

Essential Physical Science - Chemistry Standards

Essential HS.P1U1.1

Develop and use models to explain the relationship of the structure of atoms to patterns and properties observed in the Periodic Table and describe how these models are revised with new evidence.

NOTE: Physical Science Plus (+) Standards HS+C are supporting standards designed to be used with the essential standards for students taking a high school chemistry (C) course.

Plus HS+C.P1U1.1 Develop and use models to demonstrate how changes in the number of subatomic particles (protons, neutrons, electrons) affect the identity, stability, and properties of the element.

Plus HS+C.P1U1.2 Obtain, evaluate, and communicate the qualitative evidence supporting claims about how atoms absorb and emit energy in the form of electromagnetic radiation.

Plus HS+C.P1U1.3 Analyze and interpret data to develop and support an explanation for the relationships between kinetic molecular theory and gas laws.

Essential HS.P1U1.2

Develop and use models for the transfer or sharing of electrons to predict the formation of ions, molecules, and compounds in both natural and synthetic processes.

Essential HS.P1U1.3

Ask questions, plan, and carry out investigations to explore the cause and effect relationship between reaction rate factors.

Plus HS+C.P1U1.4 Develop and use models to predict and explain forces within and between molecules

Plus HS+C.P1U1.5 Plan and carry out investigations to test predictions of the outcomes of various reactions, based on patterns of physical and chemical properties.

Plus HS+C.P1U1.6 Construct an explanation, design a solution, or refine the design of a chemical system in equilibrium to maximize production

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Plus HS+C.P1U1.7 Use mathematics and computational thinking to determine stoichiometric relationships between reactants and products in chemical reactions	
Essential HS.P1U3.4 Obtain, evaluate, and communicate information about how the use of chemistry related technologies have had positive and negative ethical, social, economic, and/or political implications.	
Plus HS+C.P1U3.8 Engage in argument from evidence regarding the ethical, social, economic, and/or political benefits and liabilities of fission, fusion, and radioactive decay.	
Shared with Physics – P4: The total amount of energy in a closed system is always the same but can be transferred from one energy store to another during an event.	
Plus HS+Phy.P4U1.6 Analyze and interpret data to quantitatively describe changes in energy within a system and/or energy flows in and out of a system.	Applied to energy of bonds, intermolecular forces and energy of reactions
Essential HS.P4U1.10 Construct an explanation about the relationships among the frequency, wavelength, and speed of waves traveling in various media, and their	Electromagnetic spectrum