

Year 9: Assessment statements

Subject: Science



	Curriculum strand 1 – Scientific Thinking	Curriculum strand 2 – Experimental Skills	Curriculum strand 3 – Analysis and Evaluation	Curriculum strand 4– Communication
<p>Mastering</p> <p>(Indicative of student who will go on to achieve a grade 7-9 at GCSE, if they continue to progress as they are).</p>	<ul style="list-style-type: none"> - Appreciate the power and limitations of science and consider ethical issues. - Identify/analyse the ethical issues involved in developing some scientific ideas. - Specify a variety of ideas of how theories have developed using evidence and explain why these changes occurred linked to peer review. - Evaluate models and suggest improvements. - Applying science to new technological ideas. - Describe the social, personal, environmental, and economic effects of scientific developments 	<ul style="list-style-type: none"> - Use scientific theories and explanations to develop hypotheses, with explanation. - Plan and analyse an experiment to obtain valid results to test a hypothesis. - To be able to discuss techniques to control variables and justify choices of variables. - Explain how to monitor variables and why it is important to have one independent/dependent variable. - State all reasonable hazards and risks associated with an experiment and identify control measures. - Apply knowledge of a variety of techniques to make choices of the most appropriate method. 	<ul style="list-style-type: none"> - Can rearrange equations accurately. - Can conclude patterns link to hypothesis and give examples of data to justify a decision. - Convert complex units. - Explain patterns in data and link to hypothesis. - Present data in a variety of different ways - Draw lines or curves of best fit accurately 	<ul style="list-style-type: none"> - Use a wide range of key terms fluently and define concisely. - Has confidence in asserting meaning of unfamiliar terms. - Rearranging information to perform calculations with correct number of significant figures. - Select information from wide range of sources and analyse/assess reliability. - Reference sources using correct conventions. - Make notes according to own gaps in knowledge, in range of styles. - Give a balanced argument, presented logically - Can link a variety of complex scientific ideas to other areas of science. - Develop strategies and methods for extracting numerical information from a question and manipulating this to find other quantities.
<p>Advancing</p> <p>(Indicative of student who will go on to achieve a grade 5-6 at GCSE, if they continue to progress as they are).</p>	<ul style="list-style-type: none"> - Explain why data is important; identify the consequences of incomplete data. - Identify ethical issues. - Specify ideas of how theories have developed, using evidence. - Describe strengths and weaknesses of models. - Construct diagrams to explain scientific ideas of more than one-step. - Explain technological uses of science from given texts. - Identify a limited range of social, personal, environmental, or economic effects of scientific developments 	<ul style="list-style-type: none"> - Use scientific theories and explanations to develop hypotheses. - Plan an experiment to obtain valid results to test a hypothesis. - To be able to identify dependent, independent, and controlled variables in context. - Explain why it is important to have one independent/dependent variable. - State hazards and risks associated with an experiment and identify some control measures. - Apply knowledge of a limited number of techniques to make choices of the most appropriate methods to use 	<ul style="list-style-type: none"> - Have some basic understanding of standard form. - Can select and apply equations and rearrange with some success. - Can accurately calculate means identifying and removing anomalous results. Also, from their own data, justify results. - Describe obvious patterns sets of data, using appropriate data points. - Can select and construct a graph with accurate points and appropriate scales. - Can explain patterns and link to hypothesis. - Covert simple units. - Draw lines of best fit accurately 	<ul style="list-style-type: none"> - Present more complex and detailed ideas in your own words linking to other scientific ideas (area of curriculum). - Uses key terms correctly and fluently, describing and explaining each step in a scientific process - Has confidence in asserting meaning of unfamiliar terms. - Select different resources of information and justify reasons. - Reference sources using a simple, recognised convention. - Make notes and annotate them according to gaps in knowledge. - Give balanced pros / cons for different issues. - Can link some complex scientific ideas to other areas of science - Develop methods for extracting numerical information from a question and manipulating this to find other quantities, with some errors.

