

**Illinois Learning Standards Goal 12
Contents Standards Mapping**

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PHYSICAL SCIENCE	Boardworks High School Chemistry Presentations
C. Know and apply concepts that describe properties of matter and energy and the interactions between them.	
12.C.4a Use kinetic theory, wave theory, quantum theory and the laws of thermo-dynamics to explain energy transformations.	Bonds and Activation Energy Changing State Observing Line Spectra Particles in Action
12.C.4b Analyze and explain the atomic and nuclear structure of matter.	Atomic Structure Atomic Number and Mass Number Electron Structure and the Periodic Table Electron Configuration Energy Sublevels Introducing Atoms Nuclear Fission Nuclear Fusion Orbitals
12.C.5a Analyze reactions (e.g. nuclear reactions, burning of fuel, decomposition of waste) in natural and man-made energy systems.	Combustion Exothermic Reactions Nuclear Fusion Nuclear Fission Nuclear Waste
12.C.5b Analyze the properties of materials (e.g. mass, boiling point, melting point, hardness) in relation to their physical and/or chemical structures.	Changing State Comparing Bonding Covalent Bonding Electronegativity Giant Covalent Structures Ionic Compounds Ionic Bonding Metallic Bonding Particles in Action

D. Know and apply concepts that describe force and motion and the principles that explain them.	
12.D.4a Explain and predict motions in inertial and accelerated frames of reference.	–
12.D.4b Describe the effects of electromagnetic and nuclear forces including atomic and molecular bonding, capacitance and nuclear reactions.	Atomic Structure Comparing Bonding Covalent Bonding Electronegativity Ionic Bonding Ionic Compounds Introducing Atoms Intermolecular Forces Ionization Energy Metallic Bonding Nuclear Fission Nuclear Fusion Why do Atoms Form Bonds?
12.D.5a Analyze factors that influence the relative motion of an object (e.g. friction, wind shear, cross currents, potential differences).	–
12.D.5b Analyze the effects of gravitational, electromagnetic and nuclear forces on a physical system.	Intermolecular Forces Nuclear Fission Nuclear Fusion Radioactivity