Ryelands Primary and Nursery School

Science Policy

This policy was developed as part of a consultation process involving pupils, staff, parents and Governors of the school, based on best practice advice (where available) from Lancashire County Council. The policy will be reviewed by the school governing body in line with the review cycle detailed below.

This policy should be read in conjunction with the following documents:

- Teaching and Learning Policy

Policy Created:	January 2018				
First Presented to Governors for approval:		Curriculum Committee 31st January 2018			
Proposed Review Cycle/Next Date:		3 Year		November 2024	
Approved by (Headteacher) **Date:**			**Approved by (Governor)** **Date:**		
Policy Review History					
Date:	November 2021	**Date:**		**Date:**	
Key Changes: • Teaching and Learning including Planning and Organisation section • Assessment of Science (to bring in line with other foundation subjects)		Key Changes:		Key Changes:	
Presented to Governors: Curriculum Committee, Wednesday 10th November 2021		**Presented to Governors:**		**Presented to Governors:**	

1. Ryelands School – Our Ethos and Values

Our Mission Statement

Imagine, Believe, Achieve...

In our school community every individual is respected, valued and nurtured; we share a belief about every child's ability to exceed their dreams.

We teach children to love life, themselves and the world around them. Through learning we foster curiosity, perseverance and resilience.

We believe that our attributes are not fixed; that our abilities and intelligence can grow through engagement, effort and by embracing challenge.

2. Subject and Policy Aims

Our aims in teaching science include the following:

- Preparing our children for life in an increasingly scientific and technological world
- Fostering concern about, and active care for, our environment
- Helping our children acquire a growing understanding of scientific ideas
- Helping develop and extend our children's scientific concept of their world
- Developing our children's understanding of the international and collaborative nature of science

Attitudes

- Encouraging the development of positive attitudes to science
- Building on our children's natural curiosity and developing a scientific approach to problems
- Encouraging open-mindedness, self-assessment, perseverance and responsibility
- Building our children's self-confidence to enable them to work independently
- Developing our children's social skills to work cooperatively with others
- Providing our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further

Skills

- Giving our children an understanding of scientific processes
- Helping our children to acquire practical scientific skills
- Developing the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating
- Developing the use of scientific language, recording and techniques
- Developing the use of ICT in investigating and recording
- Enabling our children to become effective communicators of scientific ideas, facts and data

It is the policy of this school to deliver to every child their entitlement to science using a skills-based thematic curriculum. This means that all children will be given the opportunity to study science using a cross-curricular methodology, thereby ensuring a holistic approach to science. The age and ability of the children will be taken into consideration. As a result, science will take its place as an integral part of the academic and social development of the children.

It is intended that the acquisition of skills such as observation, problem solving, prediction, hypothesis testing, experimental design, sample technique and data handling will run parallel to and complement the increasing factual and theoretical knowledge of the children as they progress through school.

3. Subject Statement

At Ryelands Primary School we teach across the age range, from Nursery to Year 6 and it is taught to children as part of the skills-based thematic school curriculum, in line with National Curriculum requirements.

The national curriculum for science aims to ensure that all pupils:
1. To develop each child's knowledge of basic scientific skills and techniques.
2. To encourage the safe and proper use of scientific equipment and materials.
3. To provide each child with the opportunity to build his or her factual knowledge in a logical and progressive fashion.
4. To develop the confidence to apply what they have learned to a variety of situations.
5. To stimulate enquiry into the nature of our environment awareness resulting in young people with respect of our planet.

4. Teaching and Learning including Planning and Organisation

The content of the curriculum is based on the National Curriculum and is then adapted appropriately to the ability of the children to suit learning outcomes. Each year group has their Key Learning Documents / Learning Mats for each curriculum area, which are progressive and also highlight the key skills for each year group.

We achieve curriculum balance in science by organising differentiated activities and planning strategies to encourage investigation and experiments of science in everyday life. The whole school overview ensures that all areas of the science curriculum are taught with clear progression throughout the school. In teaching science, a range of teaching and learning experiences should take place with all learning styles considered. Medium term planning will take account of differentiation and progression to meet the needs of all children and the school. Learning outcomes will be in line with the programme of study. Work is enhanced by a range of strategies and resources to assist learning.

Termly planning is based upon the yearly overview for each year group and each age range is given the opportunity to study the key skills and elements of science over a yearly cycle. Key skills are highlighted to show progression in each year group and the Curriculum Leader, alongside the science subject lead, have ensured coverage and progression. The yearly overviews for each year group also provides planning opportunities for the inclusion of science investigations throughout the year. Each theme unit undertaken by each year group also has a specific science investigation, whether technological or a fair test, based on the current theme.

Staff training has been given regarding science investigations and the introduction of the 'Post-it Note' based investigation recording document has been purchased and shared with staff. This has ensured that there is a clear progression in the recording of all science investigations and these new documents allow pupils to gain independence to plan and undertake their own investigations.

