Monitoring and review	D Carney

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1. *Intent*

At Princefield First School, we aim to provide a high-quality science education that provides children with the foundations they need to recognise the importance of science in every aspect of daily life. We want our children to appreciate how science has changed the lives of human beings and know that it is vital to the world's future.

White Rose Science teaches practical approaches to science and scientific language in a fun and logical way. Through our science curriculum we intend to grow learners who have curious minds, are willing to investigate and have the skills and knowledge to test their ideas. Our schemes of learning provide full coverage of the national curriculum for science. They also cover scientific questions around sustainability and the planet and help children develop empathy for the local and wider environment. We break down the essential aspects of key stage science into easily digestible chunks.

Through discussion, experiment and practise children gain core knowledge around:

- Scientific vocabulary
- Working scientifically skills
- Gathering and interpretation of scientific evidence
- The use of everyday materials and scientific equipment to discover scientific ideas and problems
- Articulating scientific concepts and using five types of science enquiries.

2. *Aims*

Our science curriculum aims to:

- Develop environmentally aware citizens who understand the importance of sustainability and caring for the natural world.
- Develop curious, enthusiastic and resilient learners who ask questions about the world around them.
- Build secure scientific knowledge and understanding through biology, chemistry and physics.
- Develop children's ability to work scientifically through a range of enquiry types and practical investigations.
- Promote the accurate use of scientific vocabulary and enable pupils to communicate their understanding confidently through discussion and explanation.
- Provide opportunities for pupils to make connections between prior and new learning, supporting long-term retention of key scientific concepts.
- Foster an appreciation of the role science plays in everyday life and its importance for the future.

3. *Implementation*

We have carefully considered our adoption of the White Rose Science schemes of learning, which provide clear progression in knowledge, skills and vocabulary from EYFS to Year 4. Lessons are sequenced to build on prior learning and revisit key concepts. Working Scientifically skills are taught through practical enquiry opportunities, investigations, observation and data handling. Science remains a weekly discrete learning event for all our pupils from Key Stage one to Lower Key Stage two, building on the curiosity of our pupils that is developed through the Understanding the World aspect of the Early Years Curriculum.

In order to achieve our aims, we plan and teach science lessons weekly across the school. Our planning is in line with the National Curriculum (and EYFS in the Early Years) and follows a clear progression of knowledge and skills. This is explained below.

3.1 Implementation through Teaching and Learning

Early Years Foundation Stage

Science in the Early Years Foundation Stage is taught through the Understanding the World area of learning. It is introduced through both child-led and adult-led activities that encourage every child to explore, solve, observe, predict, think, make decisions and talk about the world around them. Children explore the natural world through first-hand experiences, observation, investigation and discussion. Opportunities for exploration are provided both indoors and outdoors, supporting the development of curiosity, enquiry and early scientific understanding.

Key Stage One

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

The full programme of study for Year 1 and 2 will be covered within Key Stage one.

Lower Key Stage Two

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

The full programme of study for Year 3 and 4 will be covered within Key Stage Two.

3.2 Implementation through resources

Resources are held centrally in the cupboard in the learning support area. Resources can be shared by all teachers to teach the topics they are covering. Equipment and resources are regularly checked and updated by the science coordinator. In addition, the school's library and class books, tablets and laptops are used for research, presentations and recording.

3.3 Implementation through Professional Development and Training

The Science Curriculum Leader and Senior Leadership Team will:

- Ensure that the delivery of science meets the long-term plan
- Ensure the science curriculum meets the aims and objectives of the school
- Support, guides and motivates teachers and other adults of the subjects
- Evaluate and monitor the effectiveness of teaching and learning within the school
- Monitor progress towards targets for pupils and staff to inform future priorities and targets for the subject through: ○ Work Sampling ○ Scrutiny of planning ○ Lesson Observations
  ○ Looking at displays and photographs
  ○ Discussions with staff ○ Analysis of assessments
- Review current practice in school, evaluating strengths and areas for development
- Lead staff meetings as appropriate
- Review and revise this policy
- Audit resources and order resources when needed
- Write Science Action Plan
- Attend relevant in-service training and prompt others about relevant training

3.4 Implementation of Vocabulary and Oracy

Knowledge organisers are used at the start of each unit to identify the substantive knowledge, and key vocabulary pupils will learn. These support retrieval practice, discussion, vocabulary development and oracy.

Subject-specific vocabulary is explicitly taught, revisited and embedded throughout each unit. Teachers use the school's vocabulary progression documents to ensure scientific language is introduced and developed progressively across year groups.

Pupils are encouraged to discuss ideas, explain their thinking, justify predictions and communicate findings using precise scientific language. Structured opportunities for talk are planned throughout lessons to develop confidence, deepen understanding and support effective scientific communication.

