

6th Grade UNIT 1 OVERVIEW: *What's the Matter?*

Unit Outcomes At the end of this unit, your student should be able to:	Key Vocabulary Terms to deepen the student's understanding
<ul style="list-style-type: none"> ✓ Recognize all matter is made up of atoms, atoms of the same element are alike, and different elements contain different atoms. ✓ Describe how atoms move faster and spread apart when heated. ✓ Describe how atoms move slower and move closer together when they cool. ✓ Differentiate between physical properties that do not change based on the amount of matter present to physical properties that are dependent on the amount of matter present. 	<ul style="list-style-type: none"> ✓ Atoms ✓ Element ✓ Matter ✓ Thermal Energy ✓ Density ✓ Solubility ✓ Physical Property ✓ Physical Change ✓ Thermal Expansion ✓ Pure Substance ✓ Change of State ✓ Boiling Point ✓ Melting Point ✓ Freezing Point
Key Standards Addressed Connections to Common Core/NC Essential Standards	Where This Unit Fits Connections to prior and future learning
<p>6.P.2.1 Recognize that all matter is made up of atoms and atoms of the same element are all alike, but are different from the atoms of other atoms.</p> <p>6.P.2.2 Explain the effect of heat on the motion of atoms through a description of what happens to particles during a change in phase.</p> <p>6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point and solubility to properties that are dependent on the amount of matter present to include volume, mass and weight.</p>	<p>Coming into this unit, students should have a strong foundation in</p> <ul style="list-style-type: none"> ✓ Recognizing the properties of original materials, and the new material(s) formed, to demonstrate that a change has occurred. ✓ Understanding how heating and cooling affect some materials and how this relates to their purpose and practical applications. <p>This unit builds to the following future skills and concepts:</p> <ul style="list-style-type: none"> ✓ Compare the composition, properties and structure of Earth's atmosphere to include: mixtures of gases and differences in temperature and pressure within layers. ✓ Classify matter as elements, compounds, or mixtures based on how the atoms are packed together in arrangements. ✓ Explain how the physical properties of elements and their reactivity have been used to produce the current model of the Periodic Table of the elements. ✓ Compare physical changes such as size, shape, and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, formation of a gas or precipitate.

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<p>Additional Resources</p> <p>Materials to support understanding and enrichment</p>	<p>“Learning Checks”</p> <p>Questions Parents Can Use to Assess Understanding</p>
<ul style="list-style-type: none"> ✓ CK12 Textbook: Introduction to Matter ✓ CK12 Textbook: States of Matter ✓ Discovery Education TechBook <ul style="list-style-type: none"> ○ Changes of State Exploration ○ Matter Virtual Lab (English) ○ Matter Virtual lab (Spanish) ✓ American Chemical Society-Middle School Chemistry 	<ul style="list-style-type: none"> ✓ What happens to the molecules of a substance when heat is added to it? ✓ Which types of measurements are used to describe quantities of heat and temperature? ✓ What is thermal equilibrium? ✓ How is heat conducted through solids, liquids, and gases? ✓ Why do materials expand and contract? ✓ How does the rate of expansion and contraction of a material affect its suitability for use in technological design? ✓ What happens to molecular motion when a substance is heated or cooled? ✓ What is the relationship between atoms and elements? ✓ How are atoms of one element similar to and different from atoms of other elements? ✓ What are physical properties of matter?