

PHOENIX PRIMARY SCHOOL

SCIENCE POLICY 2024/25

1.1 VISION STATEMENT

In Phoenix, Science stimulates and excites pupil's curiosity about natural phenomena and events in the world around them. Pupils understand how major scientific ideas contribute toward technological change – impacting on industry, medicine, business and improving quality of life. They learn to question and discuss science based issues that may affect their own lives, the directions of society and the future of the world, encouraging and supporting the development of Science capital. This knowledge base of Science has a practical application to everyday experiences and is therefore important for pupil's social development. By working scientifically, through tailored investigations involving planning, testing, recording and analysing results, students come to appreciate the nature of the learning process. All teachers, design and plan activities providing opportunities for students to display and to develop and apply their creative and imaginative capacities in Science. These activities also enable them to experience an ongoing sense of success in their teaching and learning which are transferable to other subjects.

INTENT

1.2 AIMS

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

- Develop scientific knowledge and conceptual understanding through the specific disciplines.
- 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.

As well as these, Phoenix Primary School aims to:

- Enable pupils to make decisions about the uses and values of scientific work and achievements
- Enable pupils to develop an understanding and respect for the natural world
- Enable pupils to question, hypothesise, test and discover for themselves about our world.
- Develop the skills required to investigate the world around them.
- To develop the children's confidence and self-belief in using science from classroom to career in recognising possible scientific careers.

1.3 NATIONAL CURRICULUM

Key Stage 1:

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. '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. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage 2:

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. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

Upper Key Stage 2:

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, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. 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. '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. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read, spell and pronounce scientific vocabulary correctly.

IMPLEMENTATION

Science in EYFS:

Play underpins the delivery of all the EYFS. In playing, children behave in different ways: sometimes within their play, they may describe and discuss what they are doing and sometimes they may be more reflective and quiet as they play. Within a secure and challenging environment with effective support, children can explore, develop and experiment as they play to help them make sense of the world. The EYFS strand 'Understanding the World' leads directly to scientific elements of the curriculum and leads to more

formalised Science learning in KS1 and then KS2. They are assessed according to the Development Matters attainment targets and recorded in the FS floor book.

The science lead and the EY lead liaise regularly over planning, resources and activities for the FS classes.

Science in KS1 and KS2:

Science is taught in a discrete lesson per week, at least one and a half hours per week. Teachers plan their own lessons and investigations from long term plans provided by the science lead. Each year the Public Health England initiative called E-bug is taught in all year groups. This POS teaches children about hand and respiratory hygiene and antibiotic overuse.

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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. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge. Each KS2 class have 3-4 SFB which they record their science in. Practical work and investigations are conducted in mixed ability groups.

1.4 PLANNING

Science is taught in a cross curricular manner, where possible, and integrated into classes ongoing 'topic' work to provide more contextual and meaningful learning experiences. Throughout the year teachers will teach several stand-alone lessons which fill the gap between science topics that the children study just once, don't revisit after KS1 or in preparation for subject not taught until UKS2.

Teachers plan for at least one main investigation per topic and as many minor investigations that is required. The subject leader has responsibility for the school's long-term plans. Individual teachers plan weekly lesson. The science lead plans for lessons when covering PPA. This changes yearly depending on staffing needs. All science plans are available on the school shared drive.

Examples of cross-curricular:

- English – opportunities to write for varied purposes, with the characteristics of different kinds of writing. For example, chronological reports, recounts, balance arguments and note taking. There is a emphasis on science vocabulary and cross curricular words are identified on the class working wall.
- Mathematics – ("science and maths are best buddies" is our chant!)-developing skills in data handling, measurements and mathematical relationships.
- Art – understanding of materials and their properties, designing and creating own inventions.
- Geography – exploring physical processes. Use of biodome for science activities.
- History – researching Scientist, their discoveries and the impact in today's society
- Computing – data handling and research.
- PSHE and Mental health and well- being.– health and safety education. Ensuring that children can experience a science activities from a calm and anxious free environment, for example meditation session before the start of a session.
- P4C-The discussion of questions with a direct cross curricular link with science.
- Global learning and Rights Respecting-Understanding of science in a global context through discussion and P4C sessions. Raising awareness of and researching science projects world wide and their impacts on the world stage.
- Thrive-When teaching science staff are aware of the class THRIVE target and ensure that activities are and stage related.

