

**Our children are receptive, inquisitive learners who, through our Gospel values, have a unique sense of the world.**

**Working Scientifically – Lower KS2**

|  |  |  |
| --- | --- | --- |
| NC Objective  Pupils should be taught to:    | Year 3 *(working scientifically)*  | Year 4 *(working scientifically)*  |
| Skills  | Knowledge  | Skills  | Knowledge  |
| • Ask relevant questions and use different types of scientific enquiry to answer them  | * Be able to ask a range of questions to aid sorting.
 | To know that there are different types of questions. E.g. What, when, where?  | * Ask a range of questions specifically linked to a topic
 | To know that there are different types of questions. E.g. How, why, what, when, where?  |
| • Use straightforward scientific evidence to answer questions or to support their findings    | * Be able to apply evidence to answer simple questions.
 | To know that they can explain their answers from applying previous day to day and scientific knowledge?  | * Be able to apply evidence to answer simple questions and to support their thinking.
 | To know that they can explain their answers from applying previous knowledge or from their findings.  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| •  | Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment including thermometers and data loggers.  | * Be able to decide what to measure or observe.
* Decide how often to take a measurement.
 | To know that different measurements can be used for different purposes  | * Measure using standard units where not all the numbers are marked on the scale.
* Be able to use data loggers to measure over time.
 | To know that different measurements can be recorded.  |
| •  | Set up simple practical enquiries, comparative and fair tests.  | * To carry out a simple enquiry directed by an adult

 * To make the following decisions in an adult directed enquiry.
* What to observe
* What to change
* What to measure
 | To know how to complete simple enquiries.  | * To be able to plan their own enquiry
* To decide what to do and what to observe in order to create a fair test change.
 | To know how to plan and complete simple enquiries.    |
|  | * Identify differences , similarities or changes related to simple scientific ideas or processes
 | * To able to recognise, with support, differences, similarities or changes related to scientific ideas.
 | To know that there are similarities and differences within scientific ideas and processes.  | * To be able to plan a simple experiment to show differences, similarities or changes related to scientific ideas.
 | To know that there are similarities and differences within scientific ideas and processes.  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |   |  |
| •  | Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.  |  Able to be * Make predictions for new values within or beyond the collected data collected
* Identify new questions arising from the data
* Find ways of improving enquiries
* To form conclusions
 | To know that results can be used to inform your next step  To know what a conclusion is.  | * To use results to raise further questions.
* Independently ask questions and offer ideas for scientific enquiry.
* To use test results to make predictions to set up further comparative and fair tests
 | To know that results can be used to inform your next step and to generate further avenues of inquiry.  |
| •     | Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.  | * To be able to talk about what has been found out and how.
* Record observations in words and pictures
* Record observations and test results in simple prepared pictograms, tables,
* tally charts, bar charts
* To be able to select an appropriate method of recording.
 | To know that you can record your findings in a variety of different ways e.g. simple prepared pictograms, tables, tally charts, bar charts and maps including ICT formats, sorting circles.   | * To be able to discuss what has been found out and how
* Record observations in annotated diagrams
* Record observations and test results in simple prepared
* pictograms, tables, tally charts, bar charts and maps including ICT formats

  | To know that different methods of recording may be more suited to specific tasks and enquires.  |
|  |
| •     | Gather, record, classify and present data in a variety of ways to help in answering questions.  | * To be able to gather data to answer questions from a variety of sources
 | To know that data can be gathered in a variety of different ways e.g., including talking to people, simple books, and electronic media, first hand observation and practical activity to answer different forms of enquiry.  | * Gather data to answer questions from a variety of sources including talking to people, simple books, and electronic media, first-hand observation and practical activity and represent them in the most appropriate format.
 | To know that data can be gathered in a variety of different ways to answer different forms of enquiry.  |
| •    | Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.  |