Ursuline Academy Ilford

Science (Year 9)

	Initial – *a student who is still initial will be able to partially meet some of the following with support:*	**Emerging** – *a student whose understanding is still emerging will be able to:*	**Developing** – *a student whose understanding is developing will also be able to:*	**Secure** – a *student whose understanding is secure will also be able to:*	**Advanced** – *a student whose understanding is advanced will be able to do some of the following:*	**Mastered** – *a student who has mastered their understanding will be able to do all of the following consistently:*
Diagrams or Symbols	• Add scientific labels to a diagram • Recall and recognise symbols. • Recognise a diagram of a compound to the formula. • Recognise objects from diagrammatic representations. • Recognise or recall the Symbol for something from a list • Recognise a type of something from a diagrammatical representation of it. • Recall how to draw a chemical or physical structure		• Draw specific scientific diagrams given only a simple diagram and/or minimal information			
Real World or Scientific Uses	• Recognise a simple use of a substance or process • Apply the knowledge of the property of a substance to its use. • Recall a process or substance to where it could be used. • Choose a substance over another when given criteria to judge for its use		• Apply scientific understanding to a real-world use • Evaluate the properties and how they are suitable for a given use. • Recall substances properties and link with its use. • Explain the reason underlying a process or real-life application of it • Explain with reason why a substance is not used in real life with reference to its property.			

		• Explain with reason why a substance is used in real life with reference to its property. • Suggest advantages and disadvantages comparing two materials for a job		
Interpreting Data from a Table, Graph or Diagram	• Find the missing information when given an equation, paragraph or diagram • Find the correct explanation from an observation/data of a practical shown • Link results, information or data to chemical or physical properties	• Apply data on specific substances to calculate new information. • Choose information from a diagram to calculate a scientific value. • Find patterns in data or graph • Interpreting data using scientific knowledge, processes or ideas		• 8 Choose information from a set of data, decide what calculation should be performed. • 8 Choose readings from a graph you have plotted and use in a calculation. • 9 Perform several calculations on data you have chosen to which one best fits the observation
Variables, Required Practicals and Working Scientifically	• Order or rearrange a method or process into the correct order • Suggest variables that need to be kept the same to be valid when given information on a method and diagram • Calculate a range from a set of results • Link the measuring apparatus to its resolution. • Recognise what type of error from a list • Classify data as categoric or continuous • Classify the variables or data type and deciding what graph to plot • Calculate a mean from a set of numbers (data), recognising anomalous results. • Draw diagram of apparatus that shows a process labelling its parts • Name specific apparatus from information or diagram • Plot a Bar Chart on a fine scale • Read a value on a fine scale • Suggest the independent dependent and control variables when given a	• Sketch a graph based on a change of independent variable • Describe a practical procedure to find a value or solve a problem • Plotting points onto a pre-drawn graph and adding line of best fit • Work out the type of variable in a set of data • Applying scientific understanding to a method to choose what could have caused specific anomalous result or change • Suggest advantages and disadvantages comparing two different methods • Suggest changes when given a method to increase validity/accuracy	• Explain how a change in an experiment can improve it • Explain with reasons for part of a procedure in a method should this be a 5? • Plot a graph accurately, draw a line of best fit, extend the line • Suggest a reason for a part of an experiment using understanding of a scientific process • Plan a practical that would lead to a valid outcome, variables controlled or measured	•

	valid method • Suggest how a method can be adapted to produce repeatable results • Suggest a better piece of apparatus to improve accuracy • Suggest how to improve accuracy in a method • Suggest specific risks, hazards and precautions that need to be taken in an investigation • Suggest specific apparatus to do a specific job			
Science Knowledge, Ideas, Models	• Recall the knowledge of property of an object. • Choose a word that fits the definition • Describe a microstructure of something. • Describe why scientific ideas become accepted over time • Explain why a certain substance has a certain property • Link the scientific substance, process or concept to its definition or effects • Explain why Scientists did and thought things differently. • Know the proper scientific name of something. • Link the chemical property from its microstructure • Recognise a scientific label placed on a data graph	• Suggest a word that fits a definition • Predicting properties of an unknown based on knowledge of similar objects properties. • Recall a scientific test and its results for a chemical • Recall knowledge of properties to predict or explain results or observations • Use Scientific understanding to predict the outcome • Recall physical properties of common substances and apply in situations • Recall the missing properties of an object given only one piece of information. • Apply scientific knowledge to identify the correct structure, formula or answer. • Apply scientific knowledge to add labels to a scientific graph or data.	• Apply knowledge or understanding of a chemical reaction to observations • Apply scientific understanding to explain phenomena. • State a limitation of a model • Write a scientific definition • Complete missing information from understanding of a process and a calculation • Explain how a model was changed, citing the evidence and its interpretation. • Explain how the macro physical property depends on the micro physical properties	• 8 Apply data from your calculation to an observation/chemical or physical Property • 8 Explain an observation in terms of the process and property of substance involved. • 8 Justify an answer that you give and back up with an explanation

Science Processes- Recognising, Explaining, Understanding or Applying	• Recall the knowledge of a process and where to recognise it. • Complete missing information to show a complete process. • Describe what happens during a scientific process • Predict with reason a value based on knowledge of a property	• Apply scientific understanding to suggest an answer to a simple problem • Apply scientific understanding to predict the new data or observations when something is changed • Apply a substance's property to suggest one substances advantage or use over another. • Explain the reason underlying a process or real-life application of it • Describe a how a process works in a specific situation • Add in missing information based on understanding of the science behind it	• Apply knowledge or understanding of a chemical reaction to observations • Complete missing information from understanding of a process and a calculation • Explain an observation based on more than one scientific process. • Explain how the macro physical property depends on the micro physical properties	• 8 Apply data from your calculation to an observation/chemical or physical property • 8 Explain an observation in terms of the process and property of substance involved. • 8 Justify an answer that you give and back up with an explanation • 9 Perform several calculations on data you have chosen to which one best fits the observation