“I Can” Proficiency Scale - Year 10 Science - Chemistry

Prioritised Standard	• *I can analyse patterns in the periodic table to make predictions about the properties of elements.*
Score 4.0	***I can:*** • Use the periodic table to represent the structure of an atom using a Lewis or Bohr diagram for a given element. • Determine the properties of an element based on its atomic structure. • Determine the organisational placement of an element on the periodic table based on its atomic structure and properties. • Use the position of elements in the periodic table to make predictions about their reactivity. • Make predictions about how elements react with different types of elements within the periodic table. • Use the periodic table to determine formulas of compounds formed by the combination of elements. • Use Lewis or Bohr diagrams to depict the atomic structure of complex ionic and covalent compounds. • Balance complete word and chemical equations.
Score 3.5	***I can:*** • Use the periodic table to represent the structure of an atom for a given element. • Determine some properties of an element based on its atomic structure. • Determine the organisational placement of an element on the periodic table based on its atomic structure and properties. • Use the position of elements in the periodic table to make predictions about their reactivity. • Make predictions about how specific elements react with different types of elements within the periodic table. • Use the periodic table to determine some formulas of compounds formed by the combination of elements. • Use Lewis or Bohr diagrams to depict the atomic structure of simple ionic and covalent compounds. • Balance word and chemical equations.
Score 3.0	***I can:*** • Determine the structure of an atom for the first 20 elements. • Determine the properties of the first 20 elements based on its atomic structure. • Determine the organisational placement of the first 20 elements on the periodic table based on their atomic structure and properties • Use the position of the first 20 elements in the periodic table to make predictions about their reactivity. • Make some predictions about how specific elements react with different types of elements within the periodic table. • Balance simple word and chemical equations.

Score 2.0	***I can:*** • Determine the structure of an atom for some elements. • Determine the properties of some elements based on their atomic structure. • Determine the organisational placement of some elements on the periodic table based on their atomic structure and properties. • Use the position of some elements in the periodic table to make predictions about their reactivity. • Make a prediction about how a specific element reacts with different types of elements within the periodic table. • Balance some simple word and chemical equations.
Score 1.0	***I can:*** • Determine the structure of an atom. • Determine the properties of some elements. • Determine the organisational placement of some elements on the periodic table. • Make predictions about the reactivity of some elements. • Make a prediction about how specific elements react with different types of elements.
Score 0.0	• Even with help, no success.

“I Can” Proficiency Scale - Year 10 Science – Rates of Reaction

Prioritised Standard	• *I can predict products of different chemical reactions and describe how different factors influence reaction rates.*
Score 4.0	***I can:*** • Predict the reactants and products for a range chemical reactions. • Identify all of the factors that influence the rate of a reaction. • Describe all of the factors that influence the rate of a reaction. • Use collision theory to explain how all factors influence the rate of reaction.
Score 3.5	***I can:*** • Predict the reactants and products for a range chemical reactions. • Identify all of the factors that influence the rate of a reaction. • Describe all of the factors that influence the rate of a reaction. • Use collision theory to explain how some factors influence the rate of reaction.
Score 3.0	***I can:*** • Predict the reactants and products for some chemical reactions. • Identify all of the factors that influence the rate of a reaction. • Describe some of the factors that influence the rate of a reaction. • Explain how a chemical reaction occurs with reference to the collision theory.
Score 2.0	***I can:*** • Identify the reactants and products of a chemical reaction. • Identify some of the factors that influence the rate of a reaction. • Describe a factor that can influence the rate of a reaction.
Score 1.0	***I can:*** • Identify the reactants or products of a chemical reaction. • Identify some factors that influence reaction rates.
Score 0.0	• Even with help, no success.

“I Can” Proficiency Scale - Year 10 Science – Genetics

Prioritised Standard	• *I can explain how hereditary information is passed from one generation to the next.*
Score 4.0	***I can:*** • Use models or diagrams to explain relationships between DNA, genes, alleles and chromosomes and describe how they control the characteristics of organisms. • Use and construct Punnett squares and pedigrees to predict the likely offspring phenotype and genotype for both homozygous and heterozygous, co-dominate and incomplete dominate parents for monohybrid and dihybrid crosses. • Organise a sequence of simple diagrams for mitosis and meiosis and explain the different phases of mitosis and meiosis. • Explain how the phases of mitosis and meiosis differ from each other. • Outline the genetic processes involved in natural selection using a variety of examples.
Score 3.5	***I can:*** • Use models or diagrams to explain relationships between DNA, genes, alleles and chromosomes and describe how they control the characteristics of organisms. • Use Punnett squares and pedigrees to predict the likely offspring phenotype and genotype for both homozygous and heterozygous, and co-dominate or incomplete dominate parents for monohybrid and dihybrid crosses. • Organise a sequence of simple diagrams for mitosis and meiosis and explain the different phases of mitosis and meiosis. • Outline the genetic processes involved in natural selection using some examples.
Score 3.0	***I can:*** • Use models or diagrams to represent relationships between DNA, genes, alleles and chromosomes and describe how they control the characteristics of organisms. • Describe patterns of inheritance of a simple dominant/recessive characteristic through generations of a family. • Use Punnett squares to predict the likely offspring phenotype and genotype for both homozygous and heterozygous, co-dominant and incomplete dominant parents in monohybrid crosses. • Organise a sequence of simple diagrams for mitosis and meiosis. • Outline the genetic processes involved in natural selection using a specific example.

