CollegeBoard AP

AP DAILY VIDEOS

AP Physics 2

AP Daily is a series of on-demand, short videos—created by expert AP teachers and faculty—that can be used for in-person, online, and blended/hybrid instruction. These videos cover every topic and skill outlined in the AP Course and Exam Description and are available in AP Classroom for students to watch anytime, anywhere.

Unit 1

Video Title	Topic	Video Focus	Instructor
1.1: Daily Video 1	Fluid Systems	Defining the terms “fluid,” “system,” and other terms used throughout Unit 1.	Oather Strawderman
1.2: Daily Video 1	Density	Understanding density as a material property, and the ratio of mass and volume; how to find an object’s density by measuring its mass and its volume.	Joe Mancino
1.2: Daily Video 2	Density	Comparing the density of two different materials experimentally, using graphs of mass as a function of volume.	Joe Mancino
1.2: Daily Video 3	Density	Calculating the density of modeling clay by measuring the mass and radius of various spheres, linearizing the data, and finding the slope of a best-fit line.	Joe Mancino
1.3: Daily Video 1	Fluids—Pressure and Forces	What does Newton’s third law tell us about action/reaction pairs of forces exerted when objects are submerged in a fluid in a container?	Joe Mancino
1.3: Daily Video 2	Fluids—Pressure and Forces	Defining the relationship between pressure, force, and area; how to rearrange the pressure equation; comparing the force and pressure exerted on and by various objects.	Joe Mancino
1.3: Daily Video 3	Fluids—Pressure and Forces	Understanding that the macroscopic effect of pressure is caused by microscopic collisions with particles in a fluid, and that pressure caused by a fluid is greater at greater depths within that fluid.	Joe Mancino
1.3: Daily Video 4	Fluids—Pressure and Forces	Understanding that within a continuous incompressible fluid, pressure increases with increasing depth; additional pressure exerted on one part of the fluid is transmitted to all parts of the fluid.	Joe Mancino
1.3: Daily Video 5	Fluids—Pressure and Forces	Using Pascal’s principle and a fluid of unknown density; finding the density of an unknown fluid by putting both fluids in a U-shaped tube and measuring with a ruler.	Joe Mancino
1.4: Daily Video 1	Fluids and Free-Body Diagrams	Creating free body diagrams showing all the forces acting on objects at rest or in motion as the objects interact with a fluid.	Joe Mancino
1.4: Daily Video 2	Fluids and Free-Body Diagrams	Using free-body diagrams to find net force; using Newton’s second law—which relates mass, force, and acceleration—to find acceleration.	Joe Mancino
1.5: Daily Video 1	Buoyancy	Understanding that objects submerged in a fluid experience an upward force due to a pressure difference (the buoyant force); investigating factors that do and do not affect this force.	Oather Strawderman
1.5: Daily Video 2	Buoyancy	Using a simulation to perform two investigations related to Archimedes’ Principle.	Oather Strawderman
1.5: Daily Video 3	Buoyancy	How density affects how much of a floating object is submerged.	Oather Strawderman

Video Title	Topic	Video Focus	Instructor
1.6: Daily Video 1	Conservation of Energy in Fluid Flow	Investigating conservation of energy in water flowing through a pipe; measuring the height, speed, and pressure of the water at different points in the pipe.	Oather Strawderman
1.6: Daily Video 2	Conservation of Energy in Fluid Flow	Using Bernoulli's equation to calculate unknown quantities of fluid flow.	Oather Strawderman
1.6: Daily Video 3	Conservation of Energy in Fluid Flow	Investigating a special application of Bernoulli's equation: Torricelli's Theorem.	Oather Strawderman
1.6: Daily Video 4	Conservation of Energy in Fluid Flow	Combining Bernoulli's equation and the continuity equation to calculate unknown quantities.	Oather Strawderman
1.7: Daily Video 1	Conservation of Mass Flow Rate in Fluids	Investigating the relationship between the speed of a fluid flowing through a tube and cross sectional area of the tube, using a simulation.	Oather Strawderman
1.7: Daily Video 2	Conservation of Mass Flow Rate in Fluids	Practice with using the continuity equation; investigating applications of both the continuity equation and Bernoulli's equation.	Oather Strawderman

