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Chemistry Concepts & Standard Alignments (NGSS, CCSS)

Correlations to Next Generation Science Standards

Article	Chemistry Concepts	NGSS Connections
Pimple Patches and What They Offer	Functional groups Molecular structure Polymers	**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-ETS1-2.** 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:** • PS.1.A: Structure and Properties of Matter • ETS1.C: Optimizing the Design Solution **Crosscutting Concepts:** • Scale, proportion, and quantity • Systems and system models • Energy and matter **Science and Engineering Practices:** • Constructing explanations (for science) and designing solutions (for engineering) **Nature of Science:** • Science addresses questions about the natural and material world.
Gas Laws and Scuba Diving	Gases Gas laws Pressure Temperature Volume Solubility	**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:** • PS.1.A: Structure and Properties of Matter • ETS1.C: Optimizing the Design Solution **Crosscutting Concepts:** • Patterns • Scale, proportion, and quantity • Systems and system models **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.

Flatus: Chemistry in the Wind	Physical properties Gas laws Enzymes	**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. **Disciplinary Core Ideas:** • PS.1.A: Structure and Properties of Matter • PS.1.B: Chemical Reactions **Crosscutting Concepts:** • Patterns • Cause and effect • Systems and system models **Science and Engineering Practices:** • Obtaining, evaluating, and communicating information **Nature of Science:** • Scientific knowledge assumes an order and consistency in natural systems.
Radium Girls: Dialing Up Trouble	History and Safety Alpha/Beta/Gamma decay Radiation	**HS-PS1-8.** Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay. **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:** • PS.1.A: Structure and Properties of Matter • ETS1.C: Optimizing the Design Solution **Crosscutting Concepts:** • Cause and effect • Structure and function **Science and Engineering Practices:** • Constructing explanations (for science) and designing solutions (for engineering) **Nature of Science:** • Science is a human endeavor.