



Science Policy

'Placing God in our hearts we will love, live and learn.'

Whole School Curriculum Aims

Our curriculum aims/intends to:

- Promote the learning and development of our youngest children and ensure they are ready for Key Stage 1
- Provide a broad and balanced education for all pupils that is coherently planned and sequenced towards cumulatively sufficient knowledge for skills and future learning and employment
- Enable pupils to develop knowledge, understand concepts and acquire skills, and be able to choose and apply these in relevant situations
- Support pupils' spiritual, moral, social and cultural development
- Support pupils' physical development and responsibility for their own health, and enable them to be active
- Promote a positive attitude towards learning
- Ensure equal access to learning for all pupils, with high expectations for every pupil and appropriate levels of challenge and support
- Equip pupils with the knowledge and cultural capital they need to succeed in life

Whole School Curriculum Approaches

Across our whole curriculum, we have identified key approaches to ensure our children are equipped for the 21st century:

- Open-ended learning
- Opportunities for collaborative learning in a range of contexts
- Learning is skills based and promotes independence
- Learning is linked to promote transfer of skills in meaningful contexts
- Secures key skills within a broad and rich curriculum
- Spoken language is a key priority
- Growth – spiritual, moral, physical, intellectual
- Growth mindset: resilience, stamina, perseverance and determination

We strive to ensure that each curriculum subject provides opportunities for the above.

Rationale

Through the Science curriculum in School, we aim to encourage and develop children's natural curiosity by incorporating the world around, making every lesson practical using the wonderful outdoors. We ensure the children are given the opportunity to be inquisitive, resilient and independent Scientists by allowing them to plan and carry out their own investigations from KS1 up to UKS2. They are given ample opportunity to ask their own questions, create their own hypotheses, use a range of Scientific equipment, make observations and record their results in a variety of ways. Children will develop and hone their Scientific enquiry skills as they progress further up the school. These skills are pattern seeking, comparative and fair testing, observation over time, identifying, grouping and classifying and research. The children will do this following careful planning of each topic by the teacher, ensuring that the scientific skills, as well as subject knowledge and scientific vocabulary, are covered. Science is linked to other subjects in the curriculum, which helps the children gain an awareness, realisation and understanding of how Science is linked to our everyday lives.

Subject Specific Aims

We follow the National Curriculum for Science and adhere to its aims which will contribute to the children in our school being good at Science. The aims are for all children are:

- To develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- To 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
- To be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

Approaches:

The curriculum will be closely adhered to and will be fully covered by each year group and Key Stage, allowing children to develop and build on their scientific knowledge and conceptual understanding as they move up the school. The curriculum ensures a broad range of coverage of the three scientific disciplines of Biology, Chemistry and Physics. The Subject Leader has worked with each year group to ensure the Science curriculum is covered in full.

Working scientifically specifies the understanding of the nature, processes and methods of science for each year group. The skills of enquiry will be taught in line with the subject knowledge aims in every lesson. The teacher will link working scientifically aims with the subject knowledge aims to ensure cohesion and full coverage. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data which will be evident in the planning process for each topic.

In order for all children to be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future, lessons will aim to include real life situations and scenarios for children to relate to. Teachers will use resources, equipment, the outdoors and trips in order to achieve this, followed up by videos and photographs if that is not possible in the first instance.

Planning for Science:

Planning for Science follows the process:

1. Whole school curriculum overview outlines focus areas for each year group
2. Skills Progression Grid outlines how the skills in each focus area are sequenced across each year group
3. Lancashire planning is referred to by staff as a starting point.
4. Unit Planning – medium term planning which highlights the focus area and outlines the objectives, main activities, success criteria and relevant vocabulary. Medium term plans also highlights the evidence to be included in children's Science books
5. Weekly Overview – outlines how class teachers block time for each subject and includes the main objectives covered during each lesson

Assessment of Science:

Formative assessment is predominant and will ensure that teachers assess the pupils' work during the lesson. As far as possible, children will be provided with feedback so that they can make amendments during the lesson and the teacher can individually support and challenge children. The children's progress is measured against the learning objectives and unit outcomes. Ongoing teacher assessments enable tasks to be matched to the ability and needs of each child. From an early age, children are actively involved in their own learning with opportunities for reflecting, reviewing and evaluating their own performance.

The school has used the used the national curriculum end of key stage expectations to develop end of year expectations for each year group. The teachers assess against these and record their judgements on O Track. Children in Nursery and Reception are assessed against the Early Learning Goals.

Subject Specific Expectations:

KS1

National Curriculum: "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."

LKS2

National Curriculum: "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."

UKS2

National Curriculum: "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."

- The above should be evidenced in children's Science books, class floor books, photographs, working wall displays, teacher's planning and class folders online (for computer work).
- Teacher planning should clearly show a Working Scientifically objective for the topic, as well as lesson objectives taken from the subject knowledge aims of the topic.
- Planning should show that every lesson will involve practical aspects of Science in order to give the children first-hand experience in Scientific learning.
- The marking policy will be followed by Teachers, assessing whether or not children have met the learning objective for subject knowledge AND for working scientifically.

