Science Policy

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Science Policy

Rationale

The 2014 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 skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this.

Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to appreciate the way science will affect their future on a personal, national, and global level.

At Village Primary, we encourage children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Working Scientifically skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

Approach

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. Our whole school approach to the teaching and learning of science involves the following;

• Science will be taught in planned and arranged topic blocks following the school science scheme 'PZAZ'. This is a strategy to enable the achievement of a greater depth of knowledge. PZAZ provides the science curriculum structure, progression, assessment and the opportunity to be flexible within the scheme.
• Through our planning, we involve problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess pupils regularly to identify those children with gaps in learning, so that all pupils keep up.
• We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
• Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics. Practical lessons are recorded in books or video clips/pictures uploaded to Seesaw.

• Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.
• Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.
• Regular events, such as Science Week or project days, such as Nature Day, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.

The approach at Village Primary School results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum. Through various workshops, trips and interactions with experts and local charities, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity.

Planning and Assessment

We carry out our curriculum planning in science using PZAZ. This gives us an overview for the year (LTP) which is broken down into different areas of science for each year group (some years cover 3 or 4 units, some may have 5) . The Science Leader works this out in conjunction with teaching colleagues in each year group. In some cases we combine the scientific study with work in other subject areas, especially at Key Stage 1; at other times the children study science as a discrete subject.
Our medium-term plans give details of each unit of work for each term. The Science Leader monitors the content of science lessons and cross-references with the LTP. For weekly lessons, teachers decide which of the lessons to teach in that particular unit. Lessons planned for must cover a range of scientific strands.

The planning and lesson notes provided by PZAZ allowed staff to assess against the end points of the lesson. Every lesson starts with a recap of the previous lesson, key vocabulary for the unit and children referred to the knowledge organiser which are located at the beginning of each new unit. It is the responsibility of the class teacher, with support from the Science Leader if required, to ensure these plans are adapted for each cohort of children and individual children based on needs.
The class teacher is responsible for updating Sonar Tracker system half termly. The Science Leader is responsible for tracking whole school progress of Science from 'Sonar Tracker' data. Each science unit has a summative assessment at the end and this is recorded in books. Overall judgements are triangulated with summative assessments, sonar tracker, questioning, pupil voice and science books.

Children identify what they know already about each topic, as well as what they would like to know. The programme of study takes is responsive to the children's starting points, as well as their specific interests. It also ensures a focus on the key identified knowledge of each topic, which is mapped within and across year groups to ensure progression. At the end of each science topic, this key knowledge is checked. Outcomes of work also evidence its acquisition.
In EYFS, we assess the children's Understanding of the World according to the Development Matters statements and some aspects of Expressive Arts Design are also science based

Teachers in agreement with the Science Leader and in line with the schools assessment policy will administer the relevant tests and use the results to inform next steps for individuals, groups and whole cohorts of children.

Results from assessments will be used by the Science Leader to address teachers Continual Professional Development (CPD) needs, resource implications and where further work needs to be done with a cohort.

Monitoring and reviewing

It is the responsibility of the Science Leader to monitor the standards of children's work and the quality of teaching in science. The Science Leader is also responsible for supporting colleagues in their teaching, for being informed about current developments in the subject, and for providing a strategic lead and direction for science in the school.

Resources

Resources are stored in a central area where all teachers have access. Where possible resources are organised in clearly labelled boxes or folders appropriate to each topic of work to ensure teachers do not have to spend time searching for resources.

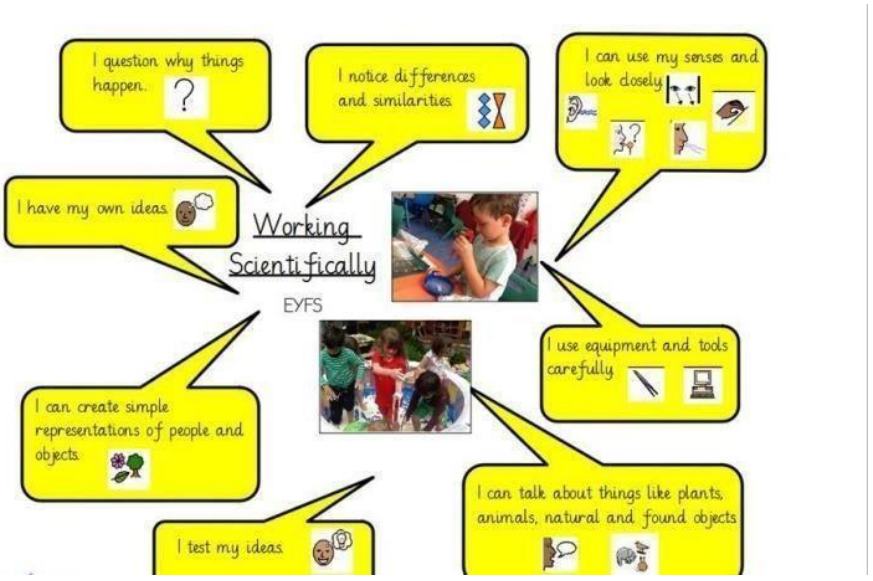
Resources include:

- Switched on Science teaching resources and CD/online resources.
- Appropriate books available in libraries to represent the breadth and balance of the science curriculum.
- Specific scientific equipment such as Newton metres and pooters.
- General, household objects such as corks, balloons, cling film etc.
- Technology including iPads, stop watches, kettles, computers, Data loggers etc.
- Websites (see appendix)
- Newspapers, magazines etc. will be used as appropriate.
- PZAZ Online