Unit 2

Video Title	Topic	Video Focus	Instructor
2.1: Daily Video 1	Thermodynamic Systems	In this video we will discuss what the terms *thermodynamic* and *system* both mean. We will also investigate terms used throughout Unit 2.	Oather Strawderman
2.2: Daily Video 1	Pressure, Thermal Equilibrium, and the Ideal Gas Law	In this video, we will investigate what factors affect the pressure of a gas and the way they affect the pressure.	Oather Strawderman
2.2: Daily Video 2	Pressure, Thermal Equilibrium, and the Ideal Gas Law	In this video, we will investigate the relationship between the average of all kinetic energies of molecules in a system to the temperature of the system.	Oather Strawderman
2.2: Daily Video 3	Pressure, Thermal Equilibrium, and the Ideal Gas Law	In this video, we will investigate statistical distributions of particle speed in a gas called Maxwell distributions.	Oather Strawderman
2.2: Daily Video 4	Pressure, Thermal Equilibrium, and the Ideal Gas Law	In this video, we will use a simulation to collect and analyze data leading to the ideal gas law.	Oather Strawderman
2.2: Daily Video 5	Pressure, Thermal Equilibrium, and the Ideal Gas Law	In this video, we will introduce PV diagrams and use them along with the ideal gas law to determine the temperature of a gas at various states.	Oather Strawderman
2.2: Daily Video 6	Pressure, Thermal Equilibrium, and the Ideal Gas Law	In this video, we will perform an experiment to determine the ideal gas law constant.	Oather Strawderman
2.3: Daily Video 1	Thermodynamics and Forces	In this video, we will review Newton's three laws and see how they apply to thermodynamic systems.	Oather Strawderman
2.3: Daily Video 2	Thermodynamics and Forces	In this video, we will use Newton's laws to help determine the pressure inside of a compressed syringe.	Oather Strawderman
2.4: Daily Video 1	Thermodynamics and Free-Body Diagrams	In this video, we will review what free-body diagrams are, how to draw them, and when to use them.	Oather Strawderman
2.5: Daily Video 1	Thermodynamics and Contact Forces	In this video, we will investigate the differences and similarities between contact and ranged forces. We will also discuss examples of each type.	Oather Strawderman
2.6: Daily Video 1	Heat and Energy Transfer	Heat refers to thermal energy transferring from one location to another. Thermal energy will spontaneously transfer from high temperature systems to low temperature systems.	Theresa Rudnick
2.6: Daily Video 2	Heat and Energy Transfer	Conduction, convection, and radiation are the three ways thermal energy can transfer from one location to another.	Theresa Rudnick