Quality First Teaching

Quality First Teaching is teaching that emphasises high quality, inclusive teaching for all pupils in a class. Quality first teaching includes differentiated learning, strategies to support SEN pupils' learning in class, on-going formative assessment and many others. We recognise that good planning of well-sequenced and manageable lessons coupled with effective pedagogical choices, and effective and robust assessment for learning, is the first step in reducing underachievement.

Additional Support and Intervention

Because of the practical nature of the subject and the fact that tasks are open-ended allowing for a variety of outcomes, most children achieve age related expectations. However, when a child is seen to be working below ARE strategies are put in place to support that child:

- Extra support is provided to promote discussion which will lead to further understanding
- Clear step by step instructions are given
- Sufficient time is granted for children to complete tasks at their own pace
- When necessary, specialist equipment is provided

Equal Opportunities

All children have full access to the Science curriculum, regardless of gender, race or ability. We will use opportunities within our teaching to challenge stereotypes.

Class teachers provide differentiated learning opportunities to meet the needs of all children. We recognise the importance of identifying the specific difficulties that individual children might have so that the appropriate teaching and organisational strategies can be adopted. Appropriate provisions are made to ensure all children are able to participate fully and can experience success. At the same time, class teachers identify pupils who excel in Science. These pupils are provided with opportunities to further develop their skills and achievements and care is taken to set suitable learning challenges.

Health and Safety

Teachers will consider any specific Health and Safety procedures that will need to be implemented during each individual lesson, and will take due care and caution when adhering to this. They will make careful preparations and take sensible precautions when needed. This will include areas such as: using scientific equipment, working outdoors, field trips, washing hands, work space/work area and wearing protective equipment. Teachers will speak to their class to ensure all children understand any specific H & S rules needed for that lesson, as well as any other adults/support present at that time.

Time Allocation

Science is taught on a weekly basis for a minimum of 1 hour per lesson. Science is taught throughout every half term in all year groups.

Reporting to Parents

- Parent's evening are arranged during the Autumn and Spring Term
- End of term reports completed by class teacher and sent to parents. The end of year report contains information about attainment in Science.

Monitoring and Evaluation

In order to monitor standards and progress the following systems are in place:

- Medium Term planning are submitted to the Subject Leader for monitoring
- Regular book looks are carried out by Subject Leader/ Head teacher
- Lesson observations by Subject Leader
- Progression of Skills map is highlighted by Subject Leader during books looks
- Assessment sheets are completed by class teacher on completion of a unit of work

ROLES AND RESPONSIBILITIES

The Governing Board

The governing board will monitor the effectiveness of this policy and hold the headteacher to account for its implementation. The governing board will also ensure that:

- a robust framework is in place for setting curriculum priorities and aspirational targets
- enough teaching time is provided for pupils to cover the National Curriculum and other statutory requirements
- proper provision is made for pupils with different abilities and needs, including children with special educational needs (SEN)
- it participates actively in decision-making about the breadth and balance of the curriculum
- it fulfils its role in processes to disapply pupils from all or part of the National Curriculum, where appropriate, and in any subsequent appeals

Head Teacher

The head teacher is responsible for ensuring that this policy is adhered to, and that:

- all required elements of the curriculum, and those subjects which the school chooses to offer, have aims and objectives which reflect the aims of the school and indicate how the needs of individual pupils will be met
- the amount of time provided for teaching the required elements of the curriculum is adequate and is reviewed by the governing board
- where appropriate, the individual needs of some pupils are met by permanent or temporary disapplication from all or part of the National Curriculum
- they manage requests to withdraw children from curriculum subjects, where appropriate
- the school's procedures for assessment meet all legal requirements
- the governing board is fully involved in decision-making processes that relate to the breadth and balance of the curriculum
- the governing board is advised on whole-school targets in order to make informed decisions
- proper provision is in place for pupils with different abilities and needs, including children with SEN

Subject Leader

The subject leader is responsible for:

- co-ordinating the provision of a broad and balanced subject-level curriculum across EYFS, KS1 and KS2
- ensuring appropriate subject units of work are in place and are being delivered in accordance with school policy
- providing leadership and direction for the subject and ensuring that it is managed and organised to meet the aims and objectives of the school and the subject.
- securing high standards of teaching and learning in their subject as well as playing a major role in the development of school policy and practice.
- ensuring that practices improve the quality of education provided, meet the needs and aspirations of all pupils, and raise standards of achievement in school.
- supporting, guiding and motivating teachers and other adults of the subject.
- evaluating the effectiveness of teaching and learning, the subject curriculum and progress towards targets for pupils and staff, to inform future priorities and targets for the subject.
- identifying the needs in Science and recognising that these must be considered in relation to the overall needs of the school.
- understanding how Science contributes to school priorities and to the overall education and achievement of all pupils.

Other staff

Other staff will ensure that the school curriculum is implemented in accordance with this policy

Resourcing

The Science Subject Leader, with the Head Teacher, is responsible for the ordering, costing and allocation of resources to support the teaching of Science. A review of resources is carried out annually which leads to a list of required resources including replacing tools. This is funded within the school's budget plan for the financial year.

Review

This policy will be reviewed bi-annually in accordance with the school's policy review cycle.

Date of Policy: June 2020