Our pupil subject leaders programme encourages our children to become more involved in the planning and organisation of the science curriculum. It has developed their pupil voice and encouraged increased

participation in their involvement in this curriculum area. Further details of this can be found in the Curriculum Policy.

We strive to bring to science to life through STEM-based activities and workshop opportunities across all key stages. Children are given opportunities to work with STEM ambassadors to further bring real-life opportunities into school.

Key Stage 1

The main 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. Pupils should read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2 – Years 3 and 4

The main 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 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' must always be taught through and clearly related to substantive Science content in the programme of study.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2 – Years 5-6

The main 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 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. Pupils should read, spell and

pronounce scientific vocabulary correctly.
'Working and thinking scientifically' must always be taught through and clearly related to substantive Science content in the programme of study.

5. Curriculum overview and Progression including visitors, trips and extra- curricular provision

Teachers will follow the Ryelands primary school curriculum progression grid based on the above objectives. This document specifies the learning objectives that teachers in each year group will teach with ideas for projects and resources. This will ensure that there is no repetition through the year groups in terms of the content being taught. The subject leader will periodically monitor the planning, teaching and science teaching to evaluate the impact and effectiveness of provision in school. The subject lead will identify opportunities for pupils to go on trips or organise visits from specialists that will support the science curriculum. The subject lead will keep abreast of the latest developments as a means of making sure teachers are aware of the latest developments.

6. Assessment, Recording and Reporting

The principles for assessment for learning will underpin the assessment of science. We will aim to use a variety of methods to assess pupils including practitioner observations, summative and formative assessment that fully informs future planning. Through the use of the science KLIPS, there will be a CAP – Common Assessment Point. This will be when a theme with a science focus has been completed, a CAP will then be completed which will capture assessment information about individual children and their performance against the subject skills and breadth of study. This will inform next steps and additional coverage if needed. There will also be an end of theme assessment session, where the children will be given the opportunity to record their key learning and key skills as a collective, on Google Classrooms. This learning can then be revisited throughout the year and reflected upon. It can also be used as an assessment tool for the following year. There should also be regular discussions with pupils about their understanding of science and their learning, ensuring 'stickability' of learning outcomes.

Information is shared throughout the school through display, celebration events, newsletters, reports, and the school web-site. Children will also be encouraged to evaluate their own and others' work in a positive and supportive environment. The assessment arrangements for science will be in line with the school's current assessment policy.

7. Inclusion including meeting the needs of SEN pupils and children entitled to PPG funding

All children are expected to engage in scientific learning regardless of age or ability. However, their difficulty and the amount of time allocated to completing them will be modified according to the needs of different children, including those with recognised special educational needs. Children may be offered additional support, modified tasks or resources (enlarged for example), or extra time in school with adult support to complete set tasks.

8. Resources

The Subject Leader has ensured that good, up-to-date resources are available across all Key Stages. All resources are held in the 'break-out' area in Year 3. The boxes are labelled with the appropriate equipment and regular audits are held to ensure adequate resources are provided for each year group and key stage.

The classroom itself should be a stimulating working environment, with displays that will promote quality, enjoyment, interest, enquiry and creativity in Science.

Plans and resources are available to every teacher and assistant.

A yearly inventory will be taken of all resources available and a staff questionnaire will assess the use of those resources throughout the year. The subject lead will keep abreast of the latest developments in educational resources and look to ensure the school has the best available resources to ensure effective delivery of the curriculum.

9. Professional development and training

The science subject lead will assess and address staff training needs as part of the annual action plan process or in response to individual needs and requests throughout the year. Individual teachers should attempt to continually develop their own skills and knowledge, identify their own needs and notify the coordinator. There have been a number of recent training sessions, covering areas including investigations, curriculum development and the introduction of a planning and recording format for all investigations.

10. Health and Safety

All staff will be aware of the importance of following the strict Health and Safety guidelines and our school follows the 'Be Safe' ASE. This document is kept with the science resources.

11. Roles and Responsibilities

Teachers will:

- Provide regular science sessions for pupils in line with the expectations outlined in this policy.
- Use computing as an opportunity to consolidate learning, develop creativity and prepare pupils for the next stage of their school career when appropriate, i.e. Year 6.
- Differentiate their planning to meet the needs of different individuals and groups of children in school.
- Provide the necessary resources, information and instructions for any extra-curricular learning to take place.

12. Monitoring and Evaluation

Regular monitoring of all aspects of science learning will inform the subject leader and school development plan/school evaluation form on a regular basis. The science lead will aim to use a variety of monitoring strategies including: discussion with children, observation of learning environments, aspects of teaching, planning and work samples on a formal and informal basis with the aim of ensuring adequate curriculum progression and skills. Class teachers are expected to keep records of work undertaken in science learning, in order to inform future planning and should be available on request. The science lead will liaise with the Curriculum lead to ensure progression of skills throughout all Key Stages and will monitor the whole school topic overview regularly to ensure the provision of a broad and balanced science curriculum.