



THRUPP PRIMARY SCHOOL: Progression of skills in Working Scientifically for EYFS, KS1 and KS2

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Asking questions and recognising they can be answered in different ways.						
I ask questions about things I see or hear.	I ask questions about what something is or how it works or why something happens.	I ask questions about similarities, differences and changes.	I think about what I already know when I ask questions.	I use a range of different question stems independently.	I ask my own scientific questions independently.	I ask further questions following an enquiry.
I suggest answers to questions about things I see or hear.	I use my observations to suggest answers to questions about what something is or how it works or why something happens.	I use my observations to answer questions about similarities, differences and changes.	I answer questions posed by the teacher.	I am beginning to answer different types of questions independently. I can suggest when a secondary source may be needed.	I decide whether a question can be answered by enquiry or research.	I make decisions about how to best answer a question - practical work or secondary sources.
Using and planning scientific enquiries to answer questions.						
I make observations about what I see and hear.	I answer questions developed by my teacher through a scenario.	I help plan how to use resources to answer questions using different enquiry types.	I suggest how to gather evidence to answer a question posed by the teacher.	I decide how to gather evidence to answer a question using a range of given resources. I identify the enquiry type chosen.	I choose how to gather evidence to answer a scientific question. I choose the resources needed from a wide range of given resources.	I independently choose the resources needed to gather evidence to answer a scientific question.
I make observations about similarities, differences and changes.	I compare objects using my own observations to classify and group. I use secondary sources (e.g. identification sheets) to name living things. I make observations over time (e.g. growth of a sunflower) I carry out pattern seeking enquiries.	I compare objects using my own observations and by testing to classify and group and identify. I carry out pattern seeking enquiries. I make observations over time. I use secondary sources e.g. identifications sheets to name living things.	I compare objects using my own observations and by testing to classify and group and identify. I carry out pattern seeking enquiries. I make observations over time. I use secondary sources.	I compare objects using my own observations and by testing to classify and group and identify. I carry out pattern seeking enquiries. I make observations over time. I use secondary sources.	I make suggestions about which type of scientific enquiry is most appropriate to answer a question. (pattern-seeking, observation over time, secondary sources, comparative or fair test, identifying, grouping or classifying).	I choose which type of scientific enquiry is most appropriate to answer a question, explaining my reasoning. (Pattern-seeking, observation over time, secondary sources, comparative or fair test, identifying, grouping or classifying).

			I follow a given plan to set up a comparative test.	I plan a comparative test independently or in a small group. I follow a given plan to set up a fair test.		
Variables						
	I give suggestions for things that can be changed in an enquiry.	I give suggestions for things that can be changed and things that should stay the same in an enquiry.	I explain what a variable is in an enquiry	I give reasons why variables need to be kept the same in an enquiry.	I identify which variable to change, which to measure and make suggestions of some variables that need to be kept the same.	I identify which variable to change, which to measure and which variables need to be controlled in an enquiry.
Making observations and taking measurements						
I explore the world around me with my eyes, hands, and ears.	I explore the world around me using my senses and magnifying glasses.	I use magnifying glasses, stop watches and digital microscopes to help me make observations.	I make careful observations.	I make systematic observations.	I make systematic and accurate observations and measurements.	I decide how to get the most accurate data e.g. repeat readings, increase sample size, increase frequency of measurements.
I talk about what I see, hear and feel.	I look closely at shape, colour and size. I notice changes. I use my observations to help with identification (e.g. leaves / flowers, animals).	I begin to use equipment to take measurements (e.g. a ruler)	I use a range of equipment including metre sticks, rulers and weighing scales.	I use a range of equipment accurately, including thermometers, metre sticks, rulers, measuring cylinders, dataloggers.	I select appropriate equipment for the enquiry type and consider how precise the equipment is. I select which observations and measurements to make.	I select measuring equipment to get the most precise results (considering the scale of the instrument and what I am measuring). I select which observations and measurements to make over what time and decide on the appropriate sample size.
I talk about how things are similar or different to one another.	I make comparisons. I measure using non-standard units (e.g height of sunflower in cubes)	I begin to use standard measures. (e.g. cm to measure plant growth)	I use standard units for measurements (cm, m, g, kg)	I use standard units for measurements (°C, mL, L)	I use a variety of standard measurements confidently.	In a given enquiry, I choose the most appropriate standard measure and use it accurately.
Gathering, recording and presenting data						
I draw pictures of plants and animals.	I use photographs, videos, drawings and	I use photographs, videos, drawings, labelled diagrams and	I record my findings in different ways. I am beginning to use	I record my findings in different ways including simple	I record observations using annotated photographs, labelled	I choose how to record observations (including annotated

