



GREAT NECK PUBLIC SCHOOLS

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Curriculum Profile: Physics AP 1

Department	Science		
Course Name	AP Physics 1		
Course Length	1 Year		
High School Credits	1		
Description	This course is the equivalent to a first-semester college course in algebra-based physics. The course covers Newtonian Mechanics. Inquiry-based laboratory work with an emphasis on data analysis is a fundamental component of this course along with intensive preparation for the College Board Advanced Placement Test in Physics 1, which all students are expected to take. Class daily plus alternate lab days.		
Target/eligible students	High school students with aptitudes for science, algebra, and trigonometry.		
State Learning Standards Link(s)	New York State Framework - HS. Forces and interactions - HS. Energy - HS. Space Systems - HS. Engineering Design		p.58 p.60 p.73 p.83
Primary texts and materials	OpenStax online text College Physics for AP courses		
Scope/Sequence	*Standards/ Themes	Key Ideas, Term, and Concepts	
UNIT 1: Kinematics	HS-PS2-1	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: 1.1: Scalars & Vectors in One-Dimension 1.2: Average and Instantaneous Motion, 1.3. Representing Motion 1.4: Reference Frames and Relative Motion 1.5: Vectors and Motion in Two Dimensions	p. 58
UNIT 2: Force and Translational Dynamics	HS-PS2-1 HS-PS2-4 HS-PS3-1 HS-ESS1-4	Developing conceptual understanding, problem-solving routines, and laboratory-based skills in the following areas: 2.1: Systems and Center of Mass, 2.2: Forces and Free Body Diagrams, 2.3: Newton's Third Law, 2.4: Newton's First Law, 2.5: Newton's Second Law, 2.6: Gravitational Force, 2.7: Kinetic and Static Friction, 2.8: Spring Forces, 2.9: Inertial and Gravitational Mass, 2.10: Circular Motion	p. 58 p. 73
UNIT 3: Work, Energy, and Power	HS-PS3-1 HS-PS3-2 HS-PS3-3	Developing conceptual understanding, problem-solving routines, and laboratory-based skills in the following areas: 3.1: Translational Kinetic Energy	p.60

		3.2: Work 3.3: Potential Energy, 3.4: Conservation of Energy, 3.5: Power	
UNIT 4: Linear Momentum	HS-PS2-2 HS-PS2-3 HS-ETS1-2	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: 4.1: Linear Momentum, 4.2: Change in Momentum and Impulse, 4.3: Conservation of Linear Momentum, 4.4: Elastic and Inelastic Collisions	p.58 p.83
UNIT 5: Torque and Rotational Dynamics	HS-PS2-1 HS-ETS1-2	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: 5.1: Rotational Kinematics, 5.2: Connecting Linear and Rotational Motion, 5.3: Torque, 5.4: Rotational Inertia, 5.5: Rotational Equilibrium and Newton's First Law in Rotational Form, 5.6: Newton's Second Law in Rotational Form	p. 58
UNIT 6: Energy and Momentum of Rotating Systems	HS-PS3-1	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: 6.1: Rotational Kinetic Energy 6.2: Torque and Work 6.3: Angular Momentum and Angular Impulse 6.4: Conservation of Angular Momentum 6.5: Rolling 6.6: Motion of Orbiting Satellites	p.60
UNIT 7: Oscillations	HS-PS3-1	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: 7.1: Defining Simple Harmonic Motion (SHM) 7.2: Frequency and Period of SHM 7.3: Representing and Analyzing SHM, 7.4: Energy of Simple Harmonic Oscillators	p.60
UNIT 8: Fluids effective 9/1/2025	HS-PS2-1 HS-ETS1-2	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: 8.1: Internal Structure and Density, 8.2: Pressure, 8.3: Fluids and Newton's Laws, 8.4: Fluids and Conservation Laws	p. 58
Additional Notes			