**February/March 2017 Issue**

**Correlations to the Next Generation Science Standards**

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| **Article** | **NGSS** |
| **The Drive for Cleaner Emissions** | |  | | --- | | **HS-PS1-7.**  Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.  **HS-ETS1-3.**  Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts. |   **Disciplinary Core Ideas:**   * PS1.B: Chemical Reactions * ETS1.C: Optimizing the Design Solution   **Crosscutting Concepts:**   * Energy and Matter * Cause and effect: Mechanism and explanation * Structure and Function   **Science and Engineering Practices:**   * Analyzing and interpreting data * Using mathematics and computational thinking * Constructing explanations and designing solutions   **Nature of Science:**   * Scientific knowledge is based on empirical evidence |
| **No-Hit Wonder! D3O** | |  | | --- | | **HS-PS2-3.**  Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.  **HS-ETS1-3.**  Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, 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 * PS2.A: Forces and motion * ETS1.B: Developing possible solutions   **Crosscutting Concepts:**   * Systems and system models * Structure and function * Cause and effect   **Science and Engineering Practices**:   * Developing and using models * Constructing evidence (for science) and designing solutions (for engineering)   **Nature of Science**:   * Science is a human endeavor | |
| **Iron in the Diet: Power on Your Plate?** | |  | | --- | | **HS-LS1-2.**  Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. |   **Disciplinary Core Ideas**:   * PS1.A Structure of matter * LS1.A: Structure and function   **Crosscutting Concepts:**   * Cause and Effect * Structure and Function * Stability and Change   **Science and Engineering Practices:**   * Developing and using models * Obtaining, evaluating, and communicating information * Constructing explanations and designing solutions   **Nature of Science:**   * Science models, laws, mechanisms, and theories explain natural phenomena * Science addresses questions about the natural and material world |
| **Brush Up on Toothpaste!** | |  | | --- | | **HS-PS1-6**  Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.  **Disciplinary Core Ideas**:   * PS1.A: Structure and properties of matter * PS1.B: Chemical reactions   **Crosscutting Concepts:**   * Cause and effect: Mechanism and explanation * Stability and change   **Science and Engineering Practices:**   * Constructing explanations and designing solutions * Obtaining, evaluating, and communicating information   **Nature of Science**:   * Science is a human endeavor * Science addresses questions about the natural and material world. | |
| **62 Endangered Elements** | |  |  | | --- | --- | | |  | | --- | | **HS-PS1-1.**  Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.  **HS-ETS1-1.**  Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.  **Disciplinary Core Ideas:**   * PS1.A: Structure and properties of matter * ETS1.B: Developing possible solutions   **Crosscutting Concepts:**   * Patterns * Scale, proportion, and quantity * Structure and function   **Science and Engineering Practices:**   * Asking questions (for science) and defining problems (for engineering) * Using mathematics and computational thinking * Obtaining, evaluating, and communicating information   **Nature of Science:**   * Scientific knowledge is open to revision in light of new evidence | | |  | |