The T-RF Science Progression

Links to	Understanding the World		
Early Years	**Nursery**		**Reception**
	• Talk about what they see, using a wide vocabulary. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice.		• Explore the natural world around them, making observations and drawing pictures of animals and plants. • Understand the effect of changing seasons on the natural world around them. • Describe what they see, hear and feel whilst outside. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observation	To use a magnifying glass to observe objects. To make simple observations of trees and plants.	To use simple equipment with help to make observations in order to answer questions using simple scientific vocabulary. To observe plants and record in a simple diagram using simple vocabulary.	To make careful observations using simple equipment. To think about how long to observe for and what equipment to use. To use flow charts to record observations, labelled with vocabulary.	To make systematic observations. To think about how to record what we observe and explain using scientific vocabulary. To write a simple explanation text to describe processes in more detail.	To decide what we observe and why. To choose which equipment is best suited and why. To write an explanation to describe processes in more detail using scientific vocabulary.	To decide what measurements to take from observations and how to record the data. To present results in detail using precise scientific vocabulary. Repeats sets of observations or measurements, where appropriate, selecting suitable ranges and intervals, to give sufficient depth of evidence.
Pattern seeking	To notice patterns and relationships with guidance. To make simple tally charts.	To record data in order to correlate with year 2 maths targets. To use simple tally charts and pictograms.	To begin to look for naturally occurring patterns and relationships. To identify similarities and differences and draw simple conclusions. To represent data on a bar graph.	To begin to answer questions and identify new questions for future questioning. To understand the difference between discreet and continuous data. To represent data on a line graph.	To look for different casual relationships in their data and identify evidence that refutes or supports their ideas. To consolidate understanding of bar graphs, line graphs and tables and describe results.	To use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas. To begin to interpret a range of data and construct data. To begin to use pie charts.

Fair Tests	To experience practical testing, planned with a lot of support. To review their work and with support, recognise some of the difficulties encountered. To use simple equipment with support. With support, uses prepared simple tables and charts, including ICT forms.	To use simple equipment with support. Record their findings in a range of simple ways like tally charts and pictograms, using simple scientific language. Begins to notice simple patterns in results.	To set up simple comparative fair tests with help. To take measurements using standard units with help. Makes a general statement about simple patterns they notice in a set of results. Provides explanations for simple patterns in results, referring to everyday experiences when explaining reasoning.	To set up comparative tests with help. Makes a comparative statement, sometimes referring to the factors under investigation. Uses straightforward scientific evidence to answer questions or to support their findings. Suggests new questions and predictions for setting up further tests. To take measurements using standard units independently.	Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models. Where appropriate, makes a comparative statement, describing relationships between factors being investigated. Uses simple models to help describe scientific ideas. Recognises some of the limitations of their evidence and can suggest why it should not be trusted. Uses test results to set up further comparative tests.	Provides explanations for differences, repeated observations or measurements, identifying reasons for any anomalies noticed. Evaluates the effectiveness of their working methods, making practical suggestions for improving them. Identifies scientific evidence that has been used to support or refute ideas or arguments. Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables.
Research	To ask simple questions about the world generated by questions given by teacher. To look in non-fiction books and decide what they want to ask questions about. Recognises the difference between a statement and a question. Begins to shape questions using different question stems. To be aware of famous scientists.	To look in non-fiction books, magazines and the internet to find the answer. To talk to 'experts' about the questions they want to find the answers to With support, suggest own questions that they might investigate. To be able to talk about the work of a particular scientist.	To think of their own questions based on prior learning and life experience. To ask simple questions about the world based on our own ideas and to find the answers in non-fiction books, magazines, newspapers and the internet. To study the work of a particular scientist.	To ask simple questions about the world based on our own ideas and to find the answers in non-fiction books, magazines, newspapers and the internet. To talk to experts and ask them simple questions. To think about what they want to find out and use scientific language when asking them what they do. To record research using scientific diagrams. To study the work of a particular scientist.	To conduct scientific research using a range of sources. To begin to understand that scientific ideas change over time so some books may not be relevant anymore. To study the work of a particular scientist.	To study scientific evidence that has been used to refute or support ideas or an argument. To conduct scientific research using a range of sources. To study the work of a particular scientist. Recognises scientific questions that do not yet have definitive answers.
Grouping and Classifying	To group objects into simple categories. E.g., manmade and natural. They can verbally explain the differences. To use prepared simple tables and charts, including ICT forms with support.	To group and classify objects into categories. They should be able to use simple scientific language to explain the differences. To use prepared tables and block graphs, including ICT forms.	To decide on the criteria to sort objects into. E.g., by colour, texture, type, weight etc. To explain simply how the objects were sorted. To use very simple classification keys. Gathers, records, classifies and presents data in a variety of ways to help in answering questions.	To begin to group objects with more than one variable using a Venn diagram. To start to understand terms such as properties and why an object might belong to more than one group. To use a very simple classification key.	To learn more about different types of classification and to classify, sort and describe how their objects have been sorted. To understand that there may be more than one way to group or classify an object and to decide independently or with some support which method to use.	To use the classification system of linnaeus to group vertebrae's and invertebrates and then sort them further into mammals, amphibians etc and then explain why they have sorted them into those categories. Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables.

				Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models.	