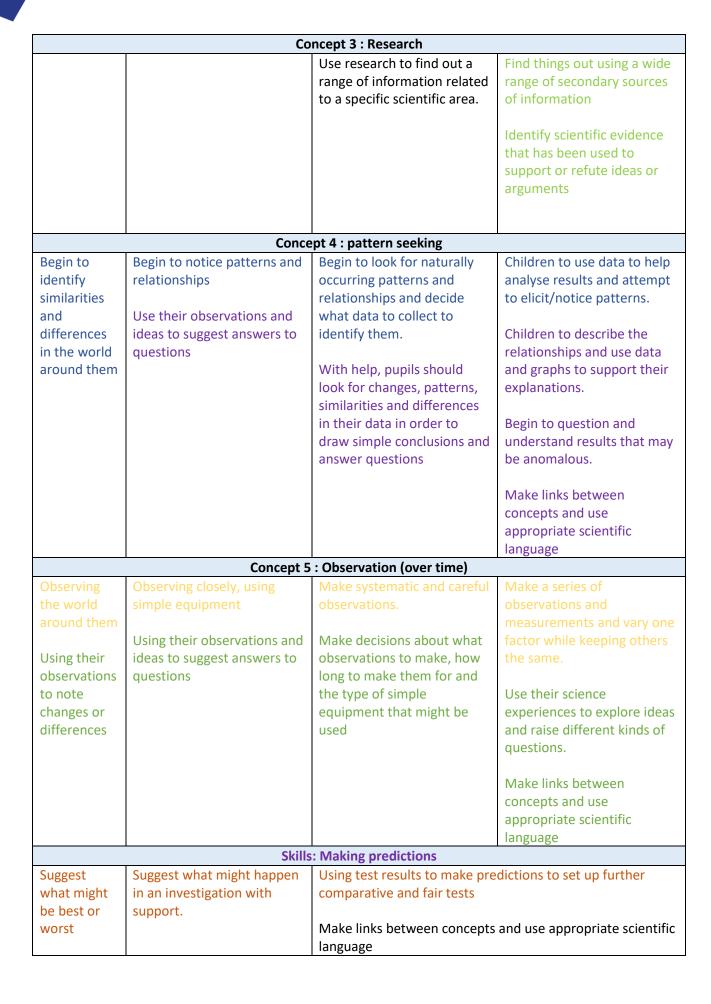# St Columb Minor Academy Disciplinary Knowledge Progression EYFS/KS1/KS2 /Working Scientifically

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Concept 1 : comparative and fair testing						
	Perform and experience simple tests	Perform simple and experience comparative and fair tests	Set up simple practical enquiries, comparative and fair tests	Set up simple practical enquiries, Recognise when a simple fair test is necessary and help descide how to set it up. decide how to set up a fair test	Set up an investigation when it is appropriate Decide on an appropriate approach including using a fair test to answer a question Select suitable equipment	Set up an investigation when it is appropriate Decide on an appropriate approach including using a fair test to answer a question Know which type of investigation is needed to suit a particular scientific enquiry Select suitable equipment that is adequate to the task
Concept 2 : identifying, grouping and classifying						
Begin to identify similarities and differences in the world around them.	We can identify by describing it in detail. We can classify by sorting objects or events into groups or categories.	Identify, group and classify according to a given criteria	Group information according to common factors.		Group and classify things and recognise patterns using appropriate ways of presenting	

		Concept 3 : Research	
		Use research to find out a range of information related to a specific scientific area.	Find things out using a wide range of secondary sources of information

Identify scientific evidence that has been used to support or refute ideas or arguments |
| | | **Concept 4 : pattern seeking** | |
| Begin to identify similarities and differences in the world around them | Begin to notice patterns and relationships

Use their observations and ideas to suggest answers to 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 | Children to use data to help analyse results and attempt to elicit/notice patterns.

Children to describe the relationships and use data and graphs to support their explanations.

Begin to question and understand results that may be anomalous.

Make links between concepts and use appropriate scientific language |
| | | **Concept 5 : Observation (over time)** | |
| Observing the world around them

Using their observations to note changes or differences | Observing closely, using simple equipment

Using their observations and ideas to suggest answers to questions | Make systematic and careful observations.

Make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used | Make a series of observations and measurements and vary one factor while keeping others the same.

Use their science experiences to explore ideas and raise different kinds of questions.

Make links between concepts and use appropriate scientific language |
| | | **Skills: Making predictions** | |
| Suggest what might be best or worst | Suggest what might happen in an investigation with support. | Using test results to make predictions to set up further comparative and fair tests

Make links between concepts and use appropriate scientific language | |

Skills : Recording Data			
	Gathering and recording data to help in answering questions. Recording simple data Use drawings and charts to show their findings eg pictograms and block charts, tally	Collect and record data from their own observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse this data Take accurate measurements using standard units learn how to use a range of (new) equipment, such as data loggers / thermometers appropriately	Record observations, to support comparisons and measurements using tables and bar charts and begin to plot points to form simple graphs. Decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classify Make links between concepts and use appropriate scientific language

Skills : Interpreting and communicating results		
Talk about what they have noticed	Talk about what they have found out and how they found it out. Describe simple findings based on observations.	Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions Interpret data containing positive and negative numbers. Make links between concepts and use appropriate scientific language
Skills : Evaluating		
Talk about changes they noticed during activities	Talk about what they have found out and how they found it out With guidance they can use some relevant scientific language to explain their findings Describe what has changed and what has stayed the same Suggest improvements to their work	Communicate conclusions using appropriate scientific language Record observations, to support comparisons and measurements using tables and bar charts and begin to plot points to form simple graphs. Using test results to make predictions to set up further comparative and fair tests Suggest improvements to their work. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done.

	With guidance they can use scientific language to explain their findings	Make links between concepts and use appropriate scientific language Participate in discussions about how scientific ideas have developed over time

Key vocabulary: Working Scientifically

Year 1: What…? How ….? Why …? similar different best and worst change plan look biggest and smallest compare sort and group

Year 2: Observe change slowly quickly describe name identify label record measure bigger and smaller pattern notice cycle predict

Year 3: Gradually identify observe recognise investigate record units table fair evidence research length observations prediction

Year 4: Similarities differences research and source scientists discovery process cycle measurements conclude evaluate rank plan vary keep the same/constant bar graph table tally

Year 5: Classify interpret pattern relationship prediction analyse interpret conclude evaluate rank variable constants control repeat key relationship line graph

Year 6: Hypothesis variable constants evaluate plan conclude interpret classify categorise database enquiry control repeat support refute degree of trust scatter graph