Parsloes Primary School

Science Policy

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INTENT:

At Parsloes Primary School we believe that a high-quality science curriculum provides the foundations for understanding the world. Science encompasses the acquisition of new knowledge, concepts and skills; encouraging pupils to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural wonders that occur on our planet. During active and engaging lessons, pupils will learn and discuss scientific theories and processes, which will enable them to answer scientific questions about the world. They will develop scientific enquiry skills and use scientific language to explain concepts confidently.

- To develop pupils' enjoyment and interest in science and an appreciation of its contribution to all aspects of everyday life
- To build on pupils' curiosity and sense of awe of the natural world
- 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 develop pupils' use of computing in their science studies
- To extend the learning environment for our pupils via our environmental areas and the local environment
- To promote a 'healthy lifestyle' in our pupils

VISION:

Science is a systematic investigation of the physical, chemical and biological aspects of the world which relies on first-hand experiences and on other sources of information. The scientific process and pupils' problem-solving activities will be used to deepen their understanding of the concepts involved. The main aspects of science to be studied will be determined by the programmes of study of the National Curriculum.

Through Science, pupils at Parsloes Primary School will continue to deepen their respect, understanding and appreciation for the natural world and all its phenomena. Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science.

<u>At Parsloes, we can achieve this vision by:</u>

1. Teaching science as part of a blocked curriculum, ensuring children are given every opportunity to reach an in-depth level of understanding through a project-based approach.
2. Providing exciting and active learning experiences that have been carefully planned to build on children's understanding from one year to the next.

3. Ensuring every topic is planned and delivered in a way that enables children to learn a range of scientific concepts, whilst further developing their scientific skills and ability to think scientifically.
4. Ensuring cross-curricular links to a variety of subjects including art, maths and English, giving children an understanding of how to apply new skills and ways of thinking to their everyday lives.
5. Enriching our science curriculum through a variety of sources from outside of school, this year including online experiences (in light of COVID-19 restrictions).
6. Providing children with access to a variety of scientific equipment and teaching them to use this effectively to support their skills and understanding.
7. Adopting a 'science capital' approach to teaching, ensuring that learning experiences are related to the real world and use everyday examples that are relevant to the children at our school.
8. Providing staff with opportunities for high quality science CPD, to continue supporting and developing teachers' subject and pedagogical knowledge.

TEACHING AND LEARNING:

Planning:

Science is taught following the Framework based on the objectives as outlined in the National Curriculum. Learning objectives and lesson outlines can be found in the Science framework, showing term on term progression.

1. Medium term science plans are to be completed and saved on the system each term: T:\Staff Resources\Subject Folders\Science

2. For each year group, lessons and objectives are laid out with possible ideas to ensure lessons are taught consistently and according to the objectives.

By end of EYFS:

ELG- Understanding The World- The Natural World

Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

By end of KS1:
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.

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.

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

'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.

<u>Working Scientifically- Pupils should be taught by the end of KS1 (Year 1 and 2) to:</u>

- Ask simple questions and recognise that they can be answered in different ways
- Observe closely, using simple equipment
- Perform simple tests
- Identify and classify
- Use their observations and ideas to suggest answers to questions
- Gather and record data to help in answering questions

By end of Lower KS2:
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. They should

draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

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

'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.

Working Scientifically- Pupils should be taught by the end of Lower KS2 (Year 3 and 4) to:

- Ask relevant questions and use different types of scientific enquiry to answer them
- Set up simple practical enquiries, comparative and fair tests
- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gather, record, classify and present data in a variety of ways to help in answering questions
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identify differences, similarities or changes related to simple scientific ideas and processes
- Use straightforward scientific evidence to answer questions or to support their findings

By end of Upper KS2:

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.

At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry.

Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

Pupils should read, spell and pronounce scientific vocabulary correctly.

'Working and thinking 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.

Working Scientifically- Pupils should be taught by the end of Upper KS2 (Year 5 and 6) to:

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Use test results to make predictions to set up further comparative and fair tests
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identify scientific evidence that has been used to support or refute ideas or arguments

Resources:

1. Resources linked to science topics are held centrally and staff access when required.
2. The subject lead will complete a termly audit of resources and ensures resources required for upcoming units are accessible.
3. Pupils will be taught to use scientific equipment safely when using it during practical activities.
4. Class Teachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action.
5. Resources are appropriately cleaned and quarantined before they are returned to the science cupboard (to comply with COVID-19 safety requirements).

ASSESSMENT AND MONITORING:

Assessment is based around the Big Question for each unit of work. Each Big Question is linked to the key knowledge and skills taught throughout the unit. Teachers will monitor progress and attainment throughout the unit using a range of sources, such as, observation, discussion and recorded work to ensure accurate judgements. A class assessment grid is used throughout the unit to inform planning and record end of unit assessment judgements for pupils.

SEND;

Teachers have high expectations of all pupils. This includes pupils of all abilities, social and cultural backgrounds, those with disabilities and Special Educational Needs. Planning is differentiated and learning is supported appropriately so that all children can participate and have full access to the curriculum in order to reach their full potential.

REMOTE LEARNING:

Please see the Remote Learning Policy and the Covid addendum for more information.