Science: Working Scientifically – Whole school overview of skills				
	EYFS	KS1	LOWER KS2	UPPER KS2
Plan	• Explore during their play and repeat an action / test making it obvious they are try to find something out and see if it always results in the same result • Recognises when a simple comparison is unfair	**Ask simple questions** • with help being to choose ways to try and answer a question • take a few guided planning decisions • make own suggestions on how to collect data *yr2) • recognise when simple test is unfair • make own suggestions and how to collect data once the data needed has been outlined (year 2 only) • make simple prediction if appropriate (based on something they have observed before but without an explanation)	Ask relevant questions Set up simple practical enquiries, comparative and fair test • begin to choose ways to try and answer a question • Put forward own ideas and make some planning decisions • Suggest ways of making the test fair or if it can't be fair how they will answer it by looking for a pattern • From a selection say what equipment is needed • Suggest the type of data needed to be collected • Make simple predictions based on everyday experience and knowledge	Plan enquiries, including recognising and controlling variables where necessary • Ask a variety of types of scientific questions • Choose the most appropriate scientific enquiry method to answer a question and outline the method • List all the equipment needed • Decide what data to collect and how much of it is needed • Make predictions based on scientific knowledge
Do	• Observe closely using all of their senses as appropriate • During their play repeat an action / test making it obvious they are trying to find something out and see if it always results in the same result • Compare 2 (3) things by direct observation	Observe closely, using simple equipment Perform simple tests • Make observations related to the task or test • Use simple equipment provided • Measure using uniform non-standard units (eg. straws) or simple standard units and measuring equipment – meter stick, cm, kg masses, l, jugs and second timer • Compare 3 or more things • Read scales to nearest labelled division	Make accurate measurements using standard units, a range of equipment, for example thermometers and data loggers • Carry out a fair test or pattern seeking enquiry with help • Compare 3 or more things • Use simple standard measures; m, cm, mm, kg, g, cm3, minutes, seconds, Newton. –measure to the nearest whole or half unit or mixed units • Read scales to the nearest division labelled and unlabelled	Take measurements, using a range of scientific equipment, with increasing accuracy and precision • Make a series of measurements adequate for the task • Select appropriate measuring equipment • Use standard measures as in including use of fractions and mixed units and decimals to one place • Read scales with increased accuracy • Compare 5 or more things • Select apparatus and use with care • Read scales with precision and accuracy appropriate to the task • Repeat readings and find averages
Record		**Gather and record data to help in answering questions (Yr 2 only)** • Draw pictures of results / take photos • Help teacher make a class table or chart • Complete a simple chart or two column table • Make practical block graphs / pictograms • Make / draw a block graph with a 1:1 scale	Gather, record 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 2 column table • Draw bar charts 1:1, 1:2, 1:5 and 1:10 scale and begin to plot line graphs	Record data and results of increasing complexity using scientific diagrams and labels, tables, bar and line graphs, and models • Present information clearly in tables including for repeat readings • Record observations and measurements systematically • Draw bar graphs more complex scales possibly involving fractions or decimals eg 1:2.5 • Draw line graphs, possible involving fractions and decimals
Review	• Make comparisons • Say what happened • Order results (first, second, third • Spot similarities and differences	**Use their observations and ideas to suggest answers to questions** • Describe observations • Say what they have found out • Say whether what happened was what they expected	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests • Say what they have found out and give an explanation for observations and simple patterns based on everyday experience	Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions Present findings in written form, displays and other presentations Use test results to make predictions to set up more comparative and fair tests Use simple models to describe scientific ideas 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 / observations