Unit: Matter & Measurement
Essential Question & Learning Goals

Essential Question:

- What is matter and how can it change?

Learning Goals:

By the end of this unit you should be able to:

- Choose appropriate methods to measure mass, length, and volume.
- Identify a pure substance vs. a mixture.
- Compare and contrast metals and nonmetals.
- Recognize evidence of a chemical change.
- Differentiate between a physical and chemical change.
- Understand how mass is converted in a physical or chemical change.
- Identify acids & bases by their characteristics.

Vocabulary:

Acid
Base
Chemical Change
Density
Physical Change
Evaporation
Metal
Nonmetal
Physical Property
Chemical Property
Mixture
Matter
Pure Substance
Solubility
Conservation of Mass
Mass
Volume
Weight
Displacement Method
Conductor
Insulator
Conductivity
Melting Point
Boiling Point
Freezing Point
Sublimation
Periodic Table
Condensation
Diffusion
Thermal Expansion
Compression
Dissolving
Chemical Reaction
Chemical Equation
Reactant
Product
Atoms
Compounds
Molecules
Elements
Qualitative Data
Quantitative Data

Minnesota Academic Standards in Science:

8.1.1.2.1: Use logical reasoning & imagination to develop descriptions, explanations, predictions and models based on evidence.

8.1.3.4.2: Determine & use appropriate safety procedures, tools, measurements, graphs and mathematical analyses to describe and investigate natural & designed systems in Earth and physical science contexts.

8.2.1.1.1: Distinguish between a mixture and a pure substance and use physical properties including color, solubility, density, melting point and boiling point to separate mixtures and identify pure substances.

8.2.1.1.2: Use physical properties to distinguish between metals and non-metals.

8.2.1.2.1: Identify evidence of chemical changes, including color change, generation of a gas, solid formation and temperature change.

8.2.1.2.2: Distinguish between chemical and physical changes in matter.

8.2.1.2.3: Use the particle model of matter to explain how mass is conserved during physical and chemical changes in a closed system.

8.2.1.2.4: Recognize that acids are compounds whose properties include a sour taste, characteristic color changes with litmus and other acid/base indicators, and the tendency to react with bases to produce a salt and water.

Qualitative **Quantitative**

Learning Target Checklist:

	Learning Target	Mastered On QUIZ	Mastered On TEST
1	I can use a triple beam balance, graduated cylinder, and a ruler to collect data.		
2	I can make a data table and a line graph.		
3	I can distinguish between mass and weight.		
4	I can find the density of an object using its mass and volume.		
5	I can explain how particles move in the different states of matter.		
6	I can explain how particles move from one state of matter to another.		
7	I can explain a physical change and use evidence to identify a physical change.		
8	I can explain a chemical change and use evidence to identify a chemical change.		
9	I can explain the difference between pure substances and mixtures using physical properties.		
10	I can explain the differences between elements and compounds in terms of atoms and molecules.		
11	I can explain properties of an element from the Periodic Table.		
12	I can distinguish between acids and bases, and between metals and non-metals.		