**December2016/January 2017 Issue**

**Correlations to the Next Generation Science Standards**

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| **Article** | **NGSS** |
| **The Flint Water Crisis: What’s Really Going On?** | |  | | --- | | **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.  **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 * PS2.B Types of Interactions * ETS1.B Developing Possible Solutions   **Crosscutting Concepts:**   * Cause and effect: Mechanism and explanation * Scale, Proportion, and Quantity * Structure and Function   **Science and Engineering Practices:**   * Analyzing and interpreting data * Constructing explanations and designing solutions   **Nature of Science:**   * Scientific knowledge is based on empirical evidence. * Science is a human endeavor |
| **Preserving Organs: Saving Lives, Giving Hope** | |  | | --- | | **HS-PS1-5** Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.  **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**:   * PS.1.A Structure and Properties of Matter * ETS1.C Optimizing the Design Solution   **Crosscutting Concepts:**   * Scale, proportion, and quantity * Systems and system models   **Science and Engineering Practices**:   * Developing and using models * Constructing evidence (for science) and designing solutions (for engineering)   **Nature of Science**:   * Scientific knowledge is based on empirical evidence. * Science addresses questions about the natural and material world. | |
| **Clearing the Way to Acne-Free Days** | |  | | --- | | **HS-LS1-3.** Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. |   **Disciplinary Core Ideas**:   * LS1.A Structure and Function * PS1.A Structure and Properties of Matter   **Crosscutting Concepts:**   * Cause and Effect: Mechanism and explanation * Structure and Function   **Science and Engineering Practices:**   * Constructing explanations (for science) and designing solutions (for engineering)   **Nature of Science:**   * Scientific knowledge is based on empirical evidence. * Science addresses about the natural and material world |
| **No Smartphones, No TV, No Computers: Life without Rare-Earth Metals** | |  | | --- | | **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.  **Disciplinary Core Ideas**:   * PS1.A Structure and Properties of Matter * PS.2.B Types of Interactions * ETS1.C Optimizing the Design Solution   **Crosscutting Concepts:**   * Patterns * Cause and effect: Mechanism and explanation * Structure and function   **Science and Engineering Practices:**   * Constructing explanations (for science) and designing solutions (for engineering)   **Nature of Science**:   * Scientific knowledge assumes an order and consistency in natural systems. | |
| **Piping Hot, Ice-Cold… Thanks to Chemistry** | |  |  | | --- | --- | | |  | | --- | | **HS-PS2-6.**  Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends on the changes in total bond energy.  **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 * PS1.B Chemical Reactions * ETS1.C Optimizing the Design Solution   **Crosscutting Concepts:**   * Systems and system models * Energy and matter: Flows, cycles, and conservation   **Science and Engineering Practices:**   * Analyzing and interpreting data * Constructing explanations (for science) and designing solutions (for engineering)   **Nature of Science**:   * Scientific knowledge is based on empirical evidence. | | |  | |