
Policy on Science

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Pardes House
Primary School

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POLICY ON SCIENCE

The National Curriculum for Science aims to ensure that all pupils:

- 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 science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

Intent

We strive to provide a high-quality Science education that follows both the National Curriculum and develops pupils's understanding of the world through different scientific disciplines. Science forms an important part of our broad and balanced curriculum.

In an ever-changing world, it is vital our pupils understand how science has already changed their lives and how it may shape future prosperity. We seek to provide pupils with scientific knowledge, methodologies, and processes but also to give them the real world uses of this science. Our pupils are encouraged to recognise the power of rational explanation through exciting investigations, which build on their natural curiosity. They are expected to try to explain what is occurring, use appropriate scientific vocabulary and ideas and explain 'why?'.

We aim to provide a range of different types of scientific learning opportunities and promote open-ended STEM questioning, where pupils decide how to try to find and explain their answers. We aim for pupils to realise that some of the most significant scientific advancements occurred from mistakes or someone saying 'What if....?'. As well as using technical terminology accurately and precisely, we intend for pupils to apply mathematical knowledge to their understanding of science.

We are passionate that a broad science education is the entitlement of all our pupils, enabling them to access a scientific education, which should also encourage open-mindedness, perseverance and responsibility, which are skills they can apply in all walks of life.

Learning strategies will be adapted to best suit each class and each individual learner so that they are able to make best progress with their learning, draw out and deepen understanding and address potential misconceptions. Through careful planning, resourcing, delivery and assessment, we aim to ensure our Science curriculum is inclusive and accessible to all pupils, including those with SEND, Pupil Premium and those at Greater Depth.

Our intention is that links should be made between relevant Literacy and Maths objectives where these have already been taught, to support the embedding of this learning and show the practical application of these skills.

Aims

In Pardes House, we know that children gain certain skills through Science that are needed for life. We strive to raise the achievements and attainments of children in both knowledge-based science and practical science by fostering and encouraging positive working attitudes such as:

- Co-operation;
- Creativity;
- Curiosity;
- Persistence.

This gives pupils the independent skills they need to enjoy and transfer their investigations and inquisitiveness outside of the school arena and into their personal interests.

Purpose of the policy

The purpose of this policy is to give clear guidelines for both teachers and other interested parties, showing how the aims and objectives of the National Curriculum for Science are implemented in our school.

The Curriculum

The Science curriculum is based upon the skills outlined in the program of study in the National Curriculum 2014. Special educational weeks, special activity days and the use of external visitors and speakers also help facilitate aspects of the Science Curriculum.

Year 1	Plants	Animals inc humans	Everyday materials	Seasonal changes	
Year 2	Living things and their habitats	Plants	Animals inc humans	Use of everyday materials	
Year 3	Plants	Animals inc humans	Rocks	Light	Forces and materials
Year 4	Living things and their habitats	Animals inc humans	States of matter	Sound	Electricity
Year 5	Living things and their habitats	Animals inc humans	Properties and changes of materials	Earth and Space	Forces
Year 6	Living things and their habitats	Animals inc humans	Evolution and inheritance*	Light	Electricity

Evolution and Adaptation*

This is a key aspect of the curriculum that requires special care and attention, within the school's religious framework. In Pardes House Primary School, children are taught to

understand how the environment has changed over time and how plant and animal life has evolved over time to adapt and survive. Pupils learn about observable changes through the scientific studies that underpin them.

The work of Charles Darwin, the Voyage of the Beagle and his consequent study of finches will be part of this aspect of the curriculum. The contribution made by the fossil record is explained with emphasis on how the record is used to support evolutionary theory. Pupils in Year 6 will also learn the basics of genetics, the role of DNA and familial patterns, as part of learning about inheritance and how changes occur in living organisms.

Changes that have happened over time are also discussed from a traditional perspective culled from Jewish literature, as well as from the perspective of modern science. We aim to demonstrate that there is no conflict between the traditional and scientific understanding of the world around us.

This special Year 6 study is covered in the summer term, post SATs, where the Menahel and the Year 6 teacher will lead a joint project.

Planning

Planning for Science is done on a weekly basis, however we recognize the need to adapt accordingly based on the students' needs. This ensures that resources can be carefully arranged to enable the children easy access to and selection of the appropriate equipment. In this way, it is made sure that teachers are teaching the pupils to work scientifically as a route for the children to gain knowledge.

Great British scientists (and others)

One of the aims of our Science curriculum is to link great British scientists and other famous scientists to Science topics where possible and where it makes sense to do so. Examples include Year 1 learning about Chester Greenwood who invented ear muffs as part of their topic on materials, Year 2 who learned about John Mcadam who invented roads as part of their materials topic and Year 4 who focused on Galileo Galilei when learning about sound.

STEM journaling

The purpose of STEM journaling in Science is to develop our boys critical thinking skills and applying that thinking in written form, using technical terminology. This is about engaging their thinking caps, getting boys to think about what they are doing and what they have done, getting them to delve that little bit deeper into their learning and consider processes themselves.

Equal Opportunities

We believe that all our pupils must have equal access to the Science curriculum regardless of gender, race or ability. We aim to give every pupil the opportunity to experience success in

learning and to achieve as high a standard as possible. We aim to match the tasks and resources; the differing styles of learning, and the differing paces of learning to the ability of the child.

For pupils whose attainments fall significantly below the expected levels, a greater degree of differentiation will be necessary. For pupils whose attainments significantly exceed the expected level, teachers will need to plan suitably challenging work.

Pupils with Special Educational Needs

Pupils with SEN may receive extra support from a Teaching Assistant. Small-steps ‘targets’ for improvement will be set out in their Individual Education Plans (IEPs) which should relate directly to the Science Objectives at the appropriate level.

Every child, whatever their needs, should have full entitlement to the same opportunities in Science and this will be ensured by adaptations of content, organisation or equipment etc.

Monitoring

The Subject Leader and other members of the school’s Senior Leadership Team monitor the effectiveness of Science in each class through informal/formal observations and the monitoring of exercise books. Observation findings will then be discussed with the class teachers involved and curriculum development targets will be set to provide a structure and/or a route to further professional development. Any concerns or needs regarding the teaching of science will also be discussed.

Assessment

Each class teacher uses a mini assessment from SNAP science to assess what the children know and where they are heading to. These assessments may vary between classes as teachers choose a method that is best suited to their particular children. Assessments are most likely used to level the children’s practical skills in “working scientifically”. These may include the following techniques:

- Teacher/pupil discussion and questioning;
- Built in assessment activities or tasks;
- Teacher observations;
- Marking of written work;
- Beginning and ending ‘what do I know?’ charts;
- Informal quizzes.

Cross-curricular links

Where possible, additional links to Science are also made through other subjects, such as English and Maths.

Children are always given the opportunity for discussion of their ideas and findings. This gives the learning of science a broader spectrum and encourages the idea that Science is important in many facets of life.

Reporting to Parents

The achievements that have been recorded by the class teachers are formally reported to parents either through parents evening, or through the school report.

Health and Safety

Teachers must ensure that all experiments are chosen according to the maturity of the children involved. Children are made aware of potential experimental hazards and are taught how to effectively deal with risks and take account of them. In the event of an accident, the Headteacher and parents should be informed, and the incident recorded in the accident book. Risk Assessments are prepared where needed and discussed with the Subject Leader and School Business Manager.

Management of Resources

The Subject Leader is responsible for selecting, building and maintaining resources within budgetary limits and ensuring they are kept properly in a locked store-cupboard. Decisions regarding the purchase of new resources will be made in conjunction with the Headteacher and will reflect the state of the subject as per its evaluation and review.