At Ox Close Primary School, we recognise the importance of Science in every aspect of daily life and want to inspire a lifelong love of the subject. In our rapidly evolving world, Science encourages a healthy inquisitiveness in children about the marvels and events in the world around them and promotes respect for the living and non-living. We consider Science to include the acquisition of knowledge, specifically relating to Biology, Chemistry and Physics, concepts, Working Scientifically and positive attitudes. Pupils learn to question and discuss science-based issues that may influence or change their own lives, the way of society and/or the future of the world. Science connects direct practical experience with ideas, it can engage learners at many levels for example, the Scientific Method is about developing and evaluating explanations through experimental evidence and modelling. In our carefully planned sequence of lessons the pupils are given demonstrations on the correct use of equipment and Working Scientifically such as predicting, observing and measuring. These competences are embedded into lessons to make certain the skills as well as knowledge are being developed throughout the children's primary school career and new vocabulary and challenging concepts are introduced through direct teaching. There are opportunities for the pupils to access outdoor learning and regular events such as Science Week, Reece Foundation and workshops to broaden their knowledge. As the children's knowledge and understanding increases, and they become more skilful in selecting and using scientific equipment, collating and interpreting results through use of charts and graphs, they become increasingly confident in their growing ability to problem solve and come to conclusions based on real evidence and to communicate their ideas. Thus, ensuring our pupils are well rounded individuals who can work both independently and as a team.

This part of the document aims to explain what each child should broadly be able to do when working scientifically by the time they reach the end of each Key Stage. Whilst we understand that some children may not have reached ARE by the time they have finished each Key Stage, we aim to have as many children as to close to ARE as possible.

By the end of Key Stage One the children will be able to:

Asking simple questions and recognising that they can be answered in different ways.

Planning how to use resources provided to answer the questions using different types of enquiry.

Make careful observations to support identification, comparison and noticing change.

Begin to take measurements by comparisons.

Use practical resources provided to gather evidence to answer questions.

Carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.

Use their observations and testing to compare objects, materials and living things.

Sort and group these things, identifying their own criteria for sorting.

Record observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.

Record measurements e.g. using prepared tables, pictograms, tally charts and block graphs.

Classify using simple prepared tables and sorting rings.

By the end of Lower Key Stage Two the children will be able to:

Asking relevant questions and using different types of scientific enquiries to answer them.

Recognise when secondary sources can be used to answer questions that cannot be answered through practical work.

Identify the type of enquiry that they have chosen to answer their question.

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

Carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.

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.

Using straightforward scientific evidence to answer questions or to support their findings.

Interpret data to generate simple comparative statements based on evidence collected.

Identify naturally occurring patterns and causal relationships.

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

Identify ways in which to adapt their method as they progressed or how they would do it differently if they repeated the enquiry.

Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.

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

By the end of Upper Key Stage Two the children will be able to:

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

Independently ask scientific questions.

Use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

Select from a range of practical resources to gather evidence to answer questions. They carry out fair tests, recognising and controlling variables.

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

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

Identify causal relationships and patterns in the natural world from their evidence.

Identify results that do not fit the overall pattern; and explain findings using subject knowledge.

Evaluate the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.

Using test results to make predictions to set up further comparative and fair tests.

Communicate their findings to an audience using relevant scientific language and illustrations.