1.5 RECORD KEEPING, ASSESSMENT AND REPORTING

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 observe, provide written and oral feedback. Teachers will use the statements on classroom monitor assessment system to support them to make an overall judgement of children's scientific ability. Progression in science is discussed in pupil progress meetings and relevant targets and actions are considered. In addition, teacher assessments are recorded half termly using the school's assessment policy and reports to parents in an end of year written report.

Other assessment tools include:

- M.O.S.S activity. Phoenix science lessons start with a MOSS-(mental and oral science starter) This is a short session, a game, a quiz, a vocabulary activity or mini investigation. This can be used to assess children's prior learning and retention.
- End of term review of learning-this is completed by staff at the end of the topic and high lights the strengths and future developments of the topic. It includes pupil voice.

- "Science rocks at Phoenix." Challenges. Seen in science floor books and used as a tool to assist quality marks.

Recording in Science:

- The way in which Science is recorded will vary across the school depending on age and ability. Teachers should ensure that a range of appropriate methods are used. All classes have a science wall. Staff are directed to include specific items on the wall, including a vocabulary section and misconception board. These may include:
 - Written accounts including: instructions, reports and explanations, booklets, leaflets and posters. Recorded in class science floor books.
 - Diagrams, drawings and pictures and paintings
 - Annotated diagrams
 - Spreadsheets (data collection)
 - Charts, graphs and tables
 - Model making
 - Photographs and videos.
 - Role play, hot seating and class presentations.
 - Title pages as introduction of each topic and pupil voice on covers of science floor books
 - Pupil voice on science displays and pupil questionnaires.

1.6 REASONABLE ADJUSTMENTS FOR PUPILS WITH SEND:

As part of the planning and preparation for the delivery of each science topic, teachers will need to consider how specific activities or the delivery may need to be amended and adjusted to ensure that pupils with SEND are able to access the materials and participate fully in the lesson. Pupils with language and communication difficulties (including those with ASD) may need additional visual prompts to help them understand what is expected of them. This may be the case especially when a new topic is introduced and to help the children to identify different stages of the lesson. Some pupils may require individual task boards with varying degrees of complexity to enable them to follow a series of steps where a task has been broken down into smaller, more management blocks. Some pupils may need physical objects along with the task board, especially during investigations. The school has a library of sensory science equipment which can assist children in their understanding of topics being taught. Teachers need to be aware of pupils with sensory sensitivities. For those pupils, adjustments may need to be made in order for them to access materials. For example, pupils can be provided with crayons in paper sleeves or be allowed to wash their hands frequently when they have been handling materials that they cause sensory dysregulation. Children may also require short breaks from the lesson to allow sensory needs to be met. Children with significant motor skill difficulties may require pencil grips or sloped surfaces to work on or a different way of recording their work.

1.7 SPEAKING AND LISTENING

Pupils are encouraged to provide specific evaluation of each other's work through verbal peer-assessment strategies.

1.8 MONITORING

The monitoring of coverage and progress across the school will be done by the subject coordinator in consultation with teachers and the SLT.

1.9 INCLUSION

At Phoenix Primary we plan to provide for all pupils to achieve, including boys and girls, higher achieving pupils, gifted and talented pupils, those with SEN, pupils with disabilities, pupils from all social and cultural backgrounds, children who are in care and those subject to safeguarding, pupils from different ethnic groups and those from diverse linguistic backgrounds.

