



GREAT NECK PUBLIC SCHOOLS

"Where Discovery Leads to Greatness"

#DiscoverGreatness

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Curriculum Profile: AP Physics 2

Department	Science		
Course Name	AP Physics 2		
Course Length	1 Year		
High School Credits	1		
Description	This course is the equivalent of a second-semester college course an algebra-based physics that explores topics such; thermodynamics with kinetic theory; PV diagrams and probability; electrostatics; electrical circuits with capacitors; magnetic fields; electromagnetism; physical and geometric optics; and quantum, atomic, and nuclear physics. Through inquiry-based learning, students will develop scientific critical thinking and reasoning skills.		
Target/eligible students	11th and 12th grade high school students		
State Learning Standards Link(s)	New York State Framework I. HS. Structure and Properties of Matter II. HS. Forces and interactions III. HS. Energy IV. HS. Waves and Electromagnetic Radiation V. HS. Engineering Design	p.54 p.58 p.60 p.83	
Primary texts and materials	Openstax online text College Physics for AP courses		
Scope/Sequence	*Standards/ Themes	Key Ideas, Term, and Concepts	
UNIT 9: Thermodynamics	HS-PS1-9.	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: 9.1: Kinetic Theory of Temperature and Pressure 9.2: The Ideal Gas Law, 9.3: Thermal Energy Transfer and Equilibrium 9.4: The First Law of Thermodynamics 9.5: Specific Heat and Thermal Conductivity 9.6: Entropy and the Second Law of Thermodynamics	p. 54
UNIT 10: Electric Force, Field, and Potential	HS-PS2-6 HS-PS2-1 HS-PS2-4	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: 10.1: Electric Charge and Electric Force 10.2: Electric and Gravitational Forces 10.3: Conservation of Electric Charge and the Process of Charging 10.4: Electric Fields	p.54 p.58

		• 10.5: Electric Permittivity • 10.6: Electric Potential Energy • 10.7: Electric Potential • 10.8: Capacitors • 10.9: Conservation of Electric Energy	
UNIT 11: Electric Circuits	HS-PS3-6	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: • 11.1: Electric Current, • 11.2: Simple Circuits, • 11.3: Resistance, Resistivity, and Ohm's Law, • 11.4: Electric Power, • 11.5: Compound Direct Current (DC) Circuits, • 11.6: Kirchhoff's Loop Rule, • 11.7: Kirchhoff's Junction Rule, • 11.8: Resistor-Capacitor (RC) Circuits	p.60
UNIT 12: Magnetism and Electromagnetism	HS-PS2-5	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: • 12.1: Magnetic Fields, • 12.2: Magnetic Dipoles, • 12.3: Magnetic Permeability, • 12.4: Magnetism and Moving Charges, • 12.5: Magnetism and Current-Carrying Wires, • 12.6: Electromagnetic Induction and Faraday's Law	p.58
UNIT 13: Waves, Sound, and Physical Optics	HS-PS4-1. HS-PS4-3. HS-PS4-6.	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: • 13.1: Properties of Wave Pulses and Waves, • 13.2: Periodic Waves, • 13.3: Boundary Behavior of Waves and Polarization, • 13.4: Electromagnetic Waves, • 13.5: The Doppler Effect, • 13.6: Wave Interference, • 13.7: Diffraction, • 13.8: Double-Slit Interference and Diffraction Gratings,	p.62
UNIT 14: Geometric Optics	HS-PS4-6	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: • 14.1: Modeling Light as a Ray, • 14.2: Reflection, • 14.3: Images formed by Mirrors • 14.4: Refraction, • 14.5: Images formed by Lenses, • 14.6: Thin-Film Interference	p.62
UNIT 15: Modern Physics	HS-PS1-8. HS-PS4-3. HS-PS4-4. HS-PS4-5.	Developing conceptual understanding, problem solving routines, and laboratory-based skills in the following areas: • 15.1: Quantum Theory and Wave-Particle Duality, • 15.2: The Bohr Model of Atomic Structure, • 15.3: Emission and Absorption Spectra, • 15.4: Blackbody Radiation, • 15.5: The Photoelectric Effect, • 15.6: Compton Scattering, • 15.7: Fission, Fusion, and Nuclear Decay, • 15.8: Types of Radioactive Decay	p. 54 p. 62
Additional Notes			