Progression of skills: Science

Reception	Year 1/2	Year 3/4	Year 5/6
Communication and Language • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts. Personal, Social and Emotional Development • Know and talk about the different factors that support their overall health and wellbeing: – regular physical activity – healthy eating – toothbrushing – sensible amounts of 'screen time' – having a good sleep routine – being a safepedestrian Understanding the World • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.	***Asking questions, planning scientific enquiries and predicting*** *a ask simple scientific questions about how and why things happen;* *b begin to recognise ways in which they might answer scientific questions leading to a scientific enquiry;* *c recognise that answers to an enquiry can be found in different ways.* *d suggest what might happen, and begin to think about why (make predictions)*	***Asking questions, planning scientific enquiries and predicting*** *a ask relevant questions which lead to a scientific enquiry.* *b start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;* *c plan the main steps in an enquiry, making decisions about what observations to make, how long to make them for, the type of equipment that might be used and recognising hazards.* *d predict outcomes, and suggest everyday reasons as to why they think this.* *e begin to use scientific knowledge and understanding in predicting outcomes.*	***Asking questions, planning scientific enquiries and predicting*** *a Using scientific knowledge, ask questions that have a clear, scientific purpose to deepen understanding.* *b with increasing independence, make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;* *c select and plan the most appropriate type of scientific enquiry to use to answer scientific questions;* *d suggest how to collect evidence, selecting suitable equipment.* *e make their own decisions about what observations to make, what measurements to use and how long to make them for, whether to repeat them and how to control risks;* *f use scientific knowledge and understanding in predicting outcomes use their test results to identify when further tests and observations may be needed;*
	Investigating/carrying out tests *a make simple suggestions about what to do and what to look for.* *b think about how to collect evidence, what observations/measurements to take* *c discuss elements of testing that could adversely affect results as well as recognising what could be the most detrimental element to experiments.* *d show an awareness of treating things in the same way and the relevant amounts to use and spot when a test might be unfair.* *e carry out simple practical tests, using simple equipment;* *f follow or develop instructions to complete simple tests and experiments.* *g experience different types of scientific enquiries, including practical activities;*	***Investigating/carrying out tests*** *a set up and carry out simple practical enquiries, use different types of scientific equipment* *b set up and carry out comparative tests* *c with help, carrying out a fair test recognising when it is needed and explaining why an experiment is fair, identifying what variables should be kept the same.*	***Investigating/carrying out tests*** *a set up and carry out comparative tests answer questions, including recognising and controlling variables where necessary as well as altering variables when needed as part of methods used.* *b set up and carry out fair tests to answer questions, including recognising and controlling variables where necessary as well as altering variables when needed as part of methods used.* *c Children to make their own decisions on the appropriate fashion to use measurement equipment to gather data.* *d Children to identify as a part of fair testing whether or not repeat experimentation is necessary.*
	Observing and measuring *a observe the natural and humanly constructed world around them using first-hand experience and, with help, information sources to answer questions.* *b observe changes over time;* *c make simple observations and measurements using appropriate senses and/or equipment such as egg timers, hand lenses and measuring cylinders*	***Observing and Measuring*** *a make systematic and careful observations;* *b observe changes over time;* *c take accurate measurements using standard units* *d use a range of equipment, including thermometers and data loggers;* *e use appropriate scientific language when completing experiments in a practical setting.*	***Observing and measuring*** *a choose the most appropriate equipment to make measurements and explain how to use it accurately;* *b take measurements using a range of scientific equipment with increasing accuracy and precision;* *c make careful and focused observations* *d know the importance of taking repeat readings and take repeat readings where appropriate.* *e Use appropriate scientific terms and standard units to decimal places*
	Gathering and recording data *a record and communicate findings in a range of ways with support;* *b talk, write or draw about results/what happened* *c gather and record data in a variety of ways to help in answering questions such as in pictograms, tally charts, block diagrams and simple tables.*	***Gathering and recording data*** *Children can:* *a collect data from their own observations and measurements;* *b record findings using scientific language and standard units* *c record findings in a number of ways including, digital recording devices, drawings, labelled diagrams, keys, bar charts and tables.* *d use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge;*	***Gathering and recording data*** ***NC: Recording data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar and line graphs.*** *a decide how to record data from a choice of familiar approaches;* *b record data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar graphs and line graphs.* *c Record observations in a number of ways including digital technology and digital recording devices.*
ELG Communication and Language Listening, Attention and Understanding Make comments about what they have heard and ask questions to clarify their understanding. Personal, Social and Emotional Development Managing Self Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. Understanding the World The Natural World • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	***Drawing conclusions*** *a notice links between cause and effect with support;* *b begin to notice patterns and relationships with support;* *c begin to draw simple conclusions;* *d compare results for similarities and differences* *e use simple and scientific language and read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at KS1*	***Drawing conclusions, noticing patterns and presenting findings*** *a present data in a variety of ways to help in answering questions;* *b first talk about, and then go on to write about, what they have found out/ what happened;* *c draw simple conclusions from their results;* *d Identify patterns in results using some scientific vocab.* *e Compare results for similarities and differences, identifying more complex patterns.* *f report and present their results and conclusions to others in written and oral forms with increasing confidence* *g make further predictions and test them suggesting why sometimes the same experiment gets different results*	***Drawing conclusions, noticing patterns and presenting findings*** *a Explain what happened clearly, independently reporting and presenting their conclusions to others in oral and written forms.* *b Identify patterns in results using some scientific vocab.* *c Compare results for similarities and differences, identifying more complex patterns.* *d look for different causal relationships in their data;* *e draw conclusions based on their data and observations;* *f Explain why conclusions are consistent with evidence, using their scientific knowledge and understanding to explain their findings* *g Make further predictions and test them suggesting why sometimes the same experiment gets different results.* *h read, spell and pronounce scientific vocabulary correctly;*
	Evaluating *a recognise results that are unexpected.* *b recognise some problems encountered.* *c suggest how to improve tests* *d with help identify questions than can/cannot be answered by trying out*	***Evaluating*** *a suggest improvements to investigations;* *b raise further questions which could be investigated;* *c Identify questions than can/cannot be answered by trying out.*	***Evaluating*** *a discuss the degree of trust they can have in a set of results;* *b recognise source of anomalies in recorded results.* *c Suggest how to improve tests.* *d Identify more than one approach recognising one approach may yield stronger evidence than the other* *e Identify questions than can/cannot be answered by trying out*
	Using secondary sources of information *a* with help, use information sources to answer questions	***Using scientific evidence and secondary sources of information*** *a make links between their own science results and other scientific evidence;* *b use straightforward scientific evidence to answer questions or support their findings;* *c identify similarities, differences, patterns and changes relating to simple scientific ideas and processes;* *d recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.*	***Using scientific evidence and secondary sources of information*** *a use primary and secondary sources evidence to justify ideas;* *b identify evidence that refutes or supports their ideas;* *c recognise where secondary sources will be most useful to research ideas and begin to separate opinion from fact;* *d use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas;* *e talk about how scientific ideas have developed over time*
	Identifying and classifying *a use simple features to compare objects, materials and living things;* *b decide how to sort and classify objects into simple groups with some help;* *c sort and group data in a variety of ways to help in answering questions such as in simple sorting diagrams and tables.*	***Identifying and classifying*** *a talk about criteria for grouping, sorting and classifying;* *b group and classify things;*	***Identifying and classifying*** *a independently group, classify and describe living things and materials;* *b use and develop keys and other information records to identify, classify and describe living things and materials;*