St Mary's Catholic Primary School
Progression of Skills
Science – Investigation and Enquiry Skills

EARLY YEARS FOUNDATION STAGE

- Show curiosity about objects and events through play and exploring
- Engage in open-ended activity play and exploration
- Take risks and engage in new experiences, learning through trial and error
- Develop critical thinking skills and problem-solving through testing ideas and exploring
- Develop critical thinking ideas through grouping, sequences and cause and effect.
- Look closely at the similarities and differences in relation to places, objects, materials and living things.
- Comment and ask questions about aspects of their familiar world
- Closely observe what animals, people and mechanisms do, using senses to explore the world around them.
- Make links and notice patterns in their experiences
- Choose the resource that is needed for their activity
- Realise tools can be used for a purpose and can use simple tools and techniques appropriately
- Create simple representations of events, people and objects
- Is beginning to answer how and why questions about their own experiences
- Make observations of animals and plants and can talk about or develop understanding of why some things occur and talk about changes
- Develop their own narratives and explanations by connecting ideas or events to reflect the breadth of their experience.

KEY STAGE ONE

- Observe the natural and human world around them and construct questions about what they have seen
- Experience and observe phenomena, commenting on their experiences
- Experience different types of scientific enquiries, including practical activities
- Begin to perform simple tests and to recognise ways in which they might answer scientific questions
- Begin to observe changes over time, identifying patterns, grouping and classifying things, developing critical thinking through this process
- Make links between and be curious about phenomena in the world around them
- Ask questions and use secondary sources to find the answers
- Use observations and ideas to suggest answers to questions
- Carry out simple comparative tests and comment on the links made
- Use and select simple measurements and equipment

- Observe closely, using simple equipment
- Begin to gather and record data to help in answering questions
- Record simple data and discuss what they have found out and how they have found it
- Use simple scientific language to find out and communicate their ideas to a variety of audiences in a variety of ways.
- Read and spell scientific vocabulary at a level that is consistent with their increasing word-reading and spelling knowledge

LOWER KEY STAGE TWO

- Raise relevant questions about the world around them
- Explore and participate in scientific discussions about everyday phenomena
- Experience a range of scientific enquiry, including fair tests, observations, changes over time and simple and comparative tests
- Begin to make decisions about the most appropriate scientific enquiry they might use to answer a question
- Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them
- Discuss the relationships between living things and their familiar environments, thinking about the criteria for grouping and classifying and using simple keys
- Recognise how and when secondary sources might help to answer questions that cannot be answered through practical enquiry
- Make systematic and careful observations in scientific enquiries, including changes over time
- Help to make decisions about what observations to make
- Be able to explain reasons why there may be links in comparative tests
- Take accurate measurements using standard units of measure
- Learn how to use a range of equipment to record data such as thermometers, data loggers and timers
- Collect and record data from their own observations and measurements using simple scientific language, drawings, diagrams, keys, tables and bar charts
- With support, pupils to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions
- Use relevant simple scientific language to discuss their ideas and communicate their findings in a variety of ways such as written or oral presentations
- With support, identify new questions arising from the data and make further predictions or improvements on what they have already done
- Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge

UPPER KEY STAGE TWO

- Be able to explore and talk through their ideas, raising questions about scientific phenomena
- Encounter abstract ideas to understand and predict how the world operates
- Experience a range of scientific enquiry, including fair tests, observations, changes over time and simple and comparative tests
- Select the most appropriate scientific enquiry to answer a specific question
- Set up comparative and fair tests, understanding how to control variables and explaining why they need to be controlled
- Use and develop keys and other information records to identify and classify living things and materials, identifying patterns in the natural world

- Use secondary sources to answer questions that cannot be answered through practical enquiry and assess fact validity
- Decide which measurements to take, thinking about the types of measurement that they are using and how long they must measure for
- Use scientific reasoning to explain the links made in comparative tests
- Take measurements with increasing accuracy, learning when it may be necessary to repeat results
- Confidently use a range of scientific equipment to record data such as thermometers, data loggers and timers
- Choose the most appropriate way to record data and be able to record in a number of different ways including scatter graphs, line and bar graphs and classification keys
- Report and present findings, including conclusions using relevant scientific language in oral and written presentations, identifying casual relationships and explanations of results
- Use results to make further predictions and plan relevant future enquiries
- Explain and identify scientific evidence that has been used to support or refute ideas
- Use scientific evidence and their own testing to explain degrees of trust in results