North Gosforth Academy Science Department - KS3 Scientific Enquiry Skills Progression

Y7/Y8	Emerging	Developing	Achieving	Exceeding	Excelling	
Y9		Emerging	Developing	Achieving	Exceeding	Excelling
1. Planning investigations	Students choose apparatus from a list and correctly state its name; state a simple aim and decide on a simple method	Students decide on a simple method which includes a prediction and fair test	Students select apparatus; state an aim and make a prediction with a reason; plan a logical method which includes repeats; identify one control variable; state one safety measure	Students select suitable apparatus; explain several control variables; state some ways they/ others remain safe during the practical	Students state a scientific aim and prediction; explain how apparatus will be used accurately; plan sufficient repeats; name each variable; plan for and identify hazards and how to reduce them	Students state a scientific hypothesis using secondary sources; fully justify their plans, identifying how errors may occur and how to reduce them
2. Obtaining evidence	Students work safely with support; make simple observations and measure simple quantities using simple apparatus	Students work safely with limited support; make a series of observations/ measurements; use simple apparatus; perform a fair test	Students make a series of observations and repeats with an appropriate degree of accuracy and precision; use simple and complex apparatus	Students follow their own methods; make a series of appropriate observations and sufficient repeats, using all apparatus independently	Students use all apparatus independently and to a high degree of accuracy	Students can lead and support their peers during practical work
3. Presenting evidence	Students record some observations when given a blank table, chart or graph	Students record evidence, and can draw their own tables, charts and graphs, although these may contain some errors; plot bar charts and simple line graphs on given axes	Students record observations, and can draw their own appropriate tables, charts and simple graphs independently, generally choosing suitable scales and axes; draw and label suitable diagrams	Students record data in appropriate, neat and accurate tables; plot suitable graphs independently; include lines of best fit where appropriate	Students choose scales and axes which show data effectively; include lines or curves of best fit where appropriate	Students record data and plot accurate graphs independently, including range bars where appropriate; identify anomalous results and deal with them appropriately
4. Considering evidence	Students identify simple patterns in data and attempt to explain these	Students identify patterns in data and make relevant conclusions, generally using appropriate scientific terminology	Students make relevant conclusions explaining how this links to the evidence	Students make valid conclusions from tables, data and graphs, linking this to their knowledge and understanding and using accurate scientific terminology	Students include calculations in their conclusions, link these to their knowledge and understanding; decide how to deal with anomalies	Students explain how to deal with anomalies and explain any limitations of the evidence
5. Evaluating evidence	Students make a simple suggestion about how to improve an investigation	Students make several simple suggestions about how to improve an investigation	Students give simple reasons for suggested improvements to a method; identify anomalies	Students make several suggestions about how to improve an investigation giving scientific reasons for these and account for anomalies	Students make several suggestions about how to improve an investigation based on scientific knowledge and an evaluation of the data	Students make several suggestions about how to improve an investigation based on scientific knowledge explaining how these factors affect the conclusions
6. Research and communication	Students find information from simple texts using limited scientific vocabulary	Students find information from a range of sources using appropriate scientific vocabulary	Students find relevant information from a range of sources using scientific vocabulary correctly	Students select and use relevant information from a range of sources effectively; use a range of scientific vocabulary accurately	Students select and use a wide range of information from scientific sources effectively; use a range of complex scientific vocabulary accurately	Students select and use a wide range of information from scientific sources effectively, logically and using a wide range of complex scientific vocabulary accurately
7. Developing scientific ideas	Students know that scientists collect evidence to answer problems	Students know how scientists collect evidence to answer problems and have a limited understanding of scientific models and analogies	Students know that scientific ideas are based on evidence to provide scientific explanations and demonstrate an understanding of scientific models and analogies	Students know that evidence leads to the development of new theories; understand scientific models and analogies; consider ethical issues	Students understand abstract scientific models and analogies and ethical issues	Students recognise scientific from non-scientific evidence; understand the importance of peer review; understand ethical issues and can make decisions based on evaluations of arguments
8. Maths skills	Students complete simple, appropriate maths skills and use correct units for some values when given to them	Students carry out simple maths skills, use simple equations and use correct units for most values when given to them	Students carry out suitable maths skills, use formulae correctly and use correct units for values when given to them	Students carry out more complex maths skills, use equations correctly and recall the units for most values	Students carry out more complex maths skills correctly, use and rearrange equations and recall the units for values	Students use and rearrange equations correctly
9. Recall	Students recall limited scientific facts and show limited understanding of the scientific ideas	Students recall some scientific knowledge and show understanding of scientific ideas in limited detail	Students recall scientific knowledge and show understanding of some scientific ideas in detail	Students recall scientific knowledge in detail and shows an understanding of scientific ideas in some detail.	Students recall scientific knowledge in detail and apply it to unfamiliar circumstances; show detailed understanding of scientific ideas	Students recall relevant scientific knowledge in detail and apply it to unfamiliar circumstances; show a wide understanding of scientific ideas