Science: Progression of knowledge and skills

Science: Working Scientifically progression			
	Plan	**Do**	**Review**
	Asking questions *Enquiry planning – 5 types of scientific enquiry*	*Investigating and testing* *Using equipment* *Record reporting and findings* *Identify, group and classify*	*Drawing conclusions from reports and findings* *Asking further questions* *Evaluating*
Nursery	• Asking questions about aspects of their familiar world such as the place where they live or the natural world • Show curiosity about objects, events and people • Use senses to explore the world around them	• Thinking of ideas that are new and meaningful to the child • Finding new ways to do things • Initiate activities • Seek challenge	• Talking about some of the things they have observed such as plants, animals, natural and found objects • Talking about why things happen and how things work • Making links and noticing patterns in their experience
Reception	• Take risks, engaging in new experiences, and learning by trial and error • Show a deep drive to know more about people and their world • Show high levels of involvement, energy, fascination • Pay attention to details • Show satisfaction in meeting their own goals	• Explore the natural world around them, making observations and drawing pictures of animals and plants • Use the language of thinking and learning: t*hink, know, remember, forget, idea, makes sense, plan, learn, find out, confused, figure out, trying to do*. • Playing with possibilities *(what if? what else?)* • Visualising and imagining options	• Making predictions • Testing their ideas • Develop ideas of grouping, sequences, cause and effect • Planning, making decisions about how to approach a task, solve a problem and reach a goal • Flexibly changing strategy as needed • Reviewing how well the approach worked

		• ELG - Be confident to try new activities and show independence, resilience and perseverance in the face of challenge • ELG - Be confident to try new activities and show independence, resilience and perseverance in the face of challenge • ELG - Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate	
Year 1	• With help and encouragement I ask simple questions that begin with why, what if, how or when • I make suggestions about how to do things when we plan a simple test	• With help, I use simple equipment and non-standard units to find things out • I observe using my senses	• *I talk about what happened and/or what I saw* • *I talk about what I did*
Year 2	• I ask simple questions, and recognise these can be answered in different ways. • I decide, with help, what to find out, observe or measure	• I can perform a simple test • I use simple equipment *and non-standard units (where appropriate) to find things out* • I observe closely • I can identify and classify • I gather data and record data to help me answer my questions. • I record what I have found out using e.g. words, pictures, tables or simple prepared formats	• I use my observations and ideas to suggest answers to my questions • *I talk about how I found out what I found out*
	Plan	**Do**	**Review**

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Year 3	• I can ask questions and I recognise that there are different types of enquiry • I make suggestions about what observations and measurements to make and what equipment I need • I can set up a simple practical enquiry and I am beginning to understand how to make a test fair	• With help, I can use information sources provided to find things out • I am beginning to make systematic and careful observations and I sometimes use standard units • I use a range of simple equipment • I record my findings using a drawing and/or words • I gather data and using a pre-prepared table I can record data • With help, I can present my data	• I can use my results when I talk about what happened • I have ideas about what else I would like to find out • I can talk about what went wrong
	Plan	**Do**	**Review**

Year 4	*Asking questions* *Enquiry planning – 5 types of scientific enquiry*	*Investigating and testing* *Using equipment* *Record reporting and findings* *Identify, group and classify*	*Drawing conclusions from reports and findings* *Asking further questions* *Evaluating*
	• I ask relevant questions and use different types of scientific enquiries to answer them • I decide what observations and measurements to make and what equipment to use • I can set up simple practical enquiries, comparative or fair tests	• *I use information sources provided to find things out* • I make systematic and careful observations and take accurate measurements using standard units • I use a range of equipment, (including thermometers and data loggers) • I record my findings using simple scientific language, tables, drawings and labelled diagrams • I gather, record and classify data in a variety of ways to help me answer my questions • I present my data in a variety of ways *using e.g. Venn diagrams*, bar charts, *simple scatter graphs* and keys	• I communicate what I have found out using straightforward scientific ideas and I report my findings using oral and written explanations and displays • I use my results to draw simple conclusions and I make predictions for new values • I suggest further questions to investigate • I suggest improvements to the way I carried out the enquiry

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Year 5	• I ask relevant questions (containing scientific knowledge and understanding) and with help I recognise which type of enquiry is best to answer a question • I decide what observations and measurements to make (controlling variables with help where necessary) and what equipment to use to make my measurements and observations	• I identify possible risks to myself and others • I use information sources provided to find things out • The series of observations and measurements I take are adequate for the task • I use a range of equipment independently • I gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams • I present the results (data and observations) in a range of formats e.g. bar and line graphs, simple scatter graphs, keys and frequency charts	• I begin to use basic scientific evidence to support or refute the ideas or arguments for my conclusion • I draw conclusions from my data and observations • I look at my results and decide if any observations or measurements are unsuitable • I can set up further questions to investigate. I use what I have found out to suggest improvements to my work giving reasons.

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Year 6	*Asking questions* *Enquiry planning – 5 types of scientific enquiry*	*Investigating and testing* *Using equipment* *Record reporting and findings* *Identify, group and classify*	*Drawing conclusions from reports and findings* *Asking further questions* *Evaluating*
	• I ask relevant questions (containing scientific knowledge and understanding) and I recognise which type of enquiry is best to answer a question • I decide what observations and measurements to make and what equipment to use (giving reasons) to make my observations and measurements • I can plan different types of science enquiries to answer questions. I recognise and control variables where necessary.	• I identify possible risks to myself and others • I use relevant information sources to find things out • I take repeat readings when appropriate • I take measurements using a range of scientific equipment with increasing accuracy and precision • I record data and results of increasing complexity using e.g. scientific diagrams and labels and tables. I choose a method of recording to suit the results. • I present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification keys	• I identify scientific evidence to support or refute the ideas or arguments for my conclusions • From my data and observations I draw valid conclusions (i.e. consistent with the evidence) including causal relationships • I look at my results and decide if any observations or measurements are unsuitable and need to be carried out again. I offer simple explanations for differences in results • I use my test results to make predictions to set up further enquiries e.g. comparative and fair tests and suggest how my working methods could be improved, with reasons