## Correlations to Next Generation Science Standards

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<th>Article</th>
<th>Chemistry Concepts</th>
<th>NGSS Connections</th>
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<td><strong>The Search for Hidden Plastics</strong></td>
<td>Physical properties and physical change</td>
<td>HS-ESS3-4 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</td>
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<td>Density</td>
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<td>Separating mixtures</td>
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<td>Measurement</td>
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<td><strong>HS-ETS1-3</strong> Evaluate a solution to a complex real-world problem based on prioritized criteria and tradeoffs that account for a range of constraint, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.</td>
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**Disciplinary Core Ideas:**
- ESS3.c: Human Impacts on Earth Systems
- ETS1.B: Developing Possible Solutions

**Crosscutting Concepts:**
- Cause and Effect: Mechanism and explanation.
- Scale, Proportion, and Quantity
- Systems and System Models
- Stability and Change

**Science and Engineering Practices:**
- Analyzing and interpreting data
- Constructing explanations and designing solutions

**Nature of Science:**
- Scientific investigations use a variety of methods.

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<th><strong>Lighting Up the Night Sky</strong></th>
<th>Atomic structure</th>
<th>HS-PS2-5 Plan and conduct an investigation to provide evidence that an electrical current can produce a magnetic field and that a changing magnetic field can produce an electric current.</th>
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<td>States of matter</td>
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**Disciplinary Core Ideas:**

**Crosscutting Concepts:**
- Cause and Effect: Mechanism and explanation.
- Systems and System Models
- Stability and Change

**Science and Engineering Practices:**
- Constructing explanations and designing solutions

**Nature of Science:**
- Science models, laws, mechanisms, and theories explain natural phenomena.
| **How Sticky Innovations Changed the World** | Molecules & Bonding | 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.  
**HS-PS2-6**  
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.  
**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.  
**Disciplinary Core Ideas:**  
• PS1.A: Structure and Properties of Matter  
• PS2.B: Types of Interactions  
• ETS1.B: Developing Possible Solutions  
**Crosscutting Concepts:**  
• Cause and Effect: Mechanism and explanation  
• Structure and Function  
**Science and Engineering Practices:**  
• Analyzing and interpreting data  
• Constructing explanations and designing solutions  
**Nature of Science:**  
• Science is a human endeavor. |
| **What is Hand Sanitizer, and Does it Keep Your Hands Germ-Free?** | Molecules & bonding  
Molecular structure  
Intermolecular forces | 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.  
**HS-ETS1-3**  
Evaluate a solution to a complex real-world problem based on prioritized criteria and tradeoffs that account for a range of constraint, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.  
**Disciplinary Core Ideas:**  
• PS1.A: Structure and Properties of Matter  
• ETS1.C: Optimizing the Design Solution  
**Crosscutting Concepts:**  
• Cause and Effect: Mechanism and explanation  
• Structure and Function  
**Science and Engineering Practices:**  
• Analyzing and interpreting data  
• Constructing explanations and designing solutions  
**Nature of Science:**  
• Science addresses questions about the natural and material world. |
Correlations to Common Core State Standards

Note: ELA-Literacy Common Core State Standards Connections for all articles

- **ELA-Literacy.RST.9-10.1**: Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
- **ELA-Literacy.RST.9-10.2**: Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
- **ELA-Literacy.RST.9-10.5**: Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).
- **ELA-Literacy.RST.9-10.8**: Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.
- **ELA-Literacy.RST.11-12.1**: Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
- **ELA-Literacy. RST.11-12.2**: Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
- **ELA-Literacy. RST.11-12.4**: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
- **ELA-Literacy.RST.11-12.6**: Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

**In addition**, the teacher could assign writing to include the following Common Core State Standards:

- **ELA-Literacy.WHST.9-10.2**: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
- **ELA-Literacy.WHST.9-10.2F**: Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
- **ELA-Literacy.WHST.11-12.2**: Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
- **ELA-Literacy.WHST.11-12.2E**: Provide a concluding statement or section that follows from or supports the argument presented.