

## Physical Science Series II

# Objectives, Skills, and Vocabulary

UNIT	INVESTIGATION	OBJECTIVES
Unit 1: Gravity	Exploring Gravity	Investigate the properties of gravity and its relation to motion
		Study gravity and its relation to pressure, weight, and buoyancy
		Investigate Archimedes principle
		Determine the specific gravity of various materials
Unit 2: Magnetism	Exploring Magnets and Magnetism	Understand the nature of magnetism
		Demonstrate the properties of simple magnetic devices such as the magnetic compass and bar magnet
		Learn how magnetic poles are defined and labeled
		Describe the nature of the earth's magnetic field and how it serves as an example of a "field" in the development of various ideas in Physics
		Observe how the general nature of the magnetic field can be displayed by the use of iron filings
Unit 3: Properties of Sound	Exploring Sound Waves	Study the properties of sound
		Demonstrate the fundamental properties of waves
		Investigate the production and transmission of sound
		Demonstrate the production of sound with tuning forks
		Understand the meaning of amplitude, frequency, and wavelength
		Investigate the Doppler Effect using a tuning fork
Unit 4: Forces, Motion, and Simple Machines	Exploring Force and Motion	Understand Newton's laws of motion
		Describe the relationship between gravitational force, mass, and distance
		Measure motion and calculate velocity and acceleration
		Study the effects of friction on motion
		Investigate elastic and inelastic collisions
		Relate Newton's laws to rotational motion
	Exploring Simple Machines	Define work and when it is done
		Define a simple machine and distinguish between different types of simple machines
		Understand the advantages and efficiencies offered by using machines to do work
		Identify cases from everyday life where machines are 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: Gravity	Exploring Gravity	Force and motion, Universal Law of Gravitation, pressure, density, buoyancy, predict, observe	terminal velocity, orbit, hydrometer, density, free fall, air resistance, Archimedes' Principle, buoyancy, gravity, velocity
Unit 2: Magnetism	Exploring Magnets and Magnetism	Magnetism, magnetic field and poles, observe, conclude, investigate, magnetic lines of force	electromagnet, magnet, solenoid, magnetic field, ferromagnetism, electromagnetism, tesla
Unit 3: Properties of Sound	Exploring Sound Waves	Properties of sound, observe, Doppler Effect, predict, resonance	crest, frequency, medium, transverse wave, longitudinal wave, trough, rarefaction
Unit 4: Forces, Motion, and Simple Machines	Exploring Force and Motion	Force and motion, velocity and acceleration, conservation of energy, conservation of momentum, Newton's Laws, investigate, conclude, observe	displacement, inertia, momentum, balanced forces, unbalanced forces, net force
	Exploring Simple Machines	Mechanical advantage, efficiency, observe, investigate, simple machines	simple machine, compound machine, energy, power, work, lever, screw, pulley, kinetic energy, inclined plane, fulcrum, potential energy
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