

Standard ID	Standard Text	Edgenuity Lesson Name
NGSS.HS-PS.	PHYSICAL SCIENCE (NGSS)	
HS-PS1.	Matter and Its Interactions	
	Students who demonstrate understanding can:	
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.	The Structure of the Atom Elements, Compounds, and Mixtures Atomic Numbers and Electron Configurations The History and Arrangement of the Periodic Table Electrons and the Periodic Table Periodic Trends Properties of Acids and Bases Arrhenius, Bronsted-Lowry, and Lewis Acids and Bases
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.	Atomic Numbers and Electron Configurations Electrons and the Periodic Table Periodic Trends Types of Chemical Bonds Ionic Bonding Covalent Bonding Lab: Ionic and Covalent Bonds Metallic Bonding Types of Reactions Lab: Types of Reactions Organic Reactions Oxidation-Reduction Neutralization Reactions

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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.	Gases Liquids Solids and Plasmas Phase Changes Lab: Charles's Law Ionic Bonding Covalent Bonding Lab: Ionic and Covalent Bonds Intermolecular Forces Changes in Matter Lab: Physical and Chemical Changes Organic Compounds Properties and Uses of Saturated Hydrocarbons Properties and Uses of Unsaturated Hydrocarbons Functional Groups Mixtures and Solutions pH Lab: Measuring pH
HS-PS1-4.	Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.	Types of Chemical Bonds Ionic Bonding Covalent Bonding Lab: Ionic and Covalent Bonds Metallic Bonding Energy Heat Calorimetry Lab: Calorimetry and Specific Heat Thermochemical Equations Enthalpy of Reaction
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.	Reaction Rate Lab: Reaction Rate Solutions and Solubility Lab: Solubility

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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.	Gas Laws Lab: Charles's Law The Ideal Gas Law Reversible Reactions and Equilibrium Shifts in Equilibrium
HS-PS1-7.	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	Gas Stoichiometry Evidence of Chemical Reactions Writing and Balancing Chemical Equations Types of Reactions Lab: Types of Reactions Percent Composition and Molecular Formula Molar Masses Introduction to Stoichiometry Stoichiometric Calculations Balancing Oxidation-Reduction Equations
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.	The Historical Development of Atomic Theory The Modern Atomic Theory The Nucleus Types of Radioactive Decay Balancing Nuclear Reactions Half-Life Lab: Half-Life Nuclear Fission and Nuclear Fusion Nuclear Energy
HS-PS3.	Energy	
	Students who demonstrate understanding can:	
HS-PS3-1.	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.	The Ideal Gas Law Calorimetry Thermochemical Equations

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HS-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.	Types of Reactions
HS-PS3-4.	Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).	The Ideal Gas Law Lab: Thermal Energy Transfer
HS-PS4.	Waves and Their Applications in Technologies for Information Transfer	
	Students who demonstrate understanding can:	
HS-PS4-5.	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.	The Modern Atomic Theory
NGSS.HS-ETS.	ENGINEERING DESIGN (NGSS)	
HS-ETS1.	Engineering Design	
	Students who demonstrate understanding can:	
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.	Nuclear 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.	Types of Reactions
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.	Nuclear Energy
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.	Neutralization Reactions