

Teaching Unit: **Scientific Methods and Tools**

Essential Understandings

Identify and record numerical values which reflect variance and measurement uncertainty.

Visualize and manipulate scientific data using equations and graphs.

Identify types of relationship which exists between variables.

Theories are based on careful measurements.

Sub Topic: **Practical Science Skills**

Knowledge and Skills

State recorded data with correct significant digits.

Create mathematical models to represent a relationship between variables.

Correctly use prefixes of units in measurements.

Identify uncertainty in a measurement using significant digits.

Be able to identify linear, quadratic and inverse relationships.

Teaching Unit: **Mechanics**

Essential Understandings

Use vectors and charts to visually represent motion's characteristics.

The relationship between position, time, velocity and acceleration

Find resultant of multiple vectors.

Use mathematical models to graph motion.

Newton's laws of force and motion.

Theory of universal gravitation.

Sub Topic: **Motion**

Knowledge and Skills

Use scalars, vectors and line diagrams to visually depict motion.

Use vector techniques to show the resultant of multiple vectors.

Identify the role of position and time within a velocity.

Identify relationship between velocity and time in an acceleration.

Utilize mathematical modeling to define acceleration or velocity from recorded data.

Teaching Unit: **Mechanics**

Essential Understandings

Sub Topic: **Momentum and Collisions**

Knowledge and Skills

Teaching Unit: **Mechanics**

Essential Understandings

Sub Topic: **Work, Energy and Simple Machines**

Knowledge and Skills

Teaching Unit: **States of Matter**

Essential Understandings

Sub Topic: **Thermal Energy**

Knowledge and Skills

Teaching Unit: **States of Matter**

Essential Understandings

Sub Topic: **Gases, Liquids, Solids, Plasma**

Knowledge and Skills

Teaching Unit: **Electricity**

Essential Understandings

Sub Topic: **Static and Current Electricity**

Knowledge and Skills

Teaching Unit: **Electricity**

Essential Understandings

Sub Topic: **Magnets and Fields**

Knowledge and Skills

Teaching Unit: **Waves**

Essential Understandings

Sub Topic: **Properties of Waves**

Knowledge and Skills

Teaching Unit: **Waves**

Essential Understandings

Sub Topic: **Electromagnetic Spectrum**

Knowledge and Skills

Teaching Unit: **Thermodynamics**

Essential Understandings

Sub Topic: **Climate and Meteorology**

Knowledge and Skills

Teaching Unit: **Applied Sciences**

Essential Understandings

Sub Topic: **Natural Resources, Growth, Energy**

Knowledge and Skills
