CHEMISTRY ASSESSMENT FRAMEWORK

Assessment Grade		Key Knowledge and Skills
9	a b c d	Students have an excellent understanding of a range of scientific models and can use this knowledge to solve a varied range of scientific questions. They are able to make links between a varied range of scientific concepts. They can recall all of the key formulae and will have an excellent understanding of how to use mathematical skills to solve scientific questions. They will have an excellent understanding of the scientific method and will be able to apply this knowledge to scientific questions.
8	a b c d	Students make explicit connections between abstract and/or models in explaining processes or phenomena. They employ a systematic approach in deciding the relative importance of a number of scientific factors when explaining processes or phenomena. They suggest ways in which scientific and technological developments may be influenced. They suggest economic, ethical/moral social or cultural arguments for and against scientific developments. They effectively represent abstract ideas using appropriate symbols and flow diagrams. They formulate questions or ideas that can be investigated by synthesising information from a range of sources. They can understand, recall and apply the vast majority of the key formulae. They are able to apply students' scientific understating to solve mathematical problems.
7	a b c d	Students can make connections between models and abstract ideas to explain various scientific phenomena. They can evaluate the various scientific models and compare the different models used noting the strengths and weaknesses of the various models. They are confident in using abstract ideas to explain scientific concepts. They will be able to recall and apply a range of scientific formulae to answer scientific questions.
6	a b c d	Students use abstract ideas or models or multiple factors when explaining processes of phenomena, and are able to apply this to all Foundation tier and the majority of Higher tier content. They can identify the strengths and weaknesses of a particular model. They explain how creative thinking in science generates ideas for future research and development. They effectively represent abstract ideas using appropriate symbols, flow diagrams and different kinds of graphs in presenting explanations and arguments. They identify variables in complex contexts, explaining why some cannot readily be controlled and planning appropriate approaches to investigate this.
5	a b c d	Students use abstract ideas or models of more than one step when describing processes or phenomena at Foundation level and some at Higher tier level. They explain processes or phenomena at Foundation tier and some at Higher tier. They recall the majority of the necessary equations needed and use the majority of the SI units appropriately. They recall, select and communicate secure knowledge and understanding of science. They apply appropriate mathematical skills to solving problems.
4	a b c d	Students use abstract ideas or models of more than one step when describing processes or phenomena at Foundation tier. They explain processes or phenomena at Foundation tier. They suggest solutions to problems or answer questions by drawing on abstract ideas or models. They distinguish between data and information from primary sources, secondary sources and simulations and present them in the most appropriate form. They apply scientific knowledge and understanding in the planning of practical work, identifying significant variables and recognising which are independent and which are dependant. They justify their choice of data collection method and proposed number of observations and measurements. They recall some of the necessary equations needed and use some of the SI units appropriately. They can use some mathematical skills to solve Foundation tier problems.
3	a b c d	Students identify differences and similarities in changes related to simple scientific ideas, processes or phenomena. They can use straightforward scientific evidence to answer questions, or to support their findings. They can describe some simple positive and negative consequences of scientific and technological developments. They recognise applications of specific scientific ideas and identify aspects of science used within particular jobs or roles. They select appropriate ways of presenting scientific data. They select appropriate equipment or information sources to address specific questions or ideas under investigation.

2	a b c d	Students identify a limited number of differences and similarities in changes related to simple scientific ideas, processes or phenomena. They use straightforward scientific evidence to answer questions, use of common sense to explain their findings rather than key scientific ideas. They describe a small number of simple positive and negative consequences of scientific and technological developments. They select appropriate ways of presenting scientific data. They select appropriate equipment or information sources to address specific questions or ideas under investigation. They use small numbers for the key formulae needed to solve scientific questions.
1	a b c d	Students have a basic understanding of some of the key concepts in science. They will be able to produce arguments for and against viewpoints based on a limited understanding of the key concepts. They will be able to solve simple mathematical problems and recall a limited number of the key formulae needed. They have a limited understanding of the scientific process.
S	a b c d	Students begin to have a basic understanding of some of the key concepts in science. They begin to have a limited understanding of the scientific process.