OCTOBER 2022

Science

POLICY

Swansfield Park
Primary School

The National Curriculum states that:

"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."

Intent

At Swansfield Park Primary School it is our intent to offer a broad, yet structured science curriculum throughout school. This curriculum is bespoke to our school, based on our stand alone or class topics and our mastery approach so this means our science supports our school philosophies on teaching and learning, assessment and SEND. We believe that every child is entitled to this curriculum, therefore, class teachers adapt lessons, resources or working practices to ensure all children can access science lessons.

In our science lessons, we want to foster an enthusiastic attitude in our children whereby they explore and learn about the world around them by gaining first hand experience of concepts as well as developing a knowledge of scientific discoveries and the work of scientists. Our outdoor environment complements our teaching of science.

Our ambitious, progressive curriculum offers opportunities for our children to learn key concepts and skills as well as to apply these to investigative tasks. This not only ensures concepts are embedded but also develops skills and understanding which will positively impact on their lives as they grow. We encourage children to question and investigate to further their scientific journey.

Aims

In line with the aims of the National Curriculum for science, at Swansfield Park Primary School, we aim to ensure that we:

- Develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life
- Build on pupils' curiosity and sense of awe of the natural world
- Use a planned range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science
- Provide a range of relevant experiences allowing pupils to acquire knowledge, skills and understanding in the key areas of: Scientific Enquiry, Life Processes and Living Things, Materials and their Properties, and Physical Processes through a variety of teaching and learning strategies;
- Introduce pupils to the language and vocabulary of science
- Develop pupils' basic practical skills and their ability to make accurate and appropriate measurements
- Promote children's ability to reason and make connection to real life situations and other curriculum areas through opportunities to apply their knowledge as well as discuss their thinking and understanding
- Extend the learning environment for our pupils via outdoor learning and the locality
- Promote a 'healthy lifestyle' in our pupils.

Planning

At Swansfield Park Primary School, we believe that children learn best when learning activities are well planned, stimulating and challenging, ensuring progress in the long, medium and short term.

Planning is undertaken on three levels:

Long-term planning:

Long-term planning is used to inform medium term planning from Year 1 to Year 6. The science Programmes of Study are split between our topics to ensure the National Curriculum has complete coverage over each year group. Teachers are encouraged to use professional discretion when deciding on how long is needed on a particular topic area whilst ensuring all objectives are covered by the end of the academic year. Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the EYFS Framework and staff follow the Development Matters statements to plan a progressive curriculum under the education programme: "Understanding the World". A set planning pro forma is used by all staff when completing long term planning.

Medium-term planning:

Medium-term planning is carried out half-termly. In their Key Stage teams, teachers are responsible for generating medium term planning overviews using the schools set pro forma and ensuring that these are made available on the school website.

These plans should highlight opportunities for mastery whereby skills from other subject areas may be applied eg reading, writing, maths, ICT.

Short-term planning:

Short-term planning is carried out for individual science lessons as part of a weekly plan or as part of a block of science lessons. Individual teachers are responsible for the planning of thoughtful, stimulating lessons for their class which include opportunities to demonstrate mastery in science and other areas in a cross curricular way. The school does not have a set pro forma for short term planning but it is expected that staff will detail the intended learning of each lesson, the teaching activities to be used as well as the learning outcomes.

For formal lesson observations, there is the expectation that staff use the school's lesson observation pro forma when planning their individual lessons. It is the responsibility of the class teacher to ensure that this document is shared with the relevant individuals prior to the observed lesson.

Teaching and Learning

At Swansfield Park Primary School, we use a variety of age appropriate teaching strategies to cater for the varied learning styles of our children. Although the science curriculum consists of blocks of knowledge the children must understand, these concepts should be taught and applied by 'working scientifically' on investigations. Whenever possible, we aspire to include aspects of investigative work.

In the Early Years, we recognise that creativity plays a significant role in scientific thinking and understanding. Some scientific based activities are available for children to access independently in order to practise, develop and explore scientific skills, or through an adult led activity, in order for the children's understanding of the world around them to be extended, challenged or strengthened.

Learning in the Early Years is based on pupils' interests and current themes. As children progress, greater emphasis is then placed on representing their scientific knowledge through more formal experiences and they are encouraged to start recording their scientific thinking and knowledge.

The way we structure of our science lessons is dependent on choosing the best possible tool to develop children's knowledge, skills and understanding. This may be through a weekly lesson or by a block of science lessons depending on our thematic topic based curriculum. This will be through whole-class and group-direct teaching and enquiry based research. Where possible, we use teaching assistants to provide support to individuals and/or to groups of children, this including the more able children who are challenged to deepen their thinking and make connections to other concepts and curriculum areas, as well as those children identified as having SEND and requiring additional guidance.

