Science Unit Overview

Subject: Science  Year: 8  Term: 1  Week: 1 - 8

Unit Title: Elements and Compounds

Aim:
To describe the observed properties and behaviour of matter, using scientific models and theories about the motion and arrangements of particles and explain how scientific understanding of, and discoveries about the properties of elements, compounds and mixtures relate to their uses in everyday life.

What students will do:

Unit Outline
- Describe the behaviour of matter in terms of particles that are continuously moving and interacting
- Relate an increase or decrease in the amount of heat energy possessed by particles to changes in particle movement
- Relate changes in the physical properties of matter to heat energy and particle movement that occur during observations of evaporation, condensation, boiling, melting and freezing
- Explain density in terms of simple particle model
- Describe the properties and uses of some common elements, including metals and non-metals
- Identify some examples of common compounds
- Explain why internationally recognised symbols are

What students will learn:

Key Learning Outcomes
- Identify the benefits and limitations of using models to explain the properties of solids, liquids and gases
- Use a simple particle model to predict the effect of adding or removing heat on different states of matter
- Identify how our understanding of the structure and properties of elements has changed as a result of some technological devices
- Investigate how people in different cultures in the past have applied their knowledge of the properties of elements and compounds in their use in everyday life, eg. utensils, weapons and tools
- Investigate the application of a physical separation technique used in everyday situations or industrial processes

What students will be assessed on:

Evidence of Learning
- Providing students with an opportunity to present to an identified audience (separation techniques and making a poster for presentation to the rest of the class).
- Analyzing the quality of student responses against criteria, including rubrics (brainstorming ways of separation techniques, write down your ideas and keep a list).
- Observing students during learning activities and participation in a group activity (Collaborate in teams to safely carry out class practicals)
- Identifying data which provides evidence to support or negate the hypothesis under investigation (class practical work)
- Using digital technologies to access information and to communicate with others

Essential Words:
Elements, compound, mixtures, symbols, electrons, protons, neutrons, sodium chloride, carbon dioxide, metals, non-metals, periodic table, formula, chemical reactions, atom, properties, separation methods

Homework:
Students are required to complete their comprehension and quiz based homework tasks once per fortnight.