Shirley Schools
Working Scientifically/ Disciplinary Knowledge Progression

Skill		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore	Asking Questions	Ask **simple** questions about the world around us *(where/ how/why/when)* and respond to questions about *how* to find things out. *Eg. "How can you melt the ice?"*	Ask how, why, what will happen if…. *Eg. "What will happen if I don't water the seed?" "What will happen if the seed isn't planted in soil?" "Will it still grow?"*	Asks relevant questions linked to the topic using their prior knowledge Begin to ask a wider variety of questions. *Eg "What are the differences **between** bulbs and seeds?"*	Use my scientific knowledge to explore a Big Question.	Use my prior scientific knowledge to explore a big question and create further questions to stretch my investigation	To use my prior scientific knowledge to create a series of linked questions based on a stimulus.	
	Observing	Know that we use science everyday to see the world around us. Begin to recognise when things might be dangerous and what equipment we can use to keep safe. Follow rules carefully. *Eg. "How can we look in the pond safely?" "What will we do to stay safe?"*	Begin to observe changes over time (growing/ weather topic) Know that science can sometimes be dangerous and we need to follow rules when observing to stay safe. *Eg. exploring using simple equipment magnifying glasses/ mirrors etc)*	Knows that some changes happen over time or some happen instantly in science. Be able to observe safely using equipment correctly if it is needed.	Demonstrate some knowledge of how to use some of the provided equipment to answer the Big Question.	Demonstrate accurate use of certain equipment to help answer the Big Question.	Accurately choose appropriate equipment to be able to answer the Big Question.	

Research	Know that we can find out information from different places with support. *Eg non fiction books, apps and videos online, adults as the 'experts'.*	Can use a simple search engine for information online **with support**, asking 'experts', using a range of **provided** non fiction books	Is able to search for information **independentl y** online, asking 'experts', and **finding** books from the library.				Independently use a range of sources to investigate a concept
Predict	Able to say what they think might happen in different situations. Begin to offer a simple reason. To know that a prediction is not always correct and it's okay to get things wrong. *Eg "I think the stick will sink and the marble will float because it's smaller."*	Use prior knowledge to **think** about what might happen before deciding what to do. Use some personal experiences to inform your prediction. *Eg. "I know that my wellies are waterproof so Red Riding Hood's coat needs to be the same material"*	Be able to make a simple prediction about what will happen in an investigation/ observation and begin to think about the **reason** behind your prediction. Eg "I know that water can change in different ways so it is a reversible change **because** I have frozen water into ice and watched it melt."	Make a prediction using because based on what I know will be able to observe during the experiment.	Make a prediction using because and accurate scientific evidence learned from the topic.	Make a prediction using because and accurate scientific evidence learned from current and previous topics.	Make a prediction using because and accurate scientific evidence. I will also be able to use my knowledge to predict something that will not happen, supporting it with previously learnt science.
	Be able to talk about **how** to find out the	**Begin** to think about **how** we can	Be able to think of some ideas				

Testing	answer to our observations and questions. To be introduced to the concept of something being 'fair' *Eg "Will it be fair if we roll **differen**t cars down **different** ramps to see how far they go?"*	find the answers to observations and questions. What will we need to test something? What things will need to stay the same to make it fair? *Eg. "Is it fair to pour **3** cups of water on the paper coat and **1** cup on the tissue coat?"*	for a test and what information you would like to find out. *Eg. "I need to know if toast can change back to bread. How can I test this fairly?*	undertake an experiment keeping everything the same apart from what I am investigating.	create a control within my experiment to ensure a fair test, whilst testing one thing.	create a fair test and test more than one variable.	independently create a fair test, explaining which variables need to be controlled and why.
Recording	Quotations and photographs of science in action. Chn can draw simple representations of observations/ predictions/ tests. Begin to use appropriate Scientific vocabulary when modelled by adults. Can sort into 2 groups using given criteria.	To talk about what they have seen/done and adults record quotes. Begin to use labelled drawings Use a 2 column table to record simple results (cross/tick) Use scientific vocabulary and begin to sort using a simple venn diagram/ hoops.	Make own simple table of results and include non standard measurement (*how many star jumps in a minute?)* Label pictures and use appropriate scientific vocabulary. Sort into chosen criteria using a venn diagram/ hoops.	use standard measurement to observe changes and record it. create simple scientific diagrams with labeling. use a bar graph to record my results.	accurately use standard measurements to record a series of observations. create scientific diagrams with appropriate scientific labeling. record data onto a line graph with given intervals.	take accurate measurements, beginning to repeat them to support with precision. begin to identify anomalies in my results. select appropriate intervals	take accurate and precise measurements, repeating them when needed. recognise anomalies in my measurements. choose how to best represent my results according to the type of data (e.g

						for lines and bar graphs.	continuous or discrete).
Concluding and Evaluating	**Talk** about what happened and **respond** to questions from the adult. *Eg "The fire engine rolled the longest distance because the ramp was higher."*	Talk about the prediction and result. Was it the same? Can chn begin to think about how they can make their tests even better next time?	Begin to identify simple patterns. Was your prediction correct? Do you know why/ why not? How would you change your tests next time?	explain simple patterns in my results. Explain why keeping everything the same has made my results accurate	use scientific knowledge to explain the patterns. Begin to describe how accurate my results are, comparing them to the control. Discuss other factors that could be controlled next time	explain causal relationships from my results. begin to comment on the reliability of my results. Evaluate the accuracy of my results based on my fair testing. Make practical suggestions about how my working methods can be improved.	use scientific ideas to explain my results, accounting for any anomalies refute or agree with scientific arguments using evidence. Independently evaluate the accuracy of my results, and make reasoned suggestions on how to improve my working methods.