**February/March 2015 Correlations to the Next Generation Science Standards**

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| **Article** | **NGSS** |
| **ChemDemos Demystified** | |  | | --- | | **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. |   **Crosscutting Concepts:**   * Cause and effect: Mechanism and explanation * Scale, proportion, and quantity * Systems and system models   **Science and Engineering Practices:**   * Developing and using models * Constructing explanations (for science) and designing solutions (for engineering)   **Nature of Science:**   * Science models, laws, mechanisms, and theories explain natural phenomena * Scientific knowledge assumes an order and consistency in natural systems. |
| **From Liquid to Foam: How Egg Whites Change Texture** | |  | | --- | | **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-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.  **Crosscutting Concepts:**   * Cause and effect: Mechanism and explanation * Structure and Function * Stability and Change   **Science and Engineering Practices**:   * Asking questions (for science) and defining problems (for engineering) * Planning and carrying out investigations * Constructing evidence (for science) and designing solutions (for engineering)   **Nature of Science**:   * Scientific investigations use a variety of methods. * Science models, laws, mechanisms and theories explain natural phenomena. | |
| **Fermentable Foods: Trouble in Your Diet** | |  | | --- | | **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**.**  **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. |   **Crosscutting Concepts:**   * Cause and Effect: Mechanism and explanation * Systems and system models   **Science and Engineering Practices:**   * Planning and carrying out investigations * Obtaining, evaluating, and communicating information   **Nature of Science:**   * Scientific knowledge is based on empirical evidence. * Science models, laws, mechanisms and theories explain natural phenomena. * Science addresses questions about the natural world. |
| **3D Printers: The Next Print Revolution** | |  | | --- | | **HS-ETS1-4.** Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.  **HS-PS2-6.** Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.  **Crosscutting Concepts:**   * Patterns * Structure and Function   **Science and Engineering Practices:**   * Developing and using models * Constructing evidence (for science) and designing solutions (for engineering)   **Nature of Science**:   * Science addresses questions about the natural and material world. | |
| **Air Travel: Separating Fact from Fiction** | |  | | --- | | **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-PS2-6.** Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. | | **Crosscutting Concepts:**   * Cause and effect: mechanism and explanation * Scale, proportion, and quantity * Systems and System Models * Structure & Function   **Science and Engineering Practices**:   * Asking questions (for science) and defining problems (for engineering) * Developing and using models * Analyzing and interpreting data * Using mathematics and computational thinking * Obtaining, evaluating, and communicating information   **Nature of Science**:   * Science models, laws, mechanisms, and theories explain natural phenomena. * Scientific knowledge assumes an order and consistency in natural systems. | |