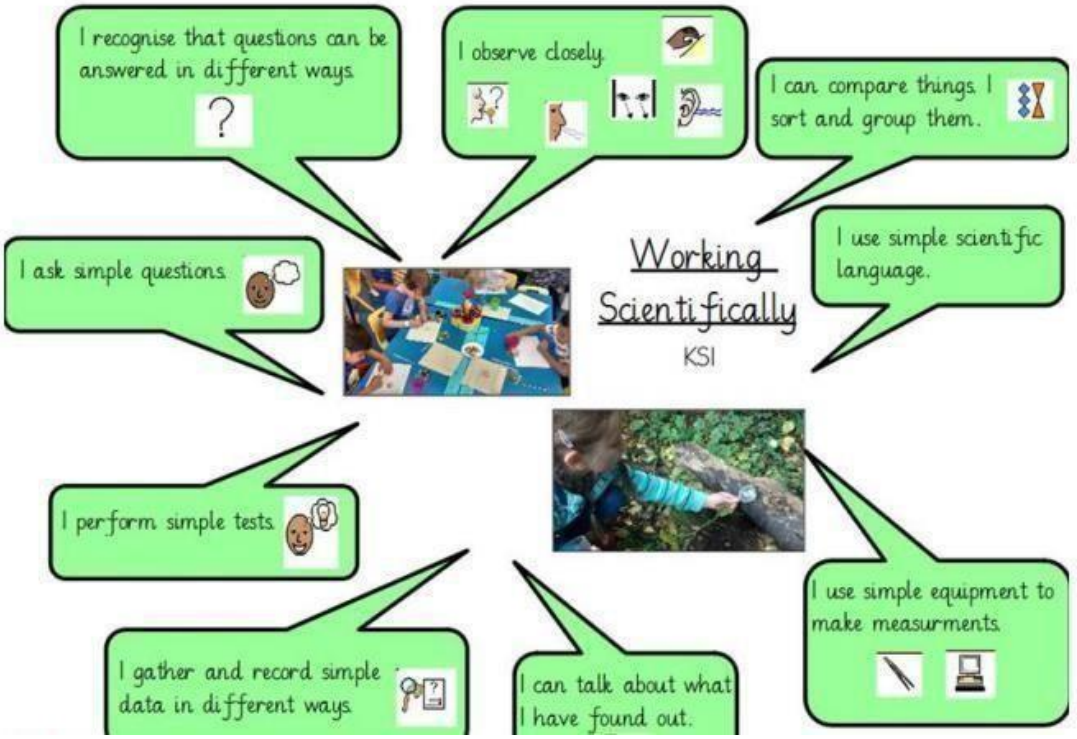
Teachers are responsible for using and returning equipment back to the location they removed it from when they have finished with it. Any breakages or equipment that needs replacing i.e. batteries, filter paper needs to be reported to the science leader to ensure resources are always available when needed.

The science leader will yearly audit the resources and ensure they meet current curriculum requirements but will also build into subject release time opportunity to check resources and their use as well as ordering and replenishing equipment.

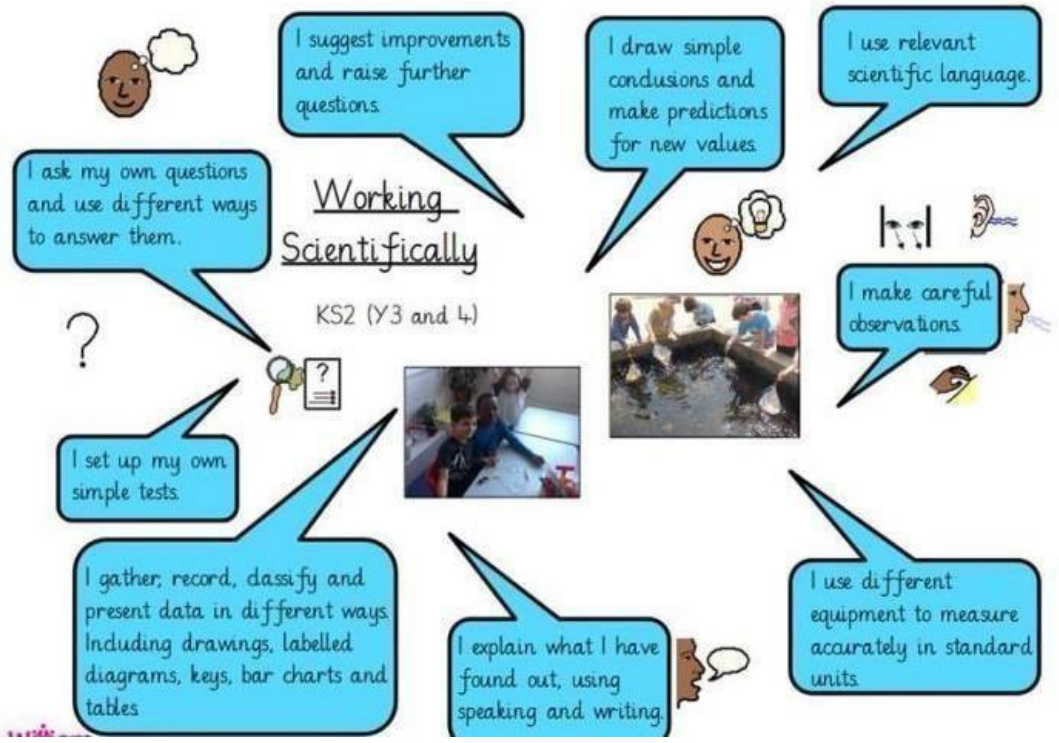
EYFS



Key stage one:



Key stage two:



Upper Key stage two: