LEYS FARM JUNIOR SCHOOL
SCIENCE PROGRESSION OF KNOWLEDGE AND SKILLS

Working Scientifically	Pre-KS2 (KS1)	Year 3	Year 4	Year 5	Year 6
Pattern Seeking	*Children should be taught how to recognise relationships, analyse causes and broaden scientific views of the wider world around them by making links. Once a pattern has been observed, this may lead to other investigations in an effort to try to explain why a particular pattern occurs. At Leys Farm, this is evident through the range of practical activities we expose our children to and allowing them to investigate further through 'Curiosity Questions'.*				
	With guidance, they should begin to notice patterns and relationships.	Identifying differences, similarities or changes related to simple scientific ideas and processes. Start to know that scientific enquiries can suggest relationships, but that they do not prove whether a prediction is true. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.	Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.	Look for different causal relationships in their data and start to make links and identify evidence that refutes or supports their ideas. Reporting and presenting findings from enquiries, including conclusions, relationships and explanations of results.	Look for different causal relationships in their data and identify evidence that refutes or supports their ideas. Report and present findings from enquiries, including conclusions, relationships and explanations of results.
Observing over time	*Observing over time enquiries are a great way for children to be curious about the world around them. The changes they observe can take place in seconds, minutes, hours, or days, or over longer periods of time. This type of enquiry lends itself to observing the natural world but can also be used when comparing materials and observing physical processes. This is shown at Leys Farm, by the carefully chosen practical activities that allows itself to children hypothesising what will happen over a set amount of time. Using the outdoor learning environment allows for children to witness natural growth over time and to predict outcomes.*				
	Observing closely, using simple equipment. Know that we can use magnifying glasses to observe objects closely. Use their observations and ideas to suggest	Scaffolded, start to make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including	With some guidance, start to make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including	Make their own decisions about what observations to make, what measurements to use and how long to make them for.	Confidently, make their own decisions about what observations to make, what measurements to use and how long to make them for

	answers to questions Talk about what they have found out and how they found it out.	thermometers and data loggers.	thermometers and data loggers.		
Identifying, Classifying and Grouping	*Children began identifying and classifying objects in the world around them from a very young age; this type of enquiry comes very naturally as young learners try to make sense of the world around them. In this type of enquiry, children make observations and measurements to help them look for similarities and differences. This will help them organise things into groups and make connections. Identifying and classifying enquires are fantastic for promoting discussion and collaborative learning. At Leys Farm, this enquiry can be seen by the outdoor learning environment in identifying, classifying and grouping the plants, vegetables and fruits grown in the gardens e.g., bulbs, root vegetables. As well as this, providing the children with the opportunity to create their own classification system, using key scientist ideas (Carl Linnaeus), is something that we expose the children to, to develop links in similarities and differences.*				
	Know that objects can be identified or sorted into groups based on their observable properties. Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them.	Talk about criteria for grouping, sorting and classifying; and use simple keys. Gather, record, classify and present data in a variety of ways to help in answering questions. Know that objects can be identified or sorted into groups based on their observable properties.	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. With support, start to choose a presentation technique that will best fit their findings.	Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs. With increased independence, choose a presentation technique that will best fit their findings.	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs. Choose a presentation technique that will best fit their findings.

Comparative and fair testing	*Enquiries that are comparative tests have many similar features to fair tests in that one variable is changed, another variable is measured, and any other variables are controlled. The difference is that in a comparative test the variable that is changed is discrete rather than continuous, so children are comparing difference cases/situations. Within a Science lesson at Leys Farm, this is evident in the range of practical experiments with each domain that the children are exposed too. As well as this, allowing the children to create their own experiments taking into consideration all variables, equipment and outcomes.*				
	Start to perform simple tests to gather and record data to help in answering questions. Know that we can write down numbers and words or draw pictures to record what we find.	Setting up simple practical enquiries, comparative and fair tests - know how to use a range of equipment to measure accurately. Know that in a fair test one thing is altered (independent variable) and one thing that may change as a result is measured (dependent variable) while all other conditions are kept the same. Know how – with structured guidance - to write a simple scientific enquiry write-up.	Setting up simple practical enquiries, comparative and fair tests. Be able, with guided support, identify variables and understand why their experiment was a fair test. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Know how – with structured guidance - to write a simple scientific enquiry write-up.	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. With increased independence, use test results to make predictions to set up further comparative and fair tests. With gentle reminders and advice, be able to write a precise scientific enquiry write-up into a brief oral discussion of what was found in a scientific enquiry.	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Use test results to make predictions to set up further comparative and fair tests with ease drawing on previous observations and patterns. Independently, be able to write a precise scientific enquiry write-up into a brief oral discussion of what was found in a scientific enquiry.
Research using secondary sources	*This type of enquiry helps encourage collaborative learning in children, both in the researching and sharing of information, but also in presenting their findings to a variety of audiences in a variety of ways. Research enquiries help to develop children's scientific literacy, as children learn to compare and evaluate information from different sources. Children will learn to recognise the differences between facts and opinion and also consider the concept of bias. This is evident in Leys Farm through Scientist of Week, in which the children have an opportunity to research and learn about a variety of different scientist's work (links to domain). As well as this, children at Leys Farm start to use these findings to draw arguments together to either refute or support scientific ideas.*				
	Know that we can ask questions about the world and that when we observe the world to answer these questions, this is science.	Using straightforward scientific evidence to answer questions or to support their findings. With scaffolding start to understand that they can draw conclusions from the findings of other	Using straightforward scientific evidence to answer questions or to support their findings. With some support, start to understand that they can draw conclusions from the findings of other	Identifying scientific evidence that has been used to support or refute ideas or arguments - know that they can draw conclusions from the findings of other scientists. With increased	Identifying scientific evidence that has been used to support or refute ideas or arguments. Know examples of instances where scientific evidence has been used to support or refute ideas or

		scientists. Adult led, start to recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.	scientists. Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.	independence, make connections by drawing conclusions from the findings of other scientists.	arguments. Talk about how scientific ideas have developed over time. With independence, draw conclusions from the findings of other scientists.