

Science - Key Criteria Pupil Tracker

ARE - 1			Points - 1-4	
Skill	Taught	Support	Independant	Recall
I can ask questions about the world around me.				
I can use simple equipment.				
I can carry out simple tests.				
I can identify and group things.				
I can express what I have found out.				

ARE - 2			Points - 5-8	
Skill	Taught	Support	Independant	Recall
I can ask simple scientific questions.				
I can use simple equipment to make observations.				
I can carry out tests.				
I can identify and classify things.				
I can explain what I have found out.				
I can use simple data to answer questions				

ARE - 3			Points - 9-12	
Skill	Taught	Support	Independant	Recall
I can ask relevant scientific questions.				

I can use observations to answer scientific questions.				
I can set up a fair test to compare two things.				
I can use specialist equipment, eg. thermometers				
I can gather and record data in different ways to answer scientific questions.				
I can use diagrams and keys, using scientific language.				
I can draw conclusions from things I have seen.				
I can make a prediction.				

ARE - 4			Points - 13-16	
Skill	Taught	Support	Independent	Recall
I can ask specific topic related scientific questions.				
I can use observations and knowledge to answer scientific questions.				
I can set up a simple enquiry to explore a scientific question.				
I can set up a fair test to compare two things or more and explain what I have found.				
I can explain why a test is fair.				
I can make careful and accurate observations, including the use of standard units.				
I can use IT applications to make measurements.				

I can gather, and present data in simple ways to answer scientific questions, e.g. tally charts.				
I can use bar charts and tables; using scientific language.				
I can report in different ways, including oral and written explanations.				
I can draw conclusions and suggest improvements to a simple enquiry.				
I can make a prediction with a reason.				

ARE - 5			Points - 17-20	
Skill	Taught	Support	Independent	Recall
I can investigate a simple enquiry.				
I can measure accurately using a range of equipment.				
I can record data using scientific diagrams and labels, classification keys, tables, and bar charts.				
I can use the outcome of test results to make predictions.				
I can provide explanations (verbal) using correct scientific language.				
I can set out a method independently.				
I can explain a conclusion.				
I can identify errors found in results.				
I can identify potential dangers within experiments.				

I know what a variable is.				
I can set up and complete a test / experiment independently.				

ARE - 6			Points - 21-24	
Skill	Taught	Support	Independant	Recall
I can plan different types of scientific enquiry.				
I can measure accurately and precisely using a range of equipment.				
I can record and interpret scientific data and results using scientific diagrams and labels, classification keys, tables, bar charts and line graphs.				
I can use the outcome of test results to make predictions and set up further tests.				
I can take repeat readings when directed.				
I can spot patterns in collected data.				
I can explain errors found in results.				
I can identify potential dangers in experimentation and suggest ways in which to prevent these.				
I can explain what a variable is: giving examples.				
I can suggest next steps to improve accuracy of experiments.				
I can repeat tests / experiments accurately.				

I can report (writing) in different ways using the correct scientific language to provide explanations.				
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ARE - 7			Points - 25-28	
Skill	Taught	Support	Independent	Recall
I can make predictions using scientific knowledge and understanding.				
I can plan and carry out the most appropriate types of scientific enquiries to test predictions (including controlling variables).				
I can demonstrate the correct use of scientific equipment.				
I can apply sampling techniques e.g. quadrats & pooters.				
I can present observations and data using appropriate methods, including tables and graphs.				
I can undertake basic data analysis including simple statistical techniques e.g. averages.				
I can identify SI units.				
I can relate my conclusions to observations I have made.				
I can spot data that does not fit into the pattern.				
I can suggest ways to reduce errors and improve methods.				
I can explain what a theory is and give examples.				
I can identify what a hazard is and how to reduce the risk.				

I can explain why some variables are difficult to control.				
I can use a diagram or a model to help explain a scientific idea.				
I know why you need more than one set of data to confirm a conclusion.				

ARE - 8			Points - 29-32	
Skill	Taught	Support	Independent	Recall
I can distinguish between fact and opinion.				
I can select the correct equipment.				
I can evaluate risks in relation to scientific enquiries.				
I can ask questions and develop a line of enquiry based on observations and prior knowledge/experience.				
I can use appropriate techniques, apparatus, and materials, paying attention to health and safety.				
I can identify control variables.				
I can use observations, measurements and data to draw conclusions.				
I can interpret observations and data, including identifying patterns.				
I can understand and use SI units.				
I can describe how anomalous data affects how easily you can identify a pattern.				
I can explain why having someone				

else repeat the experiment could increase the confidence in a conclusion.				
I can use scientific vocabulary accurately to explain ideas, methods and conclusions.				
I can explain why it sometimes takes a long time for a theory to be changed.				
I can explain way having a large range of data or many readings leads to accurate data.				
I can describe how controlling variables is important in providing evidence to a conclusion.				

ARE - 9			Points - 33-36	
Skill	Taught	Support	Independant	Recall
I can pay attention to objectivity, accuracy, precision, repeatability and reproducibility (peer review).				
I can explain why I have chosen particular pieces of equipment.				
I can understand that scientific methods and theories develop to take account of new evidence and ideas.				
I can make and record observations/measurements in a range of methods and evaluate the reliability of methods and suggest possible improvements.				
I know the difference between independent and dependent variables and can explain why.				
I can present reasoned				

explanations, including explaining data in relation to predictions and hypotheses.				
I can understand the difference between discrete and continuous data.				
I can evaluate data, showing awareness of potential sources of error.				
I can use and derive simple equations and carry out appropriate calculations.				
I can understand the use of IUPAC chemical nomenclature.				
I understand the importance of publishing results, secondary data and peer reviews.				
I can undertake basic data analysis including simple statistical techniques.				
I can identify further questions arising from results of investigations.				
I can explain why different groups of people might reach different decisions about a new theory, idea, invention or discovery.				

ARE - 10			Points - 37-40	
Skill	Taught	Support	Independent	Recall
I can plan an investigation.				
I can test scientific ideas.				
I can devise appropriate methods for the collection of observational data.				

I can assess and manage risks when carrying out practical work.				
I can distinguish between fact and opinion.				
I can discuss patterns in data and identify anomalies including identifying patterns and trends, making inferences and drawing conclusions.				
I can draw conclusions using scientific ideas and evidence.				
I can describe the ways in which scientific methods and theories develop over time.				
I can use a variety of concepts and models to develop scientific explanations and understanding.				
I recognise the importance of peer review of results and of communication of results to a range of audiences to support conclusions.				
I can carry out experiments appropriately, taking into account reliability and repeatability and showing due regard to the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations.				
I can make and record accurate observations and measurements using a range of apparatus and methods.				
I can evaluate methods and suggesting possible improvements and further investigations.				
I can translate data from one form				

to another.				
Presenting reasoned explanations, including relating data to hypotheses.				

ARE - 11			Points - 41-44	
Skill	Taught	Support	Independent	Recall
I can use scientific theories and explanations to develop hypotheses and can test a hypothesis.				
I can devise appropriate methods for the collection of numerical data.				
I can make observation on primary and secondary data.				
I can demonstrate an understanding of the need to acquire high quality data.				
I can select and process primary and secondary data to explain observations and results.				
I appreciate the power and limitations of science and considering social and ethical issues which may arise and can explain why this is.				
I can explain every day and technological applications of science; evaluating associated personal, social, economic and environmental implications; and making decisions based on the evaluation of evidence and arguments.				