East Somerset Federation - Science Skills Progression (Working Scientifically)

	EYFS	KS1	Lower KS2	Upper KS2
Plan	- Explore during their play and repeat an action, making observations to see if the results change. - Begin to make observations to recognise when a simple comparison is unfair.	**YEAR 1** ***Ask simple questions and recognise that they can be answered in different ways** - With support and guidance, make plans. - Recognise when a simple test is unfair. - Make simple predictions if appropriate, based on something they have observed before (explanations are not expected).	**YEAR 3** ***Ask relevant questions and use different types of scientific enquiries to answer them.** ***Set up simple practical enquiries, comparative and fair tests.** - Begin to choose ways to try to answer a question. - Put forward own ideas and make some planning decisions sometimes with support. - Suggest ways to make the test fair or if it can't be fair, begin to think about how the question can be answered by looking for patterns and sharing ideas. - From a selection, say what equipment is needed - Suggest the type of data needed to be collected, sometimes with guidance. - Make simple predictions based on everyday experience and knowledge.	**YEAR 5** ***Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.** - Ask a variety of types of scientific questions. - With guidance, choose the most appropriate scientific enquiry method to answer a question and outline the method. - Decide upon and state all the equipment needed sometimes using a list to prompt ideas. - Decide what data to collect and with discussion, decide upon how much of it is needed. - Make predictions based on scientific knowledge. - Plan what to test, how to test and collect evidence in order to classify, sometimes as part of a group.

		YEAR 2 ***Ask simple questions and recognise that they can be answered in different ways** - Make plans with increasing independence. - Recognise when a simple test is unfair with reasons. - With help, begin to choose ways to try to answer a question. - Make their own suggestions on how to collect data once the required data has been outlined. - Make predictions based on something they have observed before (explanations are not expected).	**YEAR 4** ***Ask relevant questions and use different types of scientific enquiries to answer them.** ***Set up simple practical enquiries, comparative and fair tests.** - Choose ways to try to answer a question. - Put forward own ideas and make some planning decisions. - Suggest ways to make the test fair or if it can't be fair, describe how they will answer it by looking for a pattern. - From a selection, say what equipment is needed with reasoning. - Suggest the type of data needed to be collected. - Make simple predictions based on everyday experience and knowledge.	**YEAR 6** ***Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.** - Ask a variety of types of scientific questions with increasing application of knowledge and understanding. ,- Choose the most appropriate scientific enquiry method to answer a question and outline the method. - Decide upon and list all the equipment needed. - Decide what data to collect and how much of it is needed. - Make predictions based on scientific knowledge with reasoning. - Plan what to test, how to test and collect evidence in order to classify.
Do	- Observe closely and make observations using all of their senses. - Compare 2 or 3 things by direct observation, describing the differences and similarities.	**YEAR 1** ***Observe closely, using simple equipment.** ***Perform simple tasks.** - Make observations related to the task or test. - Compare, sort and group, including when one group has a feature and the other doesn't. - Measure using uniform non-standard units - Use measuring equipment provided (eg egg timers, non standard units) - Compare up to 3 things. - Begin to read scales to the nearest labelled division with support.	**YEAR 3** ***Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.** - Carry out a fair test or pattern seeking enquiry, with help. - Compare at least 3 things. - Use simple standard measures: m, cm, mm, kg, g, cm3, minutes, seconds and Newtons. Measure to the nearest whole unit. - Read scales to the nearest labelled division.	**YEAR 5** ***Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, take repeat readings when appropriate.** - Make a series of measurements adequate for the task. - Select appropriate measuring equipment sometimes with guidance. - Use standard measures, including use of fractions and mixed units, and decimals to one place, sometimes with support. - Compare up to 5 things. - Select apparatus from a given list and use with care. - Read scales with precision and accuracy appropriate to the task. - Repeat readings and find averages, sometimes with support.