4. *Impact and Assessment*

Assessment is an integral part of teaching and learning in school. Children's progress should be monitored through observation and by using planning and learning objectives. Feedback to pupils should be provided and they are encouraged to improve their own learning performance through the school marking policy. Pupils are encouraged to record their work using a variety of methods and therefore communicate their findings to others. These may include written or verbal reports, charts, collages, models, pictures and role play activities. In Key Stage one and two, Children's written evidence will also be recorded in their individual science book. Early Years Foundation Stages use a class floor book to record learning and progress.

Teachers use formative assessment throughout lessons through questioning, discussion, retrieval activities and observation of practical work. Summative assessments are completed at the end of units to identify strengths, misconceptions and next steps.

The impact of our science curriculum is demonstrated through pupils' ability to:

- Recall and apply scientific knowledge from previous learning.
- Use scientific vocabulary accurately and confidently.
- Ask questions, make predictions and communicate ideas effectively.
- Explain scientific concepts using appropriate scientific language.
- Show curiosity, enthusiasm and confidence when engaging with scientific learning.

Assessment evidence, including hot and cold tasks, mind maps, pupil discussion, written work and practical outcomes, demonstrates pupils' progress and attainment. Monitoring activities, including book scrutiny, pupil voice, lesson visits and assessment analysis, ensure that the curriculum continues to meet the needs of all learners.

As a result of the intent and implementation of this policy, the children at Princefield First School will:

- Have a high standard of science, in line with or exceeding age-related expectations.
- Make progress, which will be measured across each unit of work as an end of unit assessment, along with a mind map of knowledge, to ensure continual progression of knowledge and skills.
- Children will enjoy and thrive during their science lessons and apply the knowledge and skills they have learnt across the broader curriculum.

5. *Inclusion and Equal Opportunities*

In line with our Equality Policy we are committed to providing a teaching environment that promotes learning. Children are given opportunities to work with others, listen to each other and treat everyone with respect:

- We plan our classroom activities to challenge and involve all pupils appropriately, according to age and capability, ethnic diversity, gender and language background.
- We are aware of different learning styles and the need to allow pupils to be able to work in their preferred learning styles for some time.
- We use materials for teaching which avoid stereotyping, and bias, towards race, gender, role or disability.
- We deal with such issues clearly and sensitively when they arise

At Princefield First School, we believe that all children are entitled to a high-quality science education. Science forms part of the school curriculum to provide a broad and balanced education to all children. Through our science teaching we provide learning opportunities that enable all pupils to make progress. We use a range of strategies to support pupils and ensure that pupils' needs are catered for in each aspect of the curriculum.

Teachers use a range of adaptive teaching strategies, including:

- Pre-teaching and revisiting key scientific vocabulary.
- Visual aids, practical resources and models to support understanding.
- Structured talk opportunities to develop confidence in scientific discussion and explanation.
- Appropriate scaffolding and support to enable pupils to access learning independently.
- Flexible grouping arrangements to support collaboration and peer learning.
- Additional adult support where required.
- Opportunities for challenge and deeper thinking for pupils who demonstrate secure understanding.

To ensure appropriate challenge and progression for pupils, teachers 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.
- Giving and encouraging pupils to communicate their understanding in a variety of ways, giving them responsibility for choosing and evaluating the most appropriate method.
- 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.

6. *Community and Enrichment Opportunities*

At Princefield First School, we recognise the value of enriching the science curriculum through real-world experiences, outdoor learning and partnerships with organisations within the local community. These opportunities help to bring science to life, deepen understanding and inspire curiosity about the world around us.

Children benefit from a range of enrichment opportunities that enhance and support classroom learning, including:

- Weekly After School Forest School sessions, which provide opportunities for exploration, observation, investigation and hands-on learning within a natural environment.
- The use of the school grounds and local environment to support scientific enquiry and develop an understanding of habitats, ecosystems and seasonal change.
- Water safety education delivered by the Canal & River Trust. As the school is situated close to a canal, these sessions help pupils understand how to stay safe around waterways while developing an awareness of the role canals play within the local environment and community.
- Visits, visitors and STEM-related experiences that provide pupils with opportunities to engage with science beyond the classroom and develop an understanding of how science is used in everyday life and future careers.

Through these experiences, pupils develop curiosity, confidence and a greater appreciation of science within their local community and the wider world.

7. *Sustainability and Environmental Awareness*

At Princefield First School, we are committed to developing pupils' understanding of their role in protecting and caring for the environment. Through our science curriculum, children are encouraged to explore environmental issues, understand human impact on the natural world and consider how individual and collective actions can contribute to a more sustainable future.

