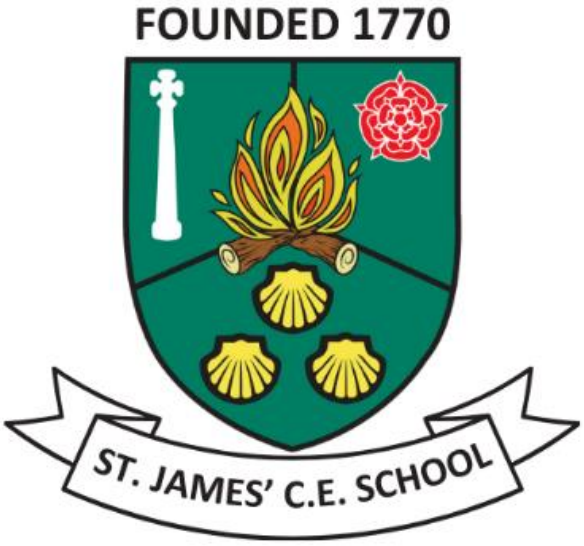
Leyland St. James' CE Primary School



Science Policy

Reviewed January 2025

Headteacher – Mr J Atherton

Science Lead – Mrs S Blundell

At Leyland St James' CE Primary School we ensure science enables our children to learn through the environment by exploring the natural world, giving children the opportunities to experience hands on Science. Children are given the skills to become well equipped to be scientists of the 21st century ensuring they know that the possibilities are endless whilst celebrating the diversity of scientific achievements around the world. We do this through promoting our curriculum drivers; environment, diversity and possibilities.

Purpose of study

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

Aims

Intent

• To develop pupils' enjoyment and interest in science through the exploration, discovery and investigation of the world around us.

• To develop pupils' understanding of key scientific concepts and scientific skills in line with the National Curriculum.

• To develop an understanding of and an ability to use scientific vocabulary accurately and appropriately.

• To provide opportunities for children to apply knowledge and skills developed in other areas of the curriculum including English, Maths and Computing in the recording, communicating and reporting of results. Specifically, children will have opportunities to explore fair testing, pattern seeking, observation over time, research, classification and identification.

• To encourage children to apply their knowledge of working scientifically in developing their own investigations as they progress through the school.

• To develop the skills of collaborative working during group investigations.

Implementation

- A clear and comprehensive scheme of work in line with the National Curriculum where teaching and learning shows progression across all year groups.

• It fires pupils' curiosity about Scientific exploration and discovery through experiential learning opportunities.

• It develops a vocabulary-centric approach to understanding key concepts within Science.

• It enables them to use their learning and knowledge from other areas of the school curriculum to highlight further and present their work within Science.

• It offers pupils the opportunity to consider fair testing and provides them with a range of ways in order to plan, undertake and present findings within their scientific work.

• It teaches the skills of working collaboratively and in a group-minded fashion to share ideas and consider concepts in a multitude of ways.

Impact

- A wider, more detailed and chronologically secure knowledge.
- Develop the skills of enquiry and communication.
- A deeper understanding of more complex issues and of abstract ideas.
- A closer integration of the skills of continuity and change, cause and consequence, similarity, difference and significance.
- A greater independence in applying scientific skills.
- Children will have high aspirations, which will see them through to further study, work and a successful adult life.

Curriculum

EYFS

We teach Science through the 'Understanding the World' area of learning. Teachers use the PLAN EYFS Matrices to help plan their lessons. The emphasis is on practical sessions, exploring the outdoor environment as well as that which can be seen, explored and taught in the classroom. Class teachers follow the direction of the children's learning and encourage them to question about phenomena around them to help them think of their own investigations. The three main aspects are simultaneously covered throughout the year and these are Past and Present People, Culture and Communities and the Natural World.

KS1 and KS2

We teach the National Curriculum for Science. The long term (yearly) plans identify the Science topics to be taught each term to each year group. The medium term plans identify the science objectives to be taught during the block of work for that term. Objectives are developed and built upon in teacher's individual lessons supported by the PLAN Knowledge Matrices as well as other published/web-based materials and resources. Planning is monitored by the Science subject leader to ensure curriculum coverage and progression.

Working scientifically KS1

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

• asking simple questions and recognising that they can be answered in different ways

• observing closely, using simple equipment

• performing simple tests

• identifying and classifying

• using their observations and ideas to suggest answers to questions

• gathering and recording data to help in answering questions

Working scientifically KS2

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

• asking relevant questions and using different types of scientific enquiries to answer them

• setting up simple practical enquiries, comparative and fair tests

• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

• gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

• recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

• reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

• identifying differences, similarities or changes related to simple scientific ideas and processes

- using straightforward scientific evidence to answer questions or to support their findings.

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

• taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

• using test results to make predictions to set up further comparative and fair tests

• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations

• identifying scientific evidence that has been used to support or refute ideas or arguments.

Adaptive Teaching

We adapt our Science learning with consideration of the needs of pupils through the following:

- Explicit instruction- clear explanations, modelling and frequent checks for understanding.
- Pre-teaching of vocabulary
- Cognitive and metacognitive strategies
- Scaffolding through supportive tools and strategies
- Using technology

More Able

Additional challenge for more able children is provided by the class teacher. We aim to give the more able pupils the opportunity to extend their scientific thinking through targeted questioning and activities that challenge their problem solving and investigative skills.

SEND

Children are given access to science irrespective of ability, race and gender (see Equal Opportunities Policy). Teachers are responsible for the learning of all children in the class.

This may involve formulating individual learning programmes for any children with particular needs. Activities in science have characteristics which help pupils to achieve success:

• They emphasise first-hand experience.

• Knowledge and skills can be developed in small steps through practical activities.

• Science investigations can capture the imagination and so encourage participation and enthusiasm. Provision for pupils with Special Educational Needs is planned in line with the Code of Practice for SEND. Tasks are adapted and matched according to the abilities of the pupils.

Assessment

We use a range of assessment techniques to find out what children understand and what we need to do to promote further development. Assessment is usually done while a task is being carried out through discussion, specifically questioning between child and teacher. Assessment can be carried out through observations of children working in groups or individually. As a unit of work is completed, teachers will assess children's learning and record the level at which the child is working. At the end of the year, teachers will record where they are working in relation to the YGE on the Lancashire tracker. Teachers can use the PLAN Knowledge Matrices and Key Learning document to inform assessments. Further resources are available to teachers to support assessment including the TAPS (Teacher Assessment in Primary Science) resources which suggest different investigations that can be carried out to assess the children's scientific investigative skills.

At the end of the school year, this information is passed to the next teacher and is used to inform planning learning activities appropriate to the child's prior attainment.

Role of the Subject Leader

The role of the subject leader is to coordinate the teaching of Science across the school and to monitor the use of the policy. They are also expected to monitor and maintain resources for the whole school. The subject leader provides information about the development of the subject through the school development plan. They should also provide support to staff and inform them of courses and developments in Science – acting as an advocate for the subject throughout the school. Health and Safety Safe practice must be promoted at all times. Teachers must also take into account the school's Health and Safety policy. Particular attention must be given to avoiding the use of anything that aggravates individual pupils' allergies. Safety issues have been identified in medium-term planning and risk assessments must be completed in weekly planning supported by CLEAPSS resources, when activities are identified that are unusual and beyond the scope of normal safety practice.

Knowledge Organisers

The children will have knowledge organisers in which they can reflect on and add to throughout the science units covered. These will be used in each year group as follows –

EYFS and Key Stage 1 – a class knowledge organiser that can be developed and built on together through the unit.

Key Stage 2 – individual knowledge organisers that can be developed individually.