Score 2.0	***I can:*** • Identify relationships between DNA, genes, alleles and chromosomes and how they control the characteristics of organisms. • Use Punnett squares to predict the likely offspring phenotype and genotype for either homozygous or heterozygous parents. • Recognise some of the stages of mitosis and meiosis. • Outline some of the processes involved in natural selection using a specific example.
Score 1.0	***I can:*** • Identify relationships between DNA, genes, alleles and chromosomes. • Recognise the likely offspring phenotype and genotype in a Punnett square for homozygous or heterozygous parents. • Recognise mitosis and meiosis. • Demonstrate some understanding of natural selection using a specific example.
Score 0.0	• Even with help, no success.

“I Can” Proficiency Scale - Year 10 Science - Evolution

Prioritised Standard	• *I can explain the diversity of living things using evidence that supports the theory of evolution.*
Score 4.0	***I can:*** • Describe the two theories of evolution using a variety of examples. • List 5 pieces of evidence in the development of the theory of evolution. • Describe 5 pieces of evidence in the development of the theory of evolution.
Score 3.5	***I can:*** • Describe the two theories of evolution using some examples. • List 5 pieces of evidence in the development of the theory of evolution. • Describe 4 pieces of evidence in the development of the theory of evolution.
Score 3.0	***I can:*** • Describe the two theories of evolution using an example. • List 5 pieces of evidence in the development of the theory of evolution. • Describe 3 pieces of evidence in the development of the theory of evolution.
Score 2.0	***I can:*** • Describe a variety of examples of natural selection. • List some evidence in the development of the theory of evolution. • Describe 2 pieces of evidence in the development of the theory of evolution.
Score 1.0	***I can:*** • Identify an example of natural selection. • List a piece of evidence in the development of the theory of evolution. • Describe a piece of evidence in the development of the theory of evolution.
Score 0.0	• Even with help, no success.

“I Can” Proficiency Scale - Year 10 Science – Enquiry Skills

Prioritised Standard	• Demonstrate the inquiry skills of questioning, predicting, planning and conducting Demonstrate the inquiry skills of processing, analysing and evaluating data and information
Score 4.0	***I can:*** • Generate complex questions and hypotheses that can be investigated scientifically. • Plan investigations, select and use appropriate equipment to collect reliable data. • Explain the impact of different variables and ensure that relevant variables are controlled to improve the reliability of data. • Collect and record data systematically and accurately in tables, graphs, keys and models. • Analyse patterns or relationships in data. • Critically evaluate findings and provide reasons if findings differ from expected results. • Describe a variety of ways to improve the reliability of the experiment and accuracy of the data. • Critically evaluate the validity of the data collected in a scientific investigation and draw relevant conclusions that are consistent with the evidence.
Score 3.5	***I can:*** • Generate questions and hypotheses that can be investigated scientifically. • Plan investigations, select and use equipment to collect data. • Describe the impact of different variables and ensures that relevant variables are controlled to improve the reliability of data. • Collect and record data accurately in tables, graphs, keys and models. • Describe patterns or relationships in data. • Evaluate findings and provide reasons if findings differ from expected results. • Describe some ways to improve the reliability of the experiment and accuracy of the data. • Evaluate the validity of the data collected in a scientific investigation and draw relevant conclusions that are consistent with the evidence.

Score 3.0	***I can:*** • Identify questions and hypotheses that can be investigated scientifically. • Identify the impact of different variables and ensures that relevant variables are controlled to improve the reliability of data. • Carry out investigations, select and use equipment to collect data. • Collect and record data in tables, graphs, keys and models • Identify patterns or relationships in data. • Evaluate findings and provide some reasons if findings differ from expected results. • Identify some ways to improve the reliability of the experiment and accuracy of the data. • Evaluate the quality of the data collected in a scientific investigation and draw some conclusions.
Score 2.0	***I can:*** • Understand questions and hypotheses can be investigated scientifically. • Identify the impact of different variables. • Carry out investigations and uses equipment to collect data. • Collect and record data in tables, graphs, keys and models with support • Recognise some patterns or relationships in data. • Describe the validity of the data collected in a scientific investigation • Evaluate conclusions for possible alternative explanations and describe a way to improve the quality of the data.
Score 1.0	***I can:*** • Demonstrate a limited understanding of scientific investigations. • Identify different variables with assistance. • Carry out investigations, and collect some data. • Collect and record some data in tables, graphs, keys and models. • Recognise some patterns or relationships in data with support. • Describe the validity of the data collected in a scientific investigation with support. • Evaluate conclusions for possible alternative explanations and describes a way to improve the quality of the data with support.
Score 0.0	• Even with help, no success.