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Video Title	Topic	Video Focus	Instructor
2.7: Daily Video 1	Internal Energy and Energy Transfer	Internal energy is a measure of the total kinetic energy of all the molecules within a system.	Theresa Rudnick
2.7: Daily Video 2	Internal Energy and Energy Transfer	Work can be considered positive or negative depending on the relationship between the direction of the force doing the work and the direction of the displacement.	Theresa Rudnick
2.7: Daily Video 3	Internal Energy and Energy Transfer	Work can be calculated using two methods: multiplying the (-) pressure by the change in volume, or calculating the area under a process on a PV diagram.	Theresa Rudnick
2.7: Daily Video 4	Internal Energy and Energy Transfer	A book pushes a plunger to compress a gas. In this video, we will write a procedure, make a graph, and analyze results to compare the change in gravitational potential energy to work done on the gas.	Theresa Rudnick
2.7: Daily Video 5	Internal Energy and Energy Transfer	Changes in internal energy are caused by thermal energy transfer and/or work. This video looks at the qualitative relationships described in the first law of thermodynamics.	Theresa Rudnick
2.7: Daily Video 6	Internal Energy and Energy Transfer	Changes in internal energy are caused by thermal energy transfer and/or work. This video explores the mathematical relationships described in the first law of thermodynamics.	Theresa Rudnick
2.7: Daily Video 7	Internal Energy and Energy Transfer	This video addresses how to identify an isothermal process and how to apply it to the first law of thermodynamics.	Theresa Rudnick
2.7: Daily Video 8	Internal Energy and Energy Transfer	This video addresses how to identify and apply the first law of thermodynamics to isovolumetric processes.	Theresa Rudnick
2.7: Daily Video 9	Internal Energy and Energy Transfer	This video addresses how to identify an adiabatic process and how to apply it to the first law of thermodynamics.	Theresa Rudnick
2.7: Daily Video 10	Internal Energy and Energy Transfer	This video addresses how to identify an isobaric process and how to apply it to the first law of thermodynamics.	Theresa Rudnick
2.7: Daily Video 11	Internal Energy and Energy Transfer	In this video, we will plot data from several thermodynamic processes to create a cycle. We will analyze the cycle conceptually and mathematically.	Theresa Rudnick
2.8: Daily Video 1	Thermodynamics and Elastic Collisions—Conservation of Momentum	In this video, we will use conservation laws to predict, explain, and calculate molecular collisions.	Theresa Rudnick
2.9: Daily Video 1	Thermodynamics and Inelastic Collisions—Conservation of Momentum	In this video, we will predict, explain, and calculate molecular collisions that do not conserve kinetic energy.	Theresa Rudnick
2.10: Daily Video 1	Thermal Conductivity	In this video, we will investigate the factors that affect the rate of thermal energy transfer across a barrier between two systems at different temperatures.	Oather Strawderman
2.10: Daily Video 2	Thermal Conductivity	In this video, we will use an online simulation to conduct an experiment to collect and analyze data to determine the thermal conductivity of copper.	Oather Strawderman
2.11: Daily Video 1	Probability, Thermal Equilibrium, and Entropy	In this video, we will investigate how a system approaches thermal equilibrium as well as discuss the second law of thermodynamics and the state function of entropy.	Oather Strawderman

Unit 3

Video Title	Topic	Video Focus	Instructor
3.1: Daily Video 1	Electric Systems	This video is a review of the Bohr model of the atom. It discusses the locations and charges of electrons, protons, and neutrons.	Theresa Rudnick
3.1: Daily Video 2	Electric Systems	Materials are classified as conductors or insulators because of the microscopic properties of their atoms (properties which create macroscopic effects).	Kristen Basiaga
3.2: Daily Video 1	Electric Charge	The value of the charge carried by a singular proton or electron is considered an “elementary charge.” All net charges are multiples of this value.	Theresa Rudnick
3.2: Daily Video 2	Electric Charge	A simple experiment provides evidence for the two-charge model, which posits that only two types of charge exist: positive and negative.	Kristen Basiaga
3.2: Daily Video 3	Electric Charge	Electrical current is defined as the quantity of charge flow per unit time. On a microscopic level, the motion of electrical charges is statistical.	Kristen Basiaga
3.3: Daily Video 1	Conservation of Electric Charge	Charge is a conserved quantity. When objects interact electrostatically within an isolated system, the net charge of the system before and after the interaction is conserved.	Theresa Rudnick
3.3: Daily Video 2	Conservation of Electric Charge	When multiple objects go through a series of electrostatic interactions within an isolated system, the net charge of the system before and after the interaction is conserved.	Theresa Rudnick
3.4: Daily Video 1	Charge Distribution - Friction, Conduction, and Induction	Lab: Interactions between charged pieces of tape, neutral conductors, and neutral insulators are observed.	Theresa Rudnick
3.4: Daily Video 2	Charge Distribution - Friction, Conduction, and Induction	Electrons can be transferred from one material to another through frictional interactions and conduction. This video contains a demonstration and a discussion of the conservation of charge.	Theresa Rudnick
3.4: Daily Video 3	Charge Distribution - Friction, Conduction, and Induction	Electrons within an object or system can be shifted through the process of induction. Polarization is not synonymous with net charge.	Theresa Rudnick
3.4: Daily Video 4	Charge Distribution - Friction, Conduction, and Induction	Electrons within a conductor distribute differently than electrons within an insulator.	Theresa Rudnick
3.6: Daily Video 1	Introduction to Electric Forces	If an electric force acting on an object produces a net force, then the object accelerates. This is Newton’s Second Law but revisited in terms of the electric force.	Kristen Basiaga
3.6: Daily Video 2	Introduction to Electric Forces	The electric force is an interaction between two charged objects. This video revisits Newton’s Third Law in the context of the electric force.	Kristen Basiaga