For the majority of lessons, pupils are seated in mixed ability groups as we believe that all pupils can understand scientific concepts and every pupil will have different strengths and development areas. However, groupings within classes are flexible and pupils will work in different groups dependent on their need.

At Swansfield Park Primary School, we also believe that the use of the outdoor environment is important in supporting the teaching and learning of science. The world beyond the classroom is not only an essential part our children's personal development, but it facilitates authentic, experiential learning experiences where opportunities for deep, sustained learning can again be facilitated. Staff are encouraged to routinely plan for outdoor learning activities and these are detailed by each class teacher on their medium term planning documents. Well planned trips and use of the local environment are used for the children to experience concepts first hand.

ICT is used in various ways to support the teaching and learning of science as well as to motivate children's learning. Each classroom has a PC connected to an interactive whiteboard to facilitate hands-on, experiential learning. Teachers are also provided with a laptop to support their planning and provision and are encouraged to use ICT to enhance teaching and learning in science. The school also has a central Learning Hub with timetabled computer access. It is resourced to accommodate a class of children for their science lessons. There is access to sets of Ipads within each key-stage in order to support the teaching and learning of science within the classroom environment as well.

At Swansfield Park Primary we believe investigative work should underpin the delivery of all science lessons. 'Working scientifically' must include the following practical scientific methods:

KS1:

- 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.

KS2:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.
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Assessment

Assessment is regarded as an integral part of the teaching and learning process at Swansfield Park Primary School. It is believed that formative and summative assessments are both important in fully understanding the depth of a child's scientific knowledge and understanding, and that a balance of both quantitative and qualitative sources should be used when making such judgements.

At Swansfield Park Primary School, the key sources of assessment in science are:

- Informal annotations which inform future planning
- Discussions with individual / groups of children
- Assessment for learning strategies: peer and self-assessments
- Marking and feedback in children's books
- Specific independent tasks based on applying science topics.

Marking

At Swansfield Park Primary School, we believe that children should be actively encouraged to participate in the marking process, either through self and peer assessment opportunities, or through responding to teacher's feedback.

Teachers are responsible for ensuring that marking is kept up-to-date and to ensure that children are given prompt feedback on the work they have done. Whenever possible, misconceptions will be dealt with quickly after a lesson by speaking to individual children/groups or provide the content for next lesson. If verbal feedback is not possible, marking should make clear the achievements of each child, 'Green for Go', as well as what an individual child needs to do in order to improve 'Think ahead with Red'.

Resources

At Swansfield Park Primary School, teachers are expected to support the teaching and learning process by carefully selecting high quality, concrete and pictorial resources which best promote the learning of specific topics.

Resources are stored centrally in the science cupboard. They are audited, checked and updated annually. Areas of need are monitored and equipment purchased in line with needs using the school's annual subject bidding process.

Maths equipment is also available in the maths cupboard for supporting the science curriculum especially with measuring.

Continuing Professional Development

All staff are encouraged to develop, assess and improve their teaching of science. Where a member of staff feels a need for particular CPD, discussions should take place with their line manager as part of their Performance Management.

At Swansfield Park Primary School, we encourage staff to attend school based CPD as well as external training courses advertised through both the online E-Courier and STEM. We also involve staff with policy and decision making as well as provide opportunities for in-school coaching where staff can both work with, and observe other colleagues.

Monitoring and Evaluation:

It is the responsibility of the science subject leader:

- To review changes to the National Curriculum requirements and advise on their implementation.
- Attend relevant CPD courses for Science as appropriate in line with the School Development plan.
- Produce an annual action plan in order to effectively plan, monitor and evaluate the development of the subject across the school.
- Within the classroom, monitor the standards of children's science work. This involves lesson observations, work scrutiny, learning walks, pupil interviews, data analysis and planning reviews.
- When appropriate, arrange staff meetings to discuss the scientific aspects of the themes contained in the school's current scheme of work and how these might be presented in the classroom.
- Carry out an annual audit of the school's Science resources, and operate an efficient storage system for these resources to ensure that our children can learn effectively in and through Science. Resources can then be bid for and purchased.
- Collate 'End of Year Progress Sheets' and set new priorities for development of Science in subsequent years.
- Produce an annual report summarising progress in this area of the curriculum.
- Endeavour to involve parents/ carers in their children's learning in and through science.

This policy has been formally adopted by the governing body.

VERSION HISTORY		
VERSION	DATE	DESCRIPTION
Initially adopted	September 2017	Adapted into Swansfield Park Primary School
Review	September 2021	Minor amendments
This Review	October 2022	Change to Intent text

APPROVAL AND AUTHORISATION				
	NAME	JOB TITLE	SIGNATURE	DATE
Approved	**Jenny Smith**	Head Teacher	J E Smith	October 2022
Approved	**Angela Jefferies**	Chair of Governors	A Jefferies	October 2022
DATE OF NEXT REVIEW			**Autumn 2024**	

Swansfield Park Primary School
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