1.10 ACHIEVEMENTS IN SCIENCE

Achievement in science is celebrated by:

- Displaying work.
- Communicating findings in class to others.
- Presenting of achievement certificates in achievement assembly and termly presentation of "The scientist of the term."
- Science dojos awarded by class teacher and science lead.
- STEM and STEAM Festivals.
- Celebrating Phoenix Science Week.
- Celebrating good work, research at home or sharing resources by posting on Twitter @phoenix_science and on the school website.

1.11 MISSION STATEMENT

'Where We Rise To The Challenge'

Working together as a whole school community we aim for all pupils, parents and staff to increase their participation within our school. This is achieved through the development of inclusive cultures, policies and practices. We take account of disability, race and gender to create a secure and accepting community where everyone feels valued.

We strive towards an outstanding school that provides a creative and enriching learning experience for all pupils. We respond to the diversity of need through our commitment to equality; overcoming potential barriers to learning and setting suitable personalised targets.

We set high expectations and expect every child to thrive. They should reach their full potential, recognising personal strengths and celebrating personal achievements of themselves and others; both within the school and its wider community.

1.12 EQUAL OPPORTUNITY FOR SPECIFIC GROUPS INCLUDING EAL CHILDREN

Care should be taken to give each child the opportunity to learn about the global community, regardless of race, Religion, language or gender.

1.13 HEALTH AND SAFETY

Children should be working in a safe environment both in and outside of the classroom. The relevant risk assessments must be completed when using any potentially dangerous equipment, such as scissors or craft knives. When conducting investigations, children should be properly supervised and should be made aware of any potential dangers, such as busy roads or water hazards.

Children are encouraged to consider their own safety and the safety of others at all times. Teachers will provide a safe and secure environment for children to learn. Any experiments or trips which are considered a particular risk will need a Risk Assessment Form to be completed and to consult the Science Co-ordinator, trips lead and any relevant SLT members prior. Consultation with the site manager is also advised before any practical investigations are under taken. School is supported by CLEAPSS through our membership provided by the local authority. Resources are stored appropriately and depending on the item require a

secured, locked place. Staff are required to send parent permission letters when considering investigations that may need parental consent or additional information.

1.14 PARENTAL INVOLVEMENT

As with all areas of children's learning we need the support of parents and carers to help us to maximise the development of each child's potential. This would include helping the child with any research or homework that may be set. Asking parents to come and share their skills and experiences. As well as joining in with the celebration of their children's achievement and success.

Parental input is highly valued and parents are regularly invited and welcomed into school to share their own expertise with the children. There are regular parent and family science workshops and during science week Phoenix runs parents and kids' science sessions. Parents of PP children are invited via a written invitation to these events. Children may receive science homework based on their current topic or vocabulary based homework.

1.15 WELLBEING

Mental health and wellbeing is at the forefront of everything we do, from children to all staff across the school. We have an open door policy within our environment and we offer all the opportunity to express themselves appropriately and ensure that matters of concern are dealt with correctly and supportively.

1.16 LEADERSHIP

The subject leader has specially-allocated time for fulfilling the task of reviewing samples of children's work, reviewing science floor books, training, liaising with other subject leaders from other schools and planning team teaching initiatives with ECTs. The Science co-ordinator is responsible for ensuring that the aims of the Science Policy are met.

In addition to this, the science co-ordinators should:

- Be enthusiastic about Science and demonstrate good practice, championing our "Can Do" culture and "Science Rocks" mantra.
- Encourage and support staff in the implementation of the curriculum and school approaches to Science teaching.
- Co-ordinate assessment procedures and record keeping to ensure progression and development throughout the school
- Monitor the teaching and learning of Science throughout the school
- Organise, review and purchase all science-based resources, ensuring they are readily available and maintained.
- Support staff by encouraging the sharing of ideas and organising in-service training as appropriate.
- To review and audit the Staff Science Handbook.
- To support ECTs.
- To organise Phoenix Science Week and co-organise STEM or STEAM weeks.

2 APPENDIX ONE – SCIENCE HANDBOOK

Phoenix Primary



WHERE WE RISE TO THE CHALLENGE