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Chemistry Concepts & Standard Alignments (NGSS, CCSS)

Correlations to Next Generation Science Standards



Article	Chemistry Concepts	NGSS Connections
<i>3D-Printed Foods</i>	Physical change Intramolecular forces Intermolecular forces	<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-ETS1-2. 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 • ETS1.A: Defining and Delimiting Engineering Problems • ETS1.B: Developing Possible Solutions <p>Crosscutting Concepts:</p> <ul style="list-style-type: none"> • Scale, proportion, and quantity • 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.
<i>Caffeine: The Good, the Bad, and the Why</i>	Molecular structure Functional groups Pharmaceuticals	<p>HS-LS1-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.</p> <p>Disciplinary Core Ideas:</p> <ul style="list-style-type: none"> • PS.1.A: Structure and Properties of Matter • LS.1.A: Structure and Function <p>Crosscutting Concepts:</p> <ul style="list-style-type: none"> • Cause and effect • Structure and function • Stability and change <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 assumes an order and consistency in natural systems.

<p><i>Cooking Chemistry: What's in the Pot?</i></p>	<p>Heat Specific heat Heat Transfer Electromagnetic radiation</p>	<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 • 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 models, laws, mechanisms, and theories explain natural phenomena.
<p><i>Mad Scientists and Misinformation</i></p>	<p>Strong vs. weak acids Chemical change Chemical properties Scientific literacy</p>	<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 • 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.