



Science Policy

September 2024 – September 2026

Christian Vision

Building strong foundations for a happy and successful life

Like the wise man who built his house on rock (Matthew 7:24-27), we seek God's wisdom to enable us to nurture our school community so that all can flourish and achieve their best in every aspect of school life.

Intent

Our children gain knowledge in science formed through interesting and exciting experiences that enhance awareness of their own abilities and strengths as a learner. They use their prior knowledge and apply taught skills to solve problems and develop the sophistication of science. Our children see learning in science as an ongoing process, not a one-off event, making links with how their learning fits with the world around them, including careers. Our children will meet the National Curriculum expectations in science, taught by highly qualified staff who support children to develop mastery of concepts and inspire enthusiasm and interest in the subject. Our children will have opportunities to experience learning beyond the classroom. This will allow them to enrich their knowledge by visiting science museums and education laboratories and exploring the natural world all around them.

Implementation

The key threshold concepts across the Science curriculum are taught sequentially over time to develop scientific knowledge and skills from EYFS to Y6 and beyond. The curriculum is built around a process of interweaving topics, self-testing, and re-testing to aid the development of long-term memory and mastery of both skills and knowledge required. Children are taught with reference to the 3 scientific disciplines of Biology, Chemistry and Physics: Biology: Children learn that animals, humans and plants are made up of complex interacting systems to function. They recognise that organisms require a supply of energy to carry out basic functions of life and growth. Chemistry: Children learn that the Earth is a complex of interacting rock, water, air and life. They explore that particle theory of matter is the abstract idea that helps us develop an understanding of why materials behave as they do. Physics: Children learn that energy is a powerful and unifying abstract idea which is difficult to define. Forces change the state of rest or motion of the body.

Impact

Clear outcomes focus and guide Science development plans and drive improvement. Our children demonstrate outstanding progress that reveals a clear learning journey. Children talk enthusiastically about their learning in science. Our children are inspired to follow a pathway towards further study in science and aspire to a scientific career.

Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Through teaching science children are given opportunities to develop their knowledge and understanding of important scientific ideas, processes and skills and relate these to everyday experiences. Children will acquire a curious and questioning mind, develop skills of observation and investigation and collect, retrieve, present and communicate their findings to others in a variety of ways. Science has changed our lives and is vital to the world's future prosperity.

The new National Curriculum 2014 states why we teach science in schools:

'A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics...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.'

Aims

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.

These aims and purposes are taught through:

Knowledge and Understanding

Children should:

- Be curious about things they observe, experience and explore the world about them with all of their senses.
- Use this experience to develop their understanding of key scientific ideas and make links between different phenomena and experiences.
- Begin to think about models to represent things they cannot directly experience.
- Try to make sense of phenomena, seeking explanations and thinking critically about claims and ideas.

Processes and Skills

Children should:

- Acquire and refine the practical skills needed to investigate questions safely.
- Develop skills of predicting, asking questions, making inferences, concluding and evaluating based on evidence and understanding and use these skills in investigative work.
- Use practical mathematical skills in real contexts.
- Learn why numerical and mathematical skills are useful and helpful to understanding.

Language and Communication

Children should:

- Think creatively about science and enjoy trying to make sense of phenomena
- Develop language skills through talking about their work and presenting their own ideas using sustained and systematic writing of different kinds.
- Use scientific and mathematical language including technical vocabulary and conventions and draw diagrams and charts to communicate scientific ideas.
- Read non-fiction and extract information from sources such as reference books and the Internet.

Values and Attitudes

Children should:

- Work with others, listening to their ideas and treating these with respect.
- Develop respect for evidence and evaluate critically ideas, which may not fit evidence available.
- Develop a respect for the environment and living things and for their own health and safety.

Teaching and Learning

At Lewknor, teachers plan and deliver high-quality and engaging science lessons incorporating a range of teaching and learning styles. Teachers will provide opportunities for pupils to:

- Learn about science, where possible, through first-hand practical experiences.
- Develop their research skills through the appropriate use of secondary sources.
- Work collaboratively in pairs, groups and/or individually.
- Plan and carry out investigations with an increasingly systematic approach as they progress through the school. Please refer to Lewknor Church of England's Primary Science Investigation Policy.
- Develop their questioning, predicting, observing, measuring and interpreting skills.
- Record their work in a variety of ways e.g. writing, diagrams, graphs, tables.
- Read and spell scientific vocabulary appropriate for their age.
- Be motivated and inspired by engaging and interactive science displays which include key vocabulary and relevant questions.
- Learn about science using the outdoor learning environment.

