Curriculum Related Expectations (CRE's):
Science

The below criteria are used by the department to assess students' progress, knowledge and skills throughout Year 9.

CRE Descriptor	AUT Term	SPR Term	SUM Term
Mastering ***(Learner meets all expectations of Developing and securing, and is succeeding in some or all of these areas as well).***	• Mastering students achieve consistently well in all summative tests. • Students have a broad understanding of objectivity and concern for accuracy, precision, repeatability and reproducibility. • Are beginning to identify independent, dependent and control variables. • Can identify and use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety. • Can ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience to make predictions using scientific knowledge and understanding. • Can make and record observations and measurements using a range of methods for different observations and present in a suitable format. • Can use a range of scientific terminology correctly and in context.	• Students can explain factors within a given community/habitat • Can understand and explain the function of a cell based on structure and describe and explain the structure due to function • Can understand and explain methodology of and reasoning of microscopy • Can explain the order and stages of mitosis and meiosis (using names, images and diagrams) and can explain the difference between the two • Can understand and explain the movement of energy from different sources and how this occurs • Can identify a shown substance (formula and by diagram) as an element or compound and an atom or molecule • Can explain whether a substance is pure or a mixture and the method used in chromatography • Can identify elements from the periodic table based on their atomic structure and can identify the number of sub-atomic particles of an element from the periodic table • Can understand and work with relative atomic mass • Can understand and explain the difference between isotopes • Can write and draw electronic structure • Can understand and explain the properties and trends of group 1, 7, 0 elements • Can understand and use the periodic table • Can explain whether waves are longitudinal or transverse • Can use a range of scientific terminology correctly and in context. • Can make and record observations and measurements using a range of methods for different observations during an investigation and can give reasons for most steps in a method • Can use and rearrange equations as needed and use correct units • Can ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience to make predictions using scientific knowledge and understanding.	• Mastering students achieving consistently well in all summative tests. • Students consistently pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility. • Students can explain the importance of evaluating risks • Students will ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience to make predictions using scientific knowledge and understanding. • Students consistently demonstrate their ability to select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent, dependent and control variables, where appropriate use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety. • Consistently make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements apply sampling techniques. • Students can explain the types of competition that can occur in a community • Can identify and explain the adaptions of animals and plants and can make links between adaptions and specific climates • Can understand levels of organisation • Can understand and describe how practical ecological techniques are carried out • Can identify the processes within the water and carbon cycle and can explain the movement of water and carbon • Can explain carbon footprint and ways which it can be reduced • Can explain biodiversity, how it is maintained and its importance. • Students can explain deforestation and the implications • Can explain the properties, uses and application of EM waves • Can explain the composition and development of the Earth's atmosphere and understand graphs showing changes • Can understand and explain the effect of human activities on the atmosphere • Students can explain the process and implications of global warming and global climate change and can understand and work with graphs showing evidence • Students can link global warming to the carbon cycle and human activity • Can explain the properties and effect of atmospheric pollutants • Students can understand and explain the processes of obtaining potable water and in waste water treatment • Can explain methods of obtaining potable water in different countries • Students can explain alternative methods for extracting metals • Can explain life cycle assessment and can use data linked to it to come to an evaluation

