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Chemistry Concepts & Standard Alignments (NGSS, CCSS)



Correlations to Next Generation Science Standards

Article	Chemistry Concepts	NGSS Connections
<i>Sugar: 'White Gold,' Transforming America</i>	Separating mixtures Intermolecular forces Molecular structure Boiling point	<p>HS-PS1-3. Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.</p> <p>HS-ETS1-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and tradeoffs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.</p> <p>Disciplinary Core Ideas:</p> <ul style="list-style-type: none"> PS.1.A: Structure and Properties of Matter ETS1.C: Optimizing the Design Solution <p>Crosscutting Concepts:</p> <ul style="list-style-type: none"> Cause and effect Energy and matter Systems and system models <p>Science and Engineering Practices:</p> <ul style="list-style-type: none"> Constructing explanations (for science) and designing solutions (for engineering) <p>Nature of Science:</p> <ul style="list-style-type: none"> Science is a human endeavor.
<i>Leaves of Three, Let It Be: The Itchy Chemistry of Poison Ivy</i>	Solutions Intermolecular forces Molecular structure	<p>HS-PS1-3. Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.</p> <p>Disciplinary Core Ideas:</p> <ul style="list-style-type: none"> PS.1.A: Structure and Properties of Matter <p>Crosscutting Concepts:</p> <ul style="list-style-type: none"> Cause and effect Structure and function <p>Science and Engineering Practices:</p> <ul style="list-style-type: none"> Obtaining, evaluating, and communicating information <p>Nature of Science:</p> <ul style="list-style-type: none"> Scientific knowledge is based on empirical evidence.
<i>What is Dental Enamel and How Does It</i>	Physical properties Acids pH	<p>HS-PS1-3. Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.</p>

<p><i>Protect Your Teeth?</i></p>		<p>Disciplinary Core Ideas:</p> <ul style="list-style-type: none"> • PS.1.A: Structure and Properties of Matter <p>Crosscutting Concepts:</p> <ul style="list-style-type: none"> • Cause and effect • Structure and function <p>Science and Engineering Practices:</p> <ul style="list-style-type: none"> • Constructing explanations (for science) and designing solutions (for engineering) <p>Nature of Science:</p> <ul style="list-style-type: none"> • Science addresses questions about the natural and material world.
<p><i>The Chemistry of Deception</i></p>	<p>Physical properties Molecular structure Chemical change Electrolysis</p>	<p>HS-PS1-2. Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.</p> <p>HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</p> <p>Disciplinary Core Ideas:</p> <ul style="list-style-type: none"> • PS.1.A: Structure and Properties of Matter • PS.1.B: Chemical Reactions • ETS1.B: Developing Possible Solutions <p>Crosscutting Concepts:</p> <ul style="list-style-type: none"> • Cause and effect • Energy and matter • Structure and function <p>Science and Engineering Practices:</p> <ul style="list-style-type: none"> • Constructing explanations (for science) and designing solutions (for engineering) <p>Nature of Science:</p> <ul style="list-style-type: none"> • Science is a human endeavor.