Video Title	Topic	Video Focus	Instructor
3.7: Daily Video 1	Electric Forces and Free-Body Diagrams	Electric forces can be depicted using free body diagrams, which are drawn using a specific set of rules.	Kristen Basiaga
3.7: Daily Video 2	Electric Forces and Free-Body Diagrams	The magnitude of the electric force between two charged objects depends on the amount of charge on each object. Proportional reasoning is used to compare the magnitude of forces.	Kristen Basiaga
3.8: Daily Video 1	Describing Electric Force	Many quantities obey inverse-square laws, including the electric force and electric field. This video explains why some quantities are inverse-squares and others are not.	Kristen Basiaga
3.8: Daily Video 2	Describing Electric Force	Coulomb's Law is a mathematical representation of the relationship between the sizes and relative location of charges and the force they exert on one another.	Theresa Rudnick
3.8: Daily Video 3	Describing Electric Force	Proportional reasoning can be applied to Coulomb's Law to predict the effect of changing charges and/or distances on the force between objects.	Theresa Rudnick
3.8: Daily Video 4	Describing Electric Force	Several charges along a line exert forces on each other. Vector addition can be used to determine the net force on an individual charge within the system.	Theresa Rudnick
3.8: Daily Video 5	Describing Electric Force	Several charges align to form a triangle. Vector addition can be used to determine the net force on an individual charge within the system.	Theresa Rudnick
3.9: Daily Video 1	Gravitational and Electromagnetic Forces	This video compares and contrasts the gravitational force and the electric force. Electric forces dominate the microscopic realm.	Kristen Basiaga
3.10: Daily Video 1	Vector and Scalar Fields in Electricity	Electric field diagrams provide information about the magnitude and direction of electrostatic force that a positive test charge would experience in a given location.	Theresa Rudnick
3.10: Daily Video 2	Vector and Scalar Fields in Electricity	Analyzing distributions of point charges helps compare and contrast electric field and electric potential. Electric potential is introduced in this video.	Kristen Basiaga
3.11: Daily Video 1	Electric Charges and Fields	The magnitude of an electric field can be calculated by the size of the charge creating the field and the location where the field is measured OR the size of the force exerted on a charge in the field.	Theresa Rudnick
3.11: Daily Video 2	Electric Charges and Fields	This video practices switching between perspectives to calculate and/or describe the magnitude of an electric field.	Theresa Rudnick
3.11: Daily Video 3	Electric Charges and Fields	The analysis of two charged spheres helps to explain that electric field is a vector quantity and that net electric field is a vector sum.	Kristen Basiaga
3.11: Daily Video 4	Electric Charges and Fields	The electric field around a charged, conducting sphere decreases with distance from the sphere. Inside a charged, conducting sphere, the electric field is zero.	Kristen Basiaga
3.11: Daily Video 5	Electric Charges and Fields	Two parallel plates held at different electric potentials form a special configuration. Between the plates, the electric field is uniform and the isolines are equally spaced.	Kristen Basiaga
3.11: Daily Video 6	Electric Charges and Fields	This video describes and calculates the motion of charged particles in electric fields. It also compares/contrasts this accelerated motion to projectile motion for masses in gravitational fields.	Theresa Rudnick

