

Honors Physics Curriculum Map

Unit	Topics Covered	NGSS Standards (HS-PS)	Key Skills & Activities
Intro to Physics	Experimental procedures, measurement techniques, uncertainty, data analysis, graphical methods, SI units, dimensional analysis, vectors & scalars, significant figures	SEPs	Designing experiments, analyzing data trends, using significant figures, applying vector addition
Motion in 1D	Kinematics, velocity, acceleration, free-fall, graphical analysis of motion, kinematic equations, relative motion	HS-PS2-1	Graphing motion, solving kinematic equations, motion analysis
Motion in 2D	Vectors, projectile motion, relative velocity, circular motion, centripetal acceleration	HS-PS2-1	Vector decomposition, analyzing parabolic motion, centripetal force calculations
Newton's Laws	Forces, free-body diagrams, friction, tension, normal force, dynamics of circular motion, equilibrium, static & kinetic friction, Newton's third law	HS-PS2-1, HS-PS2-2	Force analysis, Newton's 2nd law lab, Mousetrap Car Project
Universal Gravitation	Newton's Law of Gravitation, planetary motion, Kepler's Laws, escape velocity, satellite motion, gravitational fields	HS-PS2-4	Gravity simulations, orbital mechanics calculations
Momentum	Impulse-momentum theorem, conservation of momentum, elastic & inelastic collisions, center of mass, angular momentum	HS-PS2-2, HS-PS2-3	Momentum conservation lab, Egg Drop Project
Work & Energy	Work, power, kinetic & potential energy, energy conservation, work-energy theorem, mechanical advantage, efficiency	HS-PS3-1, HS-PS3-2	Energy skate park simulation, solving problems with work-energy theorem
Thermal Energy	Heat transfer, specific heat, calorimetry, thermodynamic laws,	HS-PS3-4	Calorimetry experiment, analyzing thermal conductivity

	entropy, kinetic theory of gases, thermal expansion		
Waves	Wave properties, sound, electromagnetic spectrum, Doppler effect, interference, diffraction, resonance, standing waves, wave-particle duality	HS-PS4-1, HS-PS4-3	Wave lab, measuring diffraction patterns, sound experiments
Electric Circuits	Ohm's law, Kirchhoff's laws, series & parallel circuits, capacitance, resistance, power, electromagnetism, electric fields, charge conservation	HS-PS2-5, HS-PS4-5	Circuit analysis, Electric House Build Project