Unit Plan: MATTER AND ITS INTERACTIONS

Grade: 7th **Subject: Physical Science** **Term: 1**

Thematic Concept: INTERACTIONS	**Universal EQ:** "WHY IS IT IMPORTANT TO UNDERSTAND INTERACTIONS?"
Supporting Concept: HIERARCHY	**Content-Based EQ:** "HOW DO HIERARCHIES INFLUENCE INTERACTIONS?"

Generalizations:
Matter is not created nor destroyed.

Standard(s):

HS-PS1-1. **Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.**

MS-PS1-1. **Develop models to describe the atomic composition of simple molecules and extended structures.**

MS-PS1-3. **Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.**

MS-PS1-4. **Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.**

Unit Outcomes:
The emphasis of this unit is on the use of models and evidence to answer how atomic and molecular interactions explain properties of matter.

Unit Description:
This course focuses on atomic and molecular structure; properties of matter; physical and chemical properties; and state changes.

Conceptual Knowledge	***Procedural Knowledge***	***Factual Knowledge***
Students will **understand:** • Substances' structure follows its function or function follows its structure. • Matter makes up everything, is conserved, and goes through physical and chemical changes. • Science and engineering practices.	Students will be **able to do:** • How to implement safety procedures. • Separate homologous and heterogeneous mixtures. • Carry out various investigations to identify physical/chemical properties, and Boyles/ Charles' Laws. • Explain how kinetic energy changes the state of matter.	Students will **know:** • Laboratory safety procedures • Scientific method of inquiry • The structure, properties, and interactions of matter • Vocabulary related to matter • How to collect, record, and chart data • Pure substances have different physical and chemical properties
Conceptual Formative Assessments: • Properties of Matter Essential Question Reflection	**Procedural Formative Assessments:** • Separation of Mixture Challenge ○ Use laboratory techniques to	**Factual Formative Assessments:** • Quick Review

○ How do hierarchies influence interactions between different types of matter? There should be at least 3 examples (2 points each) from class used as evidence to support your claim (4 points). ○ Why is it important to understand the interaction between structure and function?	separate an unknown mixture. ○ Document the investigation, analyze, and interpret data. • Common Labs (Need to decide on which ones we want to use!)	
Conceptual Summative Assessments: • Justify this statement: Matter makes up everything, is conserved, and goes through physical and chemical changes. • How does substances' structure follows its function? OR How does function follows its structure? Use three examples from class using evidence to support your claim.	**Procedural Summative Assessments:** • Properties of Matter Unit Test	**Factual Summative Assessments:** • Properties of Matter Unit Test ○ (This is something we will have to make and make sure everyone is using it!)
Affective Self-Regulatory Strategies: • Building confidence through collaboration	**Behavioral Self-Regulatory Strategies:** • Following the science safety procedures • Scientific methods • Time management • Collaboration	**Cognitive Self-Regulatory Strategies:** • Reflection on daily collaboration • Science and engineering practices
Resources/Materials • Different materials for mixture lab, cups, scales • Phase change lab materials • Solutions, lasers, flashlights • PASCO probes • Supplies to build atoms and molecules		

*THIS DOCUMENT ONLY CONTAINS COMMON FORMATIVE AND SUMMATIVE ASSESSMENTS.