Progression of **working scientifically** in Science

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically							
Posing questions	•To ask questions about the natural world with support.	**KS1** •To explore the world around them and raise their own simple questions. •To recognise that there are different types of enquiry. •To respond to suggestions on how to answer questions.		**LKS2** •To begin to raise further questions during the enquiry process. •To consider what makes a testable question. •To begin to recognise that there are different types of enquiry which are suitable for different questions. •To begin to make suggestions about how to answer questions.		**UKS2** •To raise questions throughout the enquiry process. •To identify testable questions. •To select the most appropriate enquiry method to answer questions and give justifications.	
Planning investigations	•To begin sharing ideas and suggestions when working practically.	•To begin recognising whether a test is fair (comparative). •To decide if suggested observations are suitable, with support.		•To begin to select from the options which variables will be changed, measured and controlled. •To begin to suggest what observations to make and how long to make them for.		•To suggest which variables will be changed, measured and controlled. •To make and explain decisions about what observations to make and how long to make them for.	

		•To order a simple method.	•To plan and write a simple method, verbally and in writing (numbered steps). •To begin to select what equipment might be used to aid observations and measurements.	•To write a method including detail about how to ensure control variables are kept the same. •To consider reliability by planning repeated readings. •To suggest appropriate equipment and justify their choices.
Predicting	•To begin to make guesses about what might happen.	•To suggest what might happen, often justifying with personal experience.	•To make predictions about what they think will happen by: -Using scientific knowledge and/or personal experience -Begin to consider cause and effect, where appropriate -Predict a trend by considering how the changing variable will affect the measure variable.	•To make scientific predictions by: -Use previous scientific knowledge and evidence to inform their predictions -Use scientific language to describe a potential outcome -Make links between topics to evidence a prediction
Observing (qualitative data)	•To comment on what they see and hear in the natural world.	•To use their senses to describe what they notice or what has changed.	•To use their senses to describe, in more detail and with simple scientific vocabulary, what they notice or what has changed.	•To use their senses to describe, in detail and with a broader range of scientific vocabulary, what they notice or what has changed.
Measuring (qualitative data)		•To use non-standard units to measure and compare.	•To use standard units to measure and compare.	•To use standard units to measure and compare with increasing precision (decimals).

		•To begin to use standard units and read simple scales to measure and compare. •To begin to use simple measuring equipment to make approximate measurements.	•To use measuring equipment with increasing accuracy. •To read scales with unmarked intervals between numbers. •Using a range of equipment, including data loggers and measure temperature in degrees Celsius (°C) using a thermometer.	•To read a wider variety of scales with unmarked intervals between numbers.
Researching	•To recognise that information can be found online and in books.	•To gather specific information from one simplified, specified source.	•To gather specific information from a variety of sources.	•To gather answers to open-ended questions from a variety of sources.
Recording (diagrams)	•To draw and label pictures of plants and animals.	•To draw and label simple diagrams.	•To begin to draw more scientific diagrams by: -Using standard symbols -Drawing in 2D to produce simple line diagrams -Labelling with more scientific vocabulary	•To draw scientific diagrams by: -Using a wider range of standard symbols -Drawing with increasing accuracy -Labelling with a broader range of scientific vocabulary -Annotating diagrams to explain concepts and convey opinions

Recording (tables)	•To recognise that tables can be used to record information.	•To use a prepared table to record results including: -numbers -Simple observations -Tally charts	•To use a prepared table to record results including more detailed observations. •To use tables with more than two columns. •To identify and add headings to tables. •To begin to design simple results tables.	•To use tables with columns that allow for repeat readings. •To suggest headings to the tables, including units. •Designing results tables with increasing independence with consideration of variables. •To calculate the mean average.
Recording (graphs)		•To represent data using pictograms and block graphs.	•To represent data using bar charts. •To draw bars with greater accuracy. •To read the value of bars with greater accuracy.	•To represent data by using line graphs and scatter graphs. •To plot points with greater accuracy. •To read the value of plotted points with greater accuracy.
Grouping and classifying	•To group objects, plants and animals with support.	•To group based on visible characterises. •To organise questions to create a simple classification key.	•To group based on visible characteristics and measurable properties. •To populate pre-prepared branching and number key. •To choose appropriate questions for classification keys.	•To group in a border range of contexts. •To organise the layout of number of branching keys. •To formulate appropriate questions for classification keys.
Analysing and drawing conclusions	•To describe their discoveries when working practically.	•To use their results to answer simple questions. •To begin to recognise when results or observations do not match their predictions.	•To write a conclusion to summarise findings using simple scientific vocabulary. •To begin to suggest how one variable may have affected another.	•To write a conclusion to summarise findings using increasingly complex scientific vocabulary. •To suggest with increasing independence how one

			•To begin to quote results as evidence of relationships. •To identify data that does not fit the pattern (anomalous data). •To recognise when results or observations do not match their predictions. •To begin using identified patterns to predict new values or trends.	variable may have affected another. •To quote relevant data as evidence of relationships. •To identify anomalies in repeat data and excluding results where appropriate. •To compare individual, class/and or model data to the prediction and recognising when they do not match. •To use identified patterns to predict new values or trends.
Evaluating			•To begin to identify steps in the method that need changing or suggest improvements. •To begin to identify which variables were difficult to control and suggest improvements. •To comment on the degree of trust by reflecting on: -Results that do not fit the pattern (anomalies) -The quality of results (accurate measurements and maintaining control variables)	•To identify steps in the method that need changing and suggesting improvements. •To identify which variables were difficult to control and suggest how to control them better. •Comment on the degree of trust by also reflecting on: -Accuracy (human error with equipment) -Reliability (repeating results) -Sources of information •To pose new questions in response to the data that would extend the enquiry.

			•To begin to identify new questions that would further the enquiry.	•To decide what data to collect to further test direct relationships.