

South Carolina State Science Standards Correlation

			Inquiry Investigations™ Physical Science Series I - 1013060																				
Standard Topic	Strand	Concept(s)	UNIT 1 THE WORLD OF PHYSICAL SCIENCE							UNIT 2 HEAT AND ENERGY				UNIT 3 LIGHT AND OPTICS				UNIT 4 ELECTRICITY					
			Exploring the Scientific Method LAB 1013080		Exploring the Science of Measurement LAB 1013082					Exploring Heat and Energy LAB 1013084				Exploring Light and Optics LAB 1013086				Exploring Electricity LAB 1013088					
			Effect of temperature on the emergence of sponge creatures	Effect of pH on the emergence of sponge creatures	The metric system (SI)	Measuring density	Measuring temperature	Measuring pH	Measuring low concentrations of water pollutants	Heat of fusion of ice	Thermal conductivity of different metals	Thermal expansion	Demonstrating radiant heat and energy	Calibration of a thermometer	Visible light spectrum	What is color?	Reflection of light	Polarized light	The laser	The electroscope	Electrolytes	Resistors in series and parallel	
III. Physical Science (Chemistry)	I. Inquiry	Identify questions and concepts that guide scientific investigations.																					
		Design and conduct investigations.																					
		Use technology and mathematics to improve investigations and communications.																					
		Formulate and revise scientific explanations and models using logic and evidence.																					
		Recognize and analyze alternative explanations and models.																					
		Communicate and defend a scientific argument.																					
		Understandings about scientific inquiry.																					
III. Physical Science (Physics)	A. Structure of Atoms	Trace the historical development of the model of the atom, including the contributions of John Dalton, J.J. Thomson, Ernest Rutherford, and Neils Bohr. Compare and contrast the components particles of the atom.																					
		A. Motions and Forces	Demonstrate the interactions of like and unlike charges by examining changes in electrostatic attraction in terms of changes in distance between two point charges.																				
			Demonstrate an understanding of the production and effects of static electricity.																				
			Demonstrate and understanding of the relationship between electricity and magnetism.																				
	B. Conservation of Energy and the Increase in Disorder	Demonstrate and understanding of simple series and parallel circuits. Describe the meaning of voltage and amperage. Perform calculations using Ohm's Law. Explain how fuses, surge protectors, and breakers function.																					
		Analyze transformations between potential and kinetic energies. Analyze transformations among other forms of energy such as heat, light, and sound, and mechanical, electrical, and chemical energy.																					
		State and apply quantitative relationships among energy, work, power, and efficiency.																					
		Classify energy types as potential, kinetic, or electromagnetic.																					
		Predict and measure the effects of varying temperature, pressure, and volume of gases. Describe particle motion and distance as the phase changes from liquid to solid to gas.																					
		Demonstrate and understanding of the transfer of energy from hotter to cooler by conduction, radiation, and convection.																					
C. Interactions of Energy and Matter	Demonstrate an understanding of how the releasing of energy by electrons produces light.																						
	Understand and compare the functions of insulators, conductors, and semiconductors. Evaluate the impact of the miniaturization of electric circuits upon individuals and society.																						

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Standard Topic	Strand	Concept(s)	Inquiry Investigations™ Physical Science Series II - 1013061																	
			UNIT 1 GRAVITY				UNIT 2 MAGNETISM				UNIT 3 PROPERTIES OF SOUND				UNIT 4 FORCES, MOTION, AND SIMPLE MACHINES					
			Exploring Gravity LAB 1013090				Exploring Magnetism LAB 1013092				Exploring Sound Waves LAB 1013094				Exploring Force and Motion LAB 1013096			Exploring Simple Machines LAB 1013098		
			Determination of the density of a solid	Learning about gravitation	Archimedes principle	Teacher demonstration - pressure	Investigating the behavior of the magnetic compass	The magnetic field of a bar magnet	Constructing an electromagnet	Electromagnetic induction	Investigating properties of sound	Interaction of sound waves	Doppler effect	Observing the properties of a wave	Investigating Newton's laws of motion	Friction	Rotational inertia	Collisions	The lever	The pulley
I. Inquiry		Identify questions and concepts that guide scientific investigations.																		
		Design and conduct investigations.																		
		Use Technology and mathematics to improve investigations and communications.																		
		Formulate and revise scientific explanations and models using logic and evidence.																		
		Recognize and analyze alternative explanations and models.																		
		Communicate and defend a scientific argument.																		
		Understandings about scientific inquiry.																		
III. Physical Science (Physics)	A. Motions and Forces	Trace the historical development of the understanding forces, including the contributions of Galileo, Isaac Newton, Benjamin Franklin, and Charles-Augustin de Coulomb. Predict the motion of an object in terms of Newton's first law (inertia).																		
		Identify and investigate the factors that affect acceleration in terms of Newton's second law ($F=ma$). Evaluate the effects of action/reaction in terms of Newton's third law.																		
		Describe changes in gravitational attraction in terms of changes in distances between masses and in terms of changes in the masses.																		
		Demonstrate and understanding of the relationship between electricity and magnetism.																		
	B. Conservation of Energy and the Increase in Disorder	Analyze transformations between potential and kinetic energies. Analyze transformations among other forms of energy such as heat, light, and sound, and mechanical, electrical, and chemical energy.																		
		State and apply quantitative relationships among energy, work, power, and efficiency.																		
		Classify energy types as potential, kinetic, or electromagnetic.																		
	C. Interactions of Energy and Matter	Identify and show relationships among wave characteristics such as velocity, period, frequency, amplitude, and wavelength using the formula: $v = f\lambda$.																		
		Compare and contrast models of longitudinal waves. Distinguish among the electromagnetic spectrum, seismic waves, water waves, and sound waves on the basis of their properties and behaviors.																		
		Compare and contrast the parts of the electromagnetic spectrum in terms of velocity, wavelength, frequency, and energy using the formula: $v = f\lambda$.																		
Understand and compare the functions of insulators, conductors, and semiconductors. Evaluate the impact of the miniaturization of electric circuits upon individuals and society.																				