		YEAR 2 ***Observe closely, using simple equipment.** ***Perform simple tasks.** - Make observations related to the task or test with understanding and reasoning. - Compare, sort and group, sometimes deciding on own criteria, including when one group has a feature and the other doesn't. - Measure using simple standard units (cm, m, kg, ml, l, and seconds). - Use measuring equipment provided (metre stick, stopwatch) - Compare three things. - Read scales to the nearest labelled division.	**YEAR 4** ***Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.** - Carry out a fair test or pattern seeking enquiry. - Compare 3 things or more. - Use simple standard measures: m, cm, mm, kg, g, cm3, minutes, seconds and Newtons. Measure to the nearest whole or half unit or mixed unit. - Read scales to the nearest division, labelled and unlabelled division.	**YEAR 6** ***Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, take repeat readings when appropriate.** - Make a series of measurements adequate for the task. - Select appropriate measuring equipment. - Use standard measures, including use of fractions and mixed units, and decimals to one place. - Compare 5 things or more. - Select apparatus and use with care. - Read scales with precision and accuracy appropriate to the task. - Repeat readings and find averages.
Record	Begin to record observations in picture form.	**YEAR 1** ***Gather and record data to help in answering questions.** - Draw pictures of results or take photographs. - Help the teacher make a class table or chart. - make practical block graphs or pictograms. - Use simple Venn diagrams to sort, record and group.	**YEAR 3** ***Gather, record, classify and present data in a variety of ways to help in answering questions.** ***Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.** - Construct a simple two-column table. - Draw bar charts to 1:1, 1:2, - Use Venn diagrams to help sort, record and group.	**YEAR 5** ***Record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs.** - Present information clearly in tables. - Record observations and measurements systematically. - Draw bar graphs with more complex scales, possibly involving fractions or decimals. eg 1:2.5 - Draw line graphs, possibly involving fractions and decimals.

		YEAR 2 ***Gather and record data to help in answering questions.** -Complete a simple chart or a two column table. Make/draw a block graph with 1:1 scale.	**YEAR 4** ***Gather, record, classify and present data in a variety of ways to help in answering questions.** ***Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.** - Draw bar charts to 1:1, 1:2, 1:5 and 1:10 scale and begin to plot line graphs. - Use Carroll and Venn diagrams to help sort, record and group. - Make simple branching data bases/classification keys for a few things (3-6) with easily observable differences.	**YEAR 6** ***Record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs.** - Present information clearly in tables, including for repeat readings. - Make and evaluate keys and branching databases with 4 or more items. - Through direct observation where possible, classify animals into vertebrates and invertebrates and know that most scientists classify things into five kingdoms.
Review	- Make comparisons - Say what happened - Order results (first, second, third, etc). - Spot similarities and differences.	**YEAR 1** ***Use their own observations and ideas to suggest answers to questions.** - Describe observations. - Say what they have found out, sometimes with prompting.	**YEAR 3** ***Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions, making predictions for new values.** *** Results to draw simple conclusions and suggest improvements, and raise further questions.** ***Identify differences, similarities or changes related to simple scientific ideas and processes.** ***Use straightforward scientific evidence to answer questions or support their findings.** - Say what they have found out and give an explanation for observations and simple patterns based on everyday experiences sometimes with support.	**YEAR 5** ***Report and present findings from enquiries, including conclusions, casual relationships and explanations of results, explanations of the degree of trust in the results, in oral and written form such as displays and presentations.** ***Use test results to make predictions to set up further comparative and fair tests.** ***Identify scientific evidence that has been used to support or refute ideas or arguments.** - Use graphs to spot and interpret patterns/trends in results. - Draw conclusions using these patterns and begin to relate conclusions to scientific knowledge and understanding. - Offer simple explanations for differences in repeated measurements and observations as part of a group or with support. - Use test results to suggest an additional investigation to answer a question, sometimes as part of a group.

	- Make comparisons - Say what happened - Order results (first, second, third, etc). - Spot similarities and differences.	**YEAR 2** ***Use their own observations and ideas to suggest answers to questions.** - Describe observations with increasing detail. - Say what they have found out. - Say whether what happened was what they had expected.	**YEAR 4** ***Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions, making predictions for new values.** *** Results to draw simple conclusions and suggest improvements, and raise further questions.** ***Identify differences, similarities or changes related to simple scientific ideas and processes.** ***Use straightforward scientific evidence to answer questions or support their findings.** - Say what they have found out and give an explanation for observations and simple patterns based on everyday experiences.	**YEAR 6** ***Report and present findings from enquiries, including conclusions, casual relationships and explanations of results, explanations of the degree of trust in the results, in oral and written form such as displays and presentations.** ***Use test results to make predictions to set up further comparative and fair tests.** ***Identify scientific evidence that has been used to support or refute ideas or arguments.** - Use graphs to spot and interpret patterns/trends in results. - Draw conclusions using these patterns and begin to relate conclusions to scientific knowledge and understanding, consistent with the evidence. - Offer simple explanations for differences in repeated measurements and observations. - Use test results to raise questions for further investigations.