	writing to record observations.	writing to record observations.	simple scientific language and labelled diagrams.	scientific language, labelled diagrams and keys.	diagrams, observational drawings or writing.	photographs, labelled diagrams, observational drawings or writing.)
	I record measurements in prepared tables. I record pictograms using my data.	I record measurements in tables and I use tally charts. I record pictograms and block charts of my data.	I use templates to record tables, tally charts and bar charts. I can explain how the same data presented in different ways can help answer a question. (e.g. how a graph may be easier to interpret than a table)	I record my own tables, tally charts and bar charts. With support, I present the same data in different ways to help answer questions.	I record and present evidence using labelled scientific diagrams, tables, scatter, bar and line graphs. I am beginning to present the same data in different ways to help answer questions.	I choose how to record and present evidence to answer a question (including labelled scientific diagrams, tables, scatter, bar and line graphs.) I choose different ways to present the same data to help answer questions.
	I classify using a simple prepared table.	I classify using tables and sorting rings.	I classify using tables and Venn diagrams.	I classify using tables, Venn and Carroll diagrams.	I classify using tables, Venn diagrams, Carroll diagrams and classification keys.	I choose the most appropriate method to classify to answer the question.
Answering questions, concluding and evaluating.						
I suggest answers to questions based on my experience of the world around me.	With support, I suggest answers to questions using my observations and my experience of the world around me.	I am beginning to use observations, measurements or research to suggest answers to questions.	I answer questions based on my observations, measurements and research from secondary sources.	I answer questions based on my observations, measurements and research from secondary sources. My answers are consistent with the evidence.	When answering questions, I evaluate other data that supports or refutes my findings.	When answering questions, I evaluate whether my data is supported or refuted by other groups' data, my scientific understanding and research from secondary sources.
	I can identify best and worst from my data.	I can identify comparisons of size and best and worst from my data.	I am beginning to use my data to identify similarities, differences, changes and patterns. I am beginning to make conclusions based on my evidence and what I have learned.	I use my data identify similarities, differences, changes and patterns. I make conclusions based on my evidence and what I have learned.	I am beginning to identify how new discoveries change scientific understanding.	I identify how new discoveries change scientific understanding.

			I am beginning to identify ways I could improve my enquiry by asking further questions or extending the enquiry.	I identify ways I could improve my enquiry by asking further questions or extending the enquiry.	I am beginning to can identify and explain causal relationships in enquiries. I am beginning to identify patterns in my results and identify results that don't fit the pattern.	I can identify and explain causal relationships in enquiries. I explain the degree of trust in results (method used, accuracy of measurements, credibility of sources, limitations that reduce trust in their data). I can identify patterns in my results and identify results that don't fit the pattern.
			I am beginning to predict new values for different items tested using the same method.	I predict new values for different items tested using the same method.	I am beginning to use my results to make predictions I can investigate using comparative and fair tests.	I use my results to make predictions I can investigate using comparative and fair tests.
Communicating findings						
			I communicate my findings in a variety of a ways using both written and oral communication. I use appropriate scientific vocabulary.	I communicate my findings to an audience using a variety of written and oral forms of communication including displays and other presentations. I use relevant scientific language and illustrations.		