Correlation for
CORD PHYSICS in CONTEXT Program
to the
Next Generation Science Standards
For High School Physical Science

HS.Structure and Properties of Matter

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.	Student Text Appendix B. The Elements Embedded Throughout the course materials and exercises. Recommend Classroom discussions and reference to Chemistry book to fully cover this Chemistry material
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.	Student Text 9.2 Nuclear Radiation Embedded Throughout the course materials and exercises. Recommend Classroom discussions and reference to Chemistry book to fully cover this Chemistry material
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.	Student Text 9.2 Nuclear Radiation Embedded Throughout the course materials and exercises Recommend Classroom discussions and reference to Chemistry book to fully cover this Chemistry material
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.	Student Text 9.2 Nuclear Radiation Embedded Throughout the course materials and exercises Recommend Classroom discussions and reference to Chemistry book to fully cover this Chemistry material
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.	Student Text Section 1.4 Temperature in Thermal Systems Embedded Throughout the course materials and exercises Recommend Classroom discussions and reference to Chemistry book to

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	fully cover this Chemistry material
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.	Recommend Classroom discussions and reference to Chemistry book to fully cover this Chemistry material
HS-PS1-7 Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	Student Text 9.2 Nuclear Radiation Embedded Throughout the course materials and exercises Recommend Classroom discussions and reference to Chemistry book to fully cover this Chemistry material
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.	Student Text 9.2 Nuclear Radiation Embedded Throughout the course materials and exercises Recommend Classroom discussions and reference to Chemistry book to fully cover this Chemistry material

HS.Forces and Interactions

HS-PS2-1 Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.	Student Text Sections 1.1 Force in a Mechanical System, 4.1 Resistance in Mechanical Systems, 7.1 Linear Momentum, Lab Manual Exp. 1-1A Mechanical Forces and Spring Constants, Exp. 4.1A Determining Kinetic Coefficient of Friction in Mechanical Systems and; Embedded in appropriate sections of Teachers Guide and text web-site: www.learningincontext.com
HS-PS2-2 Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.	Student Text Sections 1.1 Force in a Mechanical System, 4.1 Resistance in Mechanical Systems, 7.1 Linear Momentum, 7.2 Angular Momentum Lab Manual Exp. 1-1A Mechanical Forces and Spring Constants, Exp. 4.1A Determining Kinetic Coefficient of

	Friction in Mechanical Systems, Exp. 7.1A Weight Distribution and Momentum in Rotating Systems and; Embedded in appropriate sections of Teachers Guide and text web-site: www.learningincontext.com
HS-PS2-3 Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.	Student Text Section 7.1 Linear Momentum and; Embedded in appropriate sections of Teachers Guide and text web-site: www.learningincontext.com
HS-PS2-4 Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.	Student Text Section 1.3 Voltage in Electrical Systems Student Lab Manual Exp. 1.3A and; Embedded in appropriate sections of Teachers Guide and text web-site: www.learningincontext.com
HS-PS2-5 Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.	Student Text Section 5.3 Energy in Electrical Systems 9.1 Electromagnetic Radiation Lab Manual Exp. 5.3A Energy Stored in the Magnetic Field of an Inductor and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com
HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.	Student Text Sections 1.2 Pressure in Fluid Systems, 4.3 Resistance in electrical Systems, Chapter 9 Nuclear Radiation Lab Manual Exp. 4.4A Determining The Thermal Resistance of a Material and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com

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HS.ENERGY

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.	Student Text Sections 5.1 Energy in Mechanical and Fluid Systems I, 5.2 Energy in Mechanical and Fluid Systems II, 5.3 Energy in Electrical Systems, 5.4 Energy in Thermal Systems Lab Manual Exp. 5.1A Using Energy in Compressed Air to Operate Air Motors, 5.2A Measuring Energy Stored in a Compressed Spring, 5.3A Energy Stored in the Magnetic Field of an Inductor, 5.4A Equilibrium Temperature of a Mixture and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com
HS-PS3-2 Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative position of particles (objects).	Student Text Sections 5.1 Energy in Mechanical and Fluid Systems I, 5.2 Energy in Mechanical and Fluid Systems II, 5.3 Energy in Electrical Systems, 5.4 Energy in Thermal Systems Lab Manual Exp. 5.1A Using Energy in Compressed Air to Operate Air Motors, 5.2A Measuring Energy Stored in a Compressed Spring, 5.3A Energy Stored in the Magnetic Field of an Inductor, 5.4A Equilibrium Temperature of a Mixture and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com
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.	Lab Manual Exp. 5.1A Using Energy in Compressed Air to Operate Air Motors, 5.2A Measuring Energy Stored in a Compressed Spring, 5.3A Energy Stored in the Magnetic Field of an Inductor, 5.4A Equilibrium Temperature of a Mixture and; Embedded in appropriate sections of

	Teachers Guide and text web-site www.learningincontext.com
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).	Student Text Section 5.4 Energy in Thermal Systems Lab Manual Exp. 5.4A Equilibrium Temperature of a Mixture and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com
HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.	Student Text Section 5.3 Energy in Electrical Systems Lab Manual Exp.5.3A Energy Stored in the Magnetic Field of an Inductor and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com

HS.Waves and Electromagnetic Radiation

HS-PS4-1 Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.	Student Text Sections 8.1 Properties of Waves, 8.2 Wave Interactions Lab Manual Exp. 8.1A Natural Frequency of a Vibrating Body, 8.2A Resonance of Sound Waves in Hollow Tubes, and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com
HS-PS4-2 Evaluate questions about the advantages of using a digital transmission and storage of information.	Recommend Classroom discussions and reference to Communication Technology Text Book
HS-PS4-3 Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.	Student Text Sections 9.1 Electromagnetic Radiation, 10.1 Ray Optics: Reflection and refraction Lab Manual Exp. 10.1A Reflection of Light, Exp. 10.2A Lens Experiments, Exp. 10.3A Laser Radiation, and

	Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com
HS-PS4-4 Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.	Student Text Sections 9.1 Electromagnetic Radiation, 9.2 Nuclear Radiation Lab Manual Exp. 9.2A Nuclear Radiation, 10.3A Laser Radiation, and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com
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.	Student Text Sections 9.1 Electromagnetic Radiation, 9.2 Nuclear Radiation, 10.1 Ray Optics: Reflection and Refraction, 10.2 Wave Optics: Interference and Diffraction 10.3 Laser Light Lab Manual Exp. 9.2A Nuclear Radiation, 10.3A Laser Radiation, and; Embedded in appropriate sections of Teachers Guide and text web-site www.learningincontext.com