Planning

- Science in the Early Years Foundation Stage is planned to use the Early Years Curriculum 'Understanding of the World'.
- Key Stage 1 and 2 teachers plan science lessons using the National Curriculum (2014). Teachers follow a Two-Year cycle which has been developed to provide children with a sound basis to develop their science knowledge and skills.
- All science lessons have focussed learning objectives, clear scaffolding opportunities and success criteria to ensure that pupils make at least good progress. These are set out in Lewknor's Long, medium and short term planning documents which are found on the shared drive.
- 'Working scientifically' is embedded throughout the areas of learning in key stage 1 and 2; this focuses on the key aspects of scientific enquiry which enable pupils to investigate and answer scientific questions.
- Areas of learning within key stage 1 and 2 ensure that statutory requirements are being covered through the specific disciplines of biology, chemistry and physics (teachers may also refer to the non-statutory guidance which provide additional support).

Organisation

EYFS

Science in EYFS is covered in the 'Understanding the World - the natural world- area of the EYFS Curriculum. It is introduced indirectly through activities that encourage our children to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. Science in the Early Years also helps children with skills in other areas of learning, such as physical development and expressive arts and design through hands on investigation and observational drawings of the world around them. During the first year at school in reception, our children will explore animals, people, plants and objects in their natural environments. They will observe and manipulate objects and materials to identify differences and similarities. They will also learn to use their senses, exploring the world around them to develop an understanding of the world. They will make lots of observations of animals and plants and explain why some things occur and talk about changes they see. A fundamental part of Understanding of the world is the children's ability to communicate effectively as scientists in order to make sense of the things they see. At Lewknor Primary School, we believe this key skill is essential to allow our children to progress as young scientists and focussing on the effective use of vocabulary when discussing aspects of the world around them.

Key Stage 1 and Key Stage 2

At Lewknor Primary School each year group covers National Curriculum objectives specific to their classes during their science teaching. Science is taught as a discrete lesson and as part of cross-curricular themes when appropriate. Science has links with other areas of the curriculum including geography, English, maths, art and design technology. Teachers in Key Stage 1 and 2 use the National Curriculum guidelines to inform medium term planning. Teachers also use a wide range of resources, including the school environment to enhance and enrich the children's learning. Children work at their own level of understanding in science. We aim to ensure that children are given the opportunity to achieve through their experience of science tasks and activities, and always provide the opportunity for our children to work towards higher level tasks.

Assessment

Assessment in science is based upon scientific knowledge and understanding. In reception we assess children's knowledge and understanding according to the Early Learning Goals. In KS1 and KS2 we assess enquiry skills using designated enquiry tasks for each topic to ensure that children are making appropriate progress. At the start of each topic in science, children are assessed against prior knowledge and at the end of each science topic, children carry out a short quiz to assess their conceptual knowledge. All staff strive to ensure that our children reach their full potential in science and enjoy their experiences. Children with Special Educational Needs will be monitored by our SEND Co-ordinator ensuring that these children follow the National Curriculum Programmes of Study.

Assessment should:

- Be formative and summative
- Be used to inform the teacher for future planning
- Promote continuity and progression
- Form the basis for reporting to parents
- Be based on observation, participation and written outcomes

Recording

Children's recording will take many forms according to the nature of the activity:

- Verbal
- Pictorial
- Diagrammatic
- Graphical
- Written
- Symbolic
- I.C.T.
- Photographic

Monitoring

Scrutiny of work will be carried out by the class teachers during staff meetings and informal discussions will be held between colleagues. The science coordinator will then provide verbal and written feedback.

Health and Safety

- Teachers plan safe activities for science and complete a risk assessment if necessary.
- Teachers and teaching assistants are aware of health and safety procedures when using equipment/food in science lessons.
- Teachers ensure pupils are aware of the need for personal safety and the safety of others during science lessons.

Resources

- Science resources are stored in the Upper Junior's classroom.
- The science coordinator carries out regular audits of the science resources and new resources are ordered when necessary.
- The subject coordinator will be informed of any changes regarding science resources i.e missing or broken resources and/or when new or replacement resources are required.

Inclusion

- At Lewknor, teachers ensure that they adopt an inclusive approach to their science planning and teaching ensuring that pupils of all abilities and backgrounds have an equal opportunity to make good progress and enjoy science.