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<p>Securing</p> <p>(Indicative of student who will go on to achieve a grade 3-4 at GCSE, if they continue to progress as they are).</p>	<ul style="list-style-type: none"> - Explain what an ethical issue is. - Describe a process/ idea using a model. - State examples of theories in science - Explain why data is important. - Explain how theories are developed using experiment and observation. - Create/ design a model to explain an idea. - Describe limited strengths and weaknesses of models. - Construct diagrams to explain scientific ideas. - Identify technological uses of science from given texts. - Identify a limited range of social, personal, environmental, or economic effects of scientific developments 	<ul style="list-style-type: none"> - Write a hypothesis to test and state whether the hypothesis was correct or incorrect. - Follow a plan for an experiment. - Say whether a method is suitable or not. - Explain how to reduce risks when carrying out investigations - Plan an experiment to obtain observations. - Suggest simple control variables. - State some hazards and risks associated with an experiment and identify some control measures. - Suggest alterations to improve method. - Apply knowledge of a limited number of techniques to make choices of the most appropriate equipment to use. 	<ul style="list-style-type: none"> - Can explain why we should ensure our results are reliable and how to do this. - Can describe simple patterns in results (as ___ did ___ then ___ did ___) - Can recall the correct units. - Say what went well in an experiment and how it could be improved. - Remove anomalous results before calculating a mean. - Spot data points that do not fit the pattern - Can use premade formula triangles/ equations with some success. - Can calculate a mean and a range from a data set. - Describe patterns in tables/ graph. - Can construct a graph with appropriate scales. - Record several sets of results developing their own results table and leaving space for repeat measurements. - Say what went well in an experiment and how it could be improved. 	<ul style="list-style-type: none"> - Use clear language and well-formed sentences. - Describe each step in a given scientific process - Select different sources to find information. - Reference sources in a simple way. - Make notes by paraphrasing/ condensing but with some inaccuracies. - Present simple ideas in your own words. - Perform simple calculations. - Present more complex and detailed ideas in your own words. - Present values with correct number of significant figures. - Use Key terms and have strategies to remember them. - Give pros/cons for different issues. Can link simple scientific ideas to other areas of science
<p>Foundation</p> <p>(Indicative of student who will go on to achieve a grade 1-2 at GCSE, if they continue to progress as they are).</p>	<ul style="list-style-type: none"> - Explain what a scientific theory is. - Identify areas of missing data. - Can identify ethical issues from a selection provided. - Describe a theory. - Describe a process/ idea using a model. - Constructing simple diagrams. - Select social, personal, environmental, or economic effects of scientific developments from a given selection. 	<ul style="list-style-type: none"> - With guidance, follow a basic plan. - Write a simple method. - Describe associated risks when carrying out investigations. - Follow a given plan for an experiment to obtain valid results. - Say what you think will happen in an experiment with reasons. - State some hazards and the risks associated with them. - Say whether method is suitable or not. - Name key pieces of scientific equipment and say what they are used for 	<ul style="list-style-type: none"> - Able to identify anomalous results from given data. - Identify a pattern from a graph. - Apply basic arithmetic to practical results (calculate difference and change) - Say what went well in an experiment. - Can say how to carry out an experiment to ensure the results are "correct" - Can use premade formulas (triangles / equations) with limited success. - Can record data in a given table and graph. - Can describe simple patterns in results (as ___ did ___ then ___ did ___) - Can label axis with units on graphs. - Can state an obvious observation about an experiment, e.g., 'it bubbled'. - Can select the correct units from a list. - Say what went well in an experiment. 	<ul style="list-style-type: none"> - Uses some key terms, not always correctly. - Able to use some provided resources to find information. - Able to make simple notes from text - Present simple facts clearly. - Perform simple calculations with support. - Give some simple pros/cons for a given issue. - Present simple ideas in your own words.

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