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	Early Years	Year 1 and 2	Year 3 and 4	Year 5 and 6
Enquiry	I can understand and ask 'how' or 'why' questions.	I can ask simple scientific questions. What jobs use this knowledge?	I can ask relevant scientific questions. Based on what I already know, what question am I going to ask? Where might I see this in the real world? How will I find out the answer to this?	I can ask relevant scientific questions based on the outcome of a test. Based on what I have found out, what might I ask now? Why would a scientist want to know this? How could this be useful in the real world? What is the best methodology to find the answer to this question?
Prediction	I can say what I think will happen.	I can say what I think will happen and can sometimes give a reason. What do you think will happen?	I can make a prediction with a reason. What do you think will happen? What knowledge do you have that makes you think this? If these are my results so far, what might my next result be?	I can use the outcome of an inquiry to make predictions for other tests (and can conduct these). Based on what you already know, what do you think the outcomes will be? Do we always need to predict when we want to find something out? Can predictions impact the validity of the investigation? What influences a scientist's predictions?

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Methodology	I can observe changes over a period of time.	I can use simple equipment to make observations e.g. magnifying glass. I can carry out simple tests (set up by the teacher). Why do I write my method down? Why do I need to keep this the same?	I can set up a simple enquiry (any type) to explore a scientific question. I can set up a fair test to compare two things. I can set up a fair test and explain why it is fair. I can make careful and accurate observations, including the use of standard units. Why does my method need to be accurately recorded? What do we need to do to make this test fair? What do we need to keep the same? What do we need to change?	I can plan different types of scientific enquiry. I can control variables in an enquiry and explain why these need to be controlled. Can I follow someone else's methodology to repeat the enquiry? What are the control variables? Why do I need to control them? What is the dependent variable? What is the independent variable? How many things can we change?
Measuring	I can notice simple patterns. I can compare using the language 'more' or 'less'	I can notice and talk about simple patterns and changes over time. Y1- cm and m Y2- cm/m, g/kg, °C, litres/ml. What are we measuring? What equipment will we use? Should I measure in cm or m?	I can use equipment, including thermometers and data loggers to make measurements. I can make careful and accurate observations, including the use of standard units. Y3 and 4 m/cm/mm, kg/g and l/ml. What are we measuring? What is the best equipment to measure it?	I can measure accurately and precisely using a range of equipment. Y5 and 6- m/cm/mm, kg/g and l/ml. Also to convert between metric and imperial units (including inches, pounds and pints). What is the most appropriate unit of measure?

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				How can I ensure that my measurements are accurate? Can you repeat your measurements to check that they are accurate? Why to scientists repeat measurements?
Classification	I can make groups.	I can identify and classify things in different ways. How can you group these? Can you group these based on this property?	I can classify in different ways to answer scientific questions. Can you group these based on an observable property? Can you justify my groupings? How many different ways can I group these? Can you design a simple classification key to group these? What questions can you ask on your classification key? How would this key be useful to people? Who might use this key?	I can use and create classification keys based on my understanding. Can you design a classification key to group these based on their properties? Can you test your classification key? Can you evaluate the usefulness of your key? How can you adapt your key? How would this key be useful to scientists? How could these measurements be useful in the wider world?

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Presenting results	I can show my results in pictures. I can verbalise my results.	I can show my results in pictures and words as well as verbalising them. Can you draw a picture to show your results? Should we use a bar graph, pictogram or a tally chart to show our results? Why?	I can present data in different ways to answer scientific questions. I can use diagrams, keys, bar charts and tables; using scientific language to present my results. I can use findings to report in different ways, including oral and written explanations and presentations. What is the best type of graph or table to show your results? Why?	I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can report findings from enquiries in a range of ways. Is this discrete or continuous data? What is the best type of graph or table to show your results? Why? Are your results similar or dissimilar to other groups? How can you check whose results are likely to be correct?
Conclusions (analysing what results tell us)	I can attempt to explain why something happens. I can identify changes that I have observed.	I can suggest what I have found out. I can use simple data to answer questions I can notice and talk about simple patterns and changes over time. I can use my observations and ideas to suggest if I	I can use observations and knowledge to answer scientific questions. I can draw conclusions and suggest improvements. I can identify differences, similarities and changes related to an enquiry. What do the results suggest?	I can explain a conclusion from an enquiry. I can explain causal relationships in an enquiry. I can relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory.

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		have answered the question or not. Can you explain what your results suggest? What might you do as a result of this? (Give children different scenarios and give advice to others e.g. where should the giant keep his beanstalk?)	How would this conclusion help in science or the wider world? How might people use these conclusions in their lives?	Are there any anomalies? Why might these anomalies have occurred? How might these outcomes be useful? How might these outcomes influence what people do in the future (scientists/other jobs)? What further investigations could you plan to test your conclusions? Is there a cause and effect link? Is this the reason that this happened? Does any scientific knowledge/research support/refute your conclusion?
Validity linked to methodology and conclusions		I can use my observations and ideas to suggest if I have answered the question or not. Has this answered your question?	I can suggest how an enquiry could have been improved with some understanding of reliability and validity shown. Have you measured what you wanted to measure? Have you measured accurately?	I can discuss ways in which my enquiry may have lacked reliability and/or validity and can suggest ways in which it could have been improved. I can repeat enquires to assess the reliability and validity of my enquiry.

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			Would you get the same results if you did it again or if someone else did it? What needs to stay the same? Why? If you did it again, what would you keep the same? Why? How could you make this investigation ever more accurate?	I can identify and suggest reasons for anomalies when I have evaluated my results. What variables do you need to control? How can you identify anomalies? What could have caused anomalies? Have you measured the independent variable? Have you measured the effect of the dependent variable? Why do we repeat measurements? What would make our results less/more valid? With the resources we had, what was difficult to control? With the resources we had, what was difficult to control? What would we need to make measurements more accurate? Are your results similar or dissimilar to other groups? What might this suggest? How can you check whose results are likely to be correct?

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Types of scientific enquiry and when to use them

1) Pattern seeking (all years but particularly EYFS and KS1)
   Observing things that naturally happen, carrying out surveys or collecting data from secondary sources. You will need to identify patterns.
2) Researching (all years, particularly in topics where you can't conduct tests)
   Gathering existing scientific research. This can include looking at how scientific understanding has changed e.g. our understanding of the universe.
3) Fair testing (all years but particularly KS2)
   Measuring or observing the effect of changing one variable while controlling others.
4) Observing over time (all years but particularly EYFS and KS1)
   Watching and recording how something changes over time.
5) Identifying and classifying (all year groups)
   Identifying features that allow for things to be organised into select groups and giving those groupings names.