



GSE 8th Physical Science Pacing Guide
Structure and Properties of Matter

7-week Instructional Segment

Anchoring Phenomenon	Standard	Sample Lessons	Disciplinary Core Ideas	Science and Engineering Practices	Instructional Notes
<p>Dinner Is Ready: In our day-day life we depend on our understanding of the nature of energy and matter to prepare our foods and make healthy decisions.</p>	<p>S8P1. a, b, c, d, e, f S8P2. c, d</p>	<p>Dinner is Ready</p> <p>You Are What You Eat</p> <p>Periodic Table</p>	<p>From A Framework for K-12 Science Education:</p> <p><i>By the end of grade 8</i></p> <p>PS1.A: STRUCTURE AND PROPERTIES OF MATTER</p> <ul style="list-style-type: none"> • All substances are made from some 100 different types of atoms, which combine with one another in various ways. • Atoms form molecules that range in size from two to thousands of atoms. • Pure substances are made from a single type of atom or molecule • Pure substances are made from a single type of atom or molecule • Each pure substance has characteristic physical and chemical properties that can be used to identify it. • Gases and liquids are made of molecules or inert atoms that are moving about relative to each other. • Liquids are constantly in contact with each other. • Gases are widely spaced except in collisions. • Solids are closely spaced atoms and 	<ul style="list-style-type: none"> • Developing and using models • Planning and carrying out investigations • Constructing explanations and designing solutions • Engaging in arguments from evidence 	<p>Background Teacher Hint: Make connections to the yearlong big idea of human energy needs as it relates to the way we preserve, prepare, and cook foods. (e.g. refrigerators, canning, frozen foods) The use of everyday food and drink-based situations can be used throughout this instructional segment. For example, consider the integration of making tea and soft drinks, sweetening foods, the shape of ice and its properties, and baking cakes that don't rise (etc.).</p> <p>By the end of this unit, students are using the following language in their speaking and writing during EXPLAIN or ELABORATE.</p> <ul style="list-style-type: none"> • Pure substances

		<p>vibrate in position.</p> <ul style="list-style-type: none"> ● Changes of state occur with variations in temperature or pressure. <p>PS1.B: CHEMICAL REACTIONS</p> <ul style="list-style-type: none"> ● Substances react chemically. ● In a chemical process, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants. ● The total number of each type of atom is conserved and this mass does not change. ● Some chemical reactions release energy, others store energy. <p>PS3.D: ENERGY IN CHEMICAL PROCESSES AND EVERYDAY LIFE</p> <ul style="list-style-type: none"> ● Plants and animals require an energy input from chemical reactions involving digestion and respiration. 		<ul style="list-style-type: none"> ● Elements ● Compounds ● Molecules ● Heterogeneous mixture ● Homogeneous mixture ● Phases of matter (solid, liquid, gas, plasma) ● Thermal energy ● Conduction ● Convection ● Radiation ● Chemical properties (reactivity, combustibility) ● Physical properties (phase changes, density, dissolvability) ● Law of Conservation ● atomic models ● products ● reactants ● Energy (potential, kinetic, thermal, chemical, mechanical)
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This instructional segment will connect to Energy and Matter: Waves