Each year group studies age-appropriate units and themes linked to sustainability and environmental awareness. These opportunities enable pupils to develop knowledge of topics such as habitats, biodiversity, climate change, pollution, conservation and the responsible use of natural resources. Children are encouraged to ask questions, investigate environmental issues and consider possible solutions through discussion, enquiry and practical learning.

Outdoor learning plays an important role in supporting environmental awareness across the school. Using the school grounds and outdoor learning opportunities within the curriculum, pupils are encouraged to observe, explore and interact with the natural environment. These experiences help children to develop a deeper understanding of ecosystems, seasonal change and the importance of caring for the world around them.

In addition, the school's Forest School after-school club provides opportunities for participating pupils to develop curiosity, resilience, independence and respect for nature while fostering positive attitudes towards environmental stewardship.

By embedding sustainability throughout the science curriculum, we aim to equip pupils with the knowledge, skills and values needed to make informed choices and become responsible citizens who contribute positively to their local and global communities.

8. *Healthy and Safety*

Health and safety is a key consideration in all science teaching and learning. At Princefield First School, we are committed to providing a safe and supportive environment in which pupils can develop their scientific knowledge, understanding and practical skills through a range of hands-on experiences and investigations.

Pupils are taught to use scientific equipment correctly, responsibly and safely. They are encouraged to recognise potential hazards, assess risks appropriately and adopt safe working practices during practical activities. Expectations for safe behaviour are explicitly taught and reinforced throughout the science curriculum.

Teachers are responsible for ensuring that all practical activities are planned and conducted safely, taking into account the age, abilities and individual needs of the pupils involved. Where appropriate, risk assessments are completed, and all activities are carried out in accordance with the school's Health and Safety Policy.

Science resources and equipment are regularly checked to ensure they are safe, suitable and fit for purpose. Any damaged or unsafe equipment is removed from use and replaced as necessary.

Staff follow current health and safety guidance and established procedures to ensure that practical science activities remain engaging, purposeful and safe for all pupils.

9. *Spiritual, Moral, Social and Cultural Development*

At Princefield First School we aim to promote our children's SMSC development through our teaching of science. Examples of this are included below.

- **Spiritual development:** awe of the scale of living things from the smallest microorganism to the largest tree, the complexity of living things, the beauty of natural objects or phenomenon – crystals, rainbows, the Earth from Space. Example: In a lesson about the solar system, pupils reflect on the size and scale of the planets, considering how the Earth fits into the vast universe. During a lesson on plant growth, they explore the complexity of life cycles and how living organisms rely on each other, fostering a sense of awe for nature's interconnections.
- **Moral development:** is enhanced through the consideration of issues such as discoveries in science which have been harmful to the planet, the effects of human activity on the planet e.g., extinction of species, global warming, pollution. Example: Pupils may consider how consumer choices impact workers in developing countries, learning about the ethical issues surrounding the production of goods like chocolate, coffee, and clothing. Pupils are encouraged to consider how their decisions as consumers can contribute to a fairer global economy.
- **Social development:** developing social skills through group and practical work, considering the safety of others during practical work, the effects of science on their lives e.g., enhancement of plant growth, medicines. How the rights of others may be affected by pollution, building wind farms, etc. Health issues linked to smoking, poor diet, lacking exercise. Example: In group projects, pupils collaborate to build models of the human digestive system, discussing and sharing their ideas to create an accurate representation. In a unit on forces, they work together to design and conduct experiments testing the effects of friction on different surfaces, fostering teamwork and communication skills. Additionally, pupils have the opportunity to collaborate with secondary school pupils during joint science projects, gaining insights and expanding their learning.
- **Cultural development:** drawing attention to how cultural differences can influence the extent to which scientific ideas are accepted, used and valued. Considering the historical context that influenced the way new theories are considered e.g., motion of the Earth, evolution, plate tectonics, Big Bang theory. Example: During a lesson on germs, pupils learn about Mary Seacole, whose work laid the foundation for vaccines and medical evolution.

Additionally, pupils explore how advances in medicine and technology have shaped UK society and its role in global scientific progress.

10. *British Values*

As a school we promote British values ensuring that our children leave school prepared for life in modern Britain. Science helps pupils to understand that we take the views and opinions of others into consideration, while forming our own. We take turns and take instructions from others. Children understand that they must follow rules for their own safety, and that there are consequences to their actions. Science provides opportunities for respectful discussions and offering support and advice to others.

11. *Monitoring and Review*

The Science Subject Leader is responsible for monitoring the quality of teaching and learning in science throughout the school. This is achieved through lesson visits, book scrutiny, pupil voice activities, assessment reviews, staff discussions and voice. Findings are used to celebrate strengths, identify priorities for development and support ongoing curriculum improvement.

This policy will be reviewed when necessary.