Disciplinary	Sub-Strand	Degre	Core Disciplinary Knowledge
Analysing in Science	Patterns	1	Calculate a mean from a set of data Read values from a line graph
		2	Spot a data point that does not fit the pattern. Identify the variables from information about an investigation.
		3	Estimate values of data between known values. Calculate parts of pie Identify a pattern in data from a results table or bar chart.
		4	Compare your results to someone else's Express a linear relationship between variables in the form 'When... doubles then... also doubles'
	Limitations	1	Identify variables that you could not control properly. Identify aspects of the method that did not go according to plan.
		2	Suggest better ways to control variables. Suggest ways to improve the method.
		3	Suggest reasons for differences in repeat readings. Suggest ways to reduce measurement errors.
		4	Comment on whether your findings fit with known scientific explanations. Research other possible scientific explanations for your conclusion.
	Conclusions	1	Incorporate the pattern you found into an answer to the investigation question.
		2	Suggest a scientific reason for your findings.
		3	Suggest explanations for anomalous results
		4	Suggest other possible conclusions that could be drawn from your data. Quote any secondary data you have which led to the same conclusion.
	Present Data	1	Record data in a table (pre-made) Label the x axis with the name of the independent variable and the y axis with the dependent variable. Write unit labels on the axes.
		2	Draw a straight line or a curve of best fit through the points. Plot points on a scatter graph or draw bar charts
		3	Decide the type of chart or graph to draw based on its purpose or type of data. Decide which numbers to start and finish with on each axis. Produce labels with units for a table Transferring data onto Pie-chart
		4	Design a table for the data being gathered Mark out an equal scale showing what each square of graph paper represents.
Communicating in Science	Constructing explanations	1	Record the observation you want to explain. make and record observations.
		2	Use a diagram that might help the explanation. Suggest a scientific idea that might explain the observation.
		3	Describe the evidence for your idea.
		4	Explain why the evidence supports your idea.
	Critique Claims	1	Identify the claim. Comment on whether the claim is clearly stated.
		2	Identify all the evidence that is used.
		3	Comment on whether the evidence is scientifically accurate and relevant to the claim.
		4	Identify the reasoning that links the evidence to the claim. Comment on whether the reasoning follows logically from the evidence.
	Justify opinions	1	State the issue or decision to be made, along with the options. State your opinion with enough detail to be clear.
		2	List all the facts, scientific ideas, data, or conclusions that support your opinion.
		3	Identify the most important piece of evidence, as well as one or two supporting pieces of evidence.
		4	Explain logically how each piece of evidence supports your opinion. Explain why each piece of evidence does not support other opinions.
Investigating in Science	Collect data	1	Gather sufficient data for the investigation and repeat if appropriate. Use the measuring instrument correctly Carry out the method carefully and consistently.
		2	See if repeated measurements are close. Choose a suitable range for the independent and dependent variable. Read equipment scales correctly
		3	Remove outliers and calculate mean of repeats.
		4	Check that the measuring instrument can measure the complete range of the independent variable. Check you can detect differences in the dependent variable.
	Devise questions	1	Identify an observation that could be recorded or measured over time.
		2	Identify a dependent variable. Identify an independent variable.
		3	Write a question in the format 'How does... change over time?' Write a question linking variables in the form 'How does... affect...?' Identify two variables which may show a correlation.
		4	Write a question in the form 'Is there a correlation between… and…'
	Plan variables	1	Decide how to vary the independent variable between planned values.
		2	List all the variables that could affect the dependent variable. Decide how to measure the dependent variable
		3	Select important control variables.
		4	Identify how to control each control variable. List variables you cannot control.
	Test Hypotheses	1	Identify and record key features of an observation. Write a scientific description of the observation, using key words.
		2	Suggest a hypothesis for the observation.
		3	Suggest an experiment to test the hypothesis. Predict what will happen if your hypothesis is correct.
		4	Decide whether the conclusion of the experiment agrees with your prediction State whether or not the hypothesis is correct.
	Risk/Hazard	1	Identify features of an investigation which are hazardous. Determine the nature of the hazard.
		2	Suggest the likelihood of that happening.
		3	Identify ways of reducing the risk.
		4	Weigh up the benefits and risks of an application of science to make a decision. Explain why you made this decision.
	Writing a practical method	1	Sequence a practical method Drawing scientific diagrams of the equipment and practical set up
		2	Identifying the key elements to include in a written method (MARV) Writing a simple method from given equipment
		3	Writing a simple method choosing own equipment
		4	Writing a method that specifies values for IV, DV, CV.
	Examine consequences	1	State how each group could benefit or be harmed. Describe possible consequences to the environment, including habitats, air quality, organisms etc.
		2	Identify groups who could benefit or be harmed positively or negatively by a new discovery or invention. Identify individuals or organisations who may gain or lose money from a new technology.
		3	Describe/Explain how each group could benefit or be harmed. Describe how it would affect each group financially.
		4	Predict views that different groups will take on the new discovery or invention. Describe potential impacts further afield.

Application of Science	**Review theories**	1	Explain what is meant by a theory. State examples of theories in science.
		2	State examples of theories that have changed.
		3	Describe the role of evidence in supporting theories. Explain role of new evidence in changing theories.
		4	Explain role of argumentation in modifying theories.
	Interrogate sources	1	The experimenter collected enough data
		2	The authors of the research are qualified scientists The research was published in a peer reviewed journal
		3	They gave a scientific explanation of the findings The research agrees with current scientific thinking
		4	The researcher, author or funder might benefit from reporting the finding (bias, vested interest) The findings were backed up by other research.
Maths in Science		1	SI Units Mode and Median Range Area
		2	Volume Simple unit converstions Identify values required for simple equations
		3	Calculating Percentages Rounding of decimal numbers Significant figures Substitute values into simple equations
		4	Surface Area Estimating Calculating values from percentages
			Uaing prefixes like kilo, mega etc in calculations