

## Physical Science Series I

# Objectives, Skills, and Vocabulary

UNIT	INVESTIGATION	OBJECTIVES
Unit 1: The World of Physical Science	Exploring the Scientific Method	Develop a basic understanding of experimental design.
		Observe and record data correctly.
		Interpret data generated.
		Draw conclusions based on the results of your investigation.
	Exploring the Science of Measurement	Convert between metric units of mass, length, and volume.
		Measure weight, volume, density, temperature, and pH.
Understand concentration of solutions.		
Unit 2: Heat and Energy	Exploring Heat and Energy	Study the various aspects of heat and temperature.
		Investigate the properties of thermometers and conduct an investigation into the latent heat of fusion for ice.
		Understand the concepts of heat flow, conservation of energy, and use of a calorimeter.
		Use a conductometer to investigate the heat conductivity of various metals.
Unit 3: Light and Optics	Exploring Light and Optics	Understand the properties of light.
		Investigate the visible spectrum.
		Explore the reflection of light using mirrors.
		Understand the images formed by converging and diverging lenses.
		Explore polarized light and its uses.
		Study lasers and their uses.
Unit 4: Electricity	Exploring Electricity	Understand concepts of electrical charge, current, resistance, and voltage.
		Understand the concept of electric circuit and power.
		Distinguish between resistors in series parallel.
		Classify materials as electrical conductors or insulators.
		Identify cases from everyday life where electricity is being used.
Unit 5: Comprehensive Inquiry Investigation	Simulating the Gallows Telephone	Transmit different frequencies.
		Demonstrate variable resistance.
		Apply the scientific method.
		Make predictions.
		Participate in the experimental design process.

UNIT	INVESTIGATION	CONCEPTS & SKILLS	VOCABULARY
Unit 1: The World of Physical Science	Exploring the Scientific Method	Scientific method, experimental design, interpreting data, drawing conclusions	Procedure, hypothesis, control, observation, scientific method
	Exploring the Science of Measurement	Metric system, mass, density, pH, ppm concentrations, measuring, investigate	Accuracy, precision, kilogram, temperature, cubic meter (m <sup>3</sup> )
Unit 2: Heat and Energy	Exploring Heat and Energy	Conservation of energy, specific heat, calorimetry, conductivity, thermal expansion, heat of fusion, heat energy, radiant heat, observe, predict	Calorie, heat, radiate, insulator, conductor, convection, equilibrium
Unit 3: Light and Optics	Exploring Light and Optics	Predict, observe, compare, electromagnetic radiation, color of light, dispersion, reflection, polarization	Focal point, mirage, wavelength, concave lens, convex lens, electromagnetic spectrum, light, prism
Unit 4: Electricity	Exploring Electricity	Electric charge, electric power, circuits, investigate, predict, observe	Current, voltage, resistance, conductor, insulator
Unit 5: Comprehensive Inquiry Investigation	Simulating the Gallows Telephone	Experimental design, investigating, voltage, simple circuits, variable resistance, scientific method, transfer of energy	Frequency, resistance, conduction, circuit, electrode, terminal, hypothesis, prediction