Securing ***(Learner meets all expectations of Developing, and is succeeding in these some or all of these areas as well).***	• Securing students achieve well in most summative tests. • Students have a good understanding of objectivity and concern for accuracy, precision, repeatability and reproducibility. • Can identify independent, dependent and control variables, with prompts. • Can identify and use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety with guidance. • Are beginning to ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience to make predictions using scientific knowledge and understanding. • Can make and record observations and measurements using a range of methods for different observations and present in a suitable format with guidance. • Are beginning to use a range of scientific terminology (tier 2 & 3 language) correctly and in context.	• Students can identify factors as biotic or abiotic • Students can identify cells based on their structure • Can identify the function of a cell based on structure and describe the structure due to function • Shows understanding in carrying out microscopy method • Show understanding of the uses and difference of mitosis and meiosis and their order • Can identify stages of mitosis and meiosis based on images and diagrams • Can identify locations of energy stores • Show understanding in the movement of energy and how this occurs • Can identify a shown substance (formula and by diagram) as an element or compound and an atom or molecule • Show understanding of whether a substance is pure or a mixture and the method used in chromatography • Can identify elements from the periodic table based on their atomic structure and can identify the number of sub-atomic particles of an element from the periodic table • Shows understanding of relative atomic mass and isotopes • Shows understanding of writing and drawing electronic structure • Students show understanding of the properties and trends of group 1, 7, 0 elements • Show understanding on how to use the periodic table • Can identify waves as longitudinal or transverse • Are beginning to use a range of scientific terminology (tier 2 & 3 language) correctly and in context. • Can make and record observations and measurements using a range of methods for different observations during an investigation and can give reasons for most steps in a method • Show understanding on using equations - including rearranging – and use correct units Are beginning to ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience to make predictions using scientific knowledge and understanding.	• Students can identify the types of competition that can occur in a community • Can identify and describe the adaptions of animals and plants and can make links between adaptions and specific climates • Can understand levels of organisation • Can understand and describe how practical ecological techniques are carried out • Can identify the processes within the water and carbon cycle and can describe the movement of water and carbon • Can understand carbon footprint and ways which it can be reduced • Can understand biodiversity, how it is maintained and its importance. • Students can understand deforestation • Can understand the properties, uses and application of EM waves • Can identify common gases • Can understand the composition and development of the Earth's atmosphere. • Can identify the greenhouse gases • Can understand and describe the effect of human activities on the atmosphere • Students can understand the process and implications of global warming and global climate change and can understand and work with graphs showing evidence • Can understand the properties and effect of atmospheric pollutants • Students can understand and describe the processes of obtaining potable water and in waste water treatment • Students can understand alternative methods for extracting metals • Can understand life cycle assessment and starting to understand data linked to it • Can make and record observations and measurements using a range of methods for different observations during an investigation and can give reasons for most steps in a method • Show understanding on using equations - including rearranging – and use correct units • Are beginning to ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience to make predictions using scientific knowledge and understanding.

Developing ***(Learner is succeeding in some or all of these areas).***	• Developing students achieve well in m summative tests. • Students have some understanding of objectivity and concern for accuracy, precision, repeatability and reproducibility. • Are beginning to identify independent, dependent and control variables, with clear scaffolding. • Can safely carry out scientific investigations with detailed instructions when risks have been clearly identified. • Are beginning to make and record observations and measurements using a range of methods for different observations and present in a suitable format with clear scaffolding. • Students have limited use of tier 2 and tier 3 terminology. • SPaG performance is limited by less secure subject specific knowledge.	• Students are beginning to identify factors as biotic or abiotic • Students are starting to identify cells based on their structure • Are starting to match function of cells with structure • Starting to show understanding in method of microscopy • Show some understanding of the uses and order of mitosis and meiosis • Starting to identify locations of energy stores • Show some understanding in the movement of energy and efficiency • Students are starting to identify a shown substance (formula and by diagram) as an element or compound and an atom or molecule • Students show some understanding of whether a substance is pure or a mixture • Students are show some understanding on the method to separate dyes (chromatography) • Students are starting to identify elements from the periodic table based on their atomic structure and show some understanding of relative atomic mass and isotopes and electronic structure • Students show some understanding of the properties of group 1, 7, 0 elements and the periodic table • Students are starting to identify waves as longitudinal or transverse • Students have limited use of tier 2 and tier 3 terminology. • Are beginning to make and record observations and are beginning to give a reason for carrying out specific steps method during an investigation • Are showing some understanding on using equations and correct units	• Students are beginning to identify the types of competition that can occur in a community • Are starting to identify the adaptions of animals and plants and starting to make links between adaptions and specific climates • Are beginning to understand levels of organisation • Students are starting to understand how practical ecological techniques are carried out • Are beginning to identify the processes within the water and carbon cycle • Are beginning to understand carbon footprint and ways which it can be reduced • Are beginning to understand biodiversity, how it is maintained and its importance. • Students are beginning to understand deforestation • Are beginning to understand the properties and uses of EM waves • Are beginning to identify common gases • Are beginning to understand the composition and development of the Earth's atmosphere. • Are starting to identify the greenhouse gases • Students are standing to understand the effect of human activities on the atmosphere • Students are beginning to understand the process and implications of global warming and global climate change and are starting to understand graphs showing evidence • Are starting to understand the properties and effect of atmospheric pollutants • Students are beginning to understand the processes of obtaining potable water and in waste water treatment • Students are starting to understand alternative methods for extracting metals • Are beginning to understand life cycle assessment and starting to understand data linked to it. • Students have limited use of tier 2 and tier 3 terminology. • Are beginning to make and record observations and are beginning to give a reason for carrying out specific steps in a method during an investigation • Are showing some understanding on using equations and correct units