

## GRADE 9 SCIENCE STUDY GUIDE

### Atoms and Elements Static and Current Electricity

#### Atoms and Elements (Unit 1)

Particle Theory of Matter

Chemical and Physical Properties

Changes in Matter

- Physical Change
- Chemical Change

Mixtures

- Homogeneous/Heterogeneous Mixtures
- Mechanical Mixtures
- Solutions (Solute/Solvent)
- Emulsions/Suspensions
- Alloys

Pure Substances

- Elements
  - The Elements Worksheet
  - History of the Elements Worksheet
  - Earth Elements
  - Science and Technology of the Metallic Elements
    - Metallurgy

Compounds

- Molar Mass of Elements and Compounds
- Law of Conservation of Mass (Lavoisier) and Lab
- Law of Definite Proportions (Proust) and Lab

Density

Gas Tests

Electrolysis

The Periodic Table

- Symbols and Formulas
- Families of Elements
- Metals
- Non-metals
- Metalloids
- Groups/Periods

Models of The Atom

- Dalton and the Atomic Theory
- Thompson
- The Electron
- The Raison Bun Model of the Atom
- The Proton
- The Neutron
- Isotopes
- Radiation
- Rutherford's Experiment and his model for the Atom
- Bohr's Experiment and his model for the Atom

#### Electricity (Unit 2)

Properties of Static Electricity

- Law of Attraction and Repulsion
- Conductors and Insulators

Static Electricity Applications

- Electrostatic Precipitator
- Photocopier
- Electrostatic Painting

Electroscope

- Properties
- Induction

Transfer of Static Charge

- Sparks
- Lightning
- Thunder

Circuits

- Anatomy of a circuit and circuit diagrams

Properties of Current Electricity

- Current
  - Voltage
  - Resistance
    - Ohm's Law
    - Materials / Properties of Resistors
  - Power
- Series and parallel circuits
- Properties
  - Predicting Current and Voltage