Video Title	Topic	Video Focus	Instructor
3.12: Daily Video 1	Isolines and Electric Fields	The electric potential around a charged object can be modeled with an elastic sheet. Lines of equal electric potential are called isolines.	Kristen Basiaga
3.12: Daily Video 2	Isolines and Electric Fields	Isolines can be used as a way to calculate the electric field, electric potential, potential difference, and change in electrical potential energy.	Kristen Basiaga
3.12: Daily Video 3	Isolines and Electric Fields	Isolines near a flat surface or a very large sphere are equally spaced as a result of a uniform electric field.	Kristen Basiaga
3.13: Daily Video 1	Conservation of Electric Energy	Bar charts can be used to qualitatively describe and compare the forms of energy present in an electrical system.	Theresa Rudnick
3.13: Daily Video 2	Conservation of Electric Energy	Energy conservation can be applied mathematically, to predict the motion of charges in an isolated system.	Theresa Rudnick
3.13: Daily Video 3	Conservation of Electric Energy	In this video, the four main electrostatic quantities—force, field, potential, and potential energy—are compared.	Kristen Basiaga

Unit 4

Video Title	Topic	Video Focus	Instructor
4.1: Daily Video 1	Definition and Conservation of Electric Charge	Charge is a fundamental property of matter that is conserved. Objects with charge separation, such as batteries, can be neutral even if charges are separated from each other.	Kristen Basiaga
4.2: Daily Video 1	Resistivity and Resistance	The resistance of a wire depends on the resistivity of the material from which it is made. An experiment is designed to measure the resistivity of nichrome.	Kristen Basiaga
4.2: Daily Video 2	Resistivity and Resistance	The resistance of a wire depends on the resistivity of the material from which it is made. The resistivity of nichrome is determined by analyzing the data from a previous experiment.	Kristen Basiaga
4.3: Daily Video 1	Resistance and Capacitance	In a circuit, the current is proportional to the potential difference and inversely proportional to resistance. This is Ohm's law.	Kristen Basiaga
4.3: Daily Video 2	Resistance and Capacitance	The capacitance of a capacitor depends on its geometry and the materials from which it is constructed. Three experiments are used to study these effects on capacitance.	Kristen Basiaga
4.3: Daily Video 3	Resistance and Capacitance	A mathematical model for the capacitance of a parallel-plate capacitor is derived from experimental data.	Kristen Basiaga
4.3: Daily Video 4	Resistance and Capacitance	We will analyze how geometry affects capacitance and how capacitance changes when the capacitor is modified when connected or disconnected from a battery.	Anastacia (Staci) Murray
4.3: Daily Video 5	Resistance and Capacitance	We will discuss electric circuits with resistors and how to calculate equivalent resistance and electric current in different circuit arrangements.	Anastacia (Staci) Murray
4.3: Daily Video 6	Resistance and Capacitance	Multiple capacitors in a circuit can be represented by a single capacitor with characteristic capacitance called a circuit's equivalent capacitance.	Kristen Basiaga
4.3: Daily Video 7	Resistance and Capacitance	We will analyze circuits to rank resistors within multiple circuits based on potential difference and to determine which circuit arrangement will run out of energy first.	Anastacia (Staci) Murray
4.3: Daily Video 8	Resistance and Capacitance	We will qualitatively analyze circuits with resistors and capacitors immediately after a switch is closed and after a long time.	Anastacia (Staci) Murray
4.4: Daily Video 1	Kirchhoff's Loop Rule	The sum of the voltage drops over any path through a circuit is equal to the potential difference of the source. Kirchhoff's loop rule is a special case of conservation of energy.	Kristen Basiaga
4.4: Daily Video 2	Kirchhoff's Loop Rule	We will experimentally determine internal resistance.	Anastacia (Staci) Murray
4.4: Daily Video 3	Kirchhoff's Loop Rule	As a result of changes in temperature, some resistors obey Ohm's law and others do not. Resistors that do not obey Ohm's law are called nonohmic.	Kristen Basiaga

Video Title	Topic	Video Focus	Instructor
4.4: Daily Video 4	Kirchhoff's Loop Rule	We will use light bulbs in different circuit arrangements to analyze the power dissipated in and the relative brightness of each bulb.	Anastacia (Staci) Murray
4.5: Daily Video 1	Kirchhoff's Junction Rule and the Conservation of Electric Charge	Since charge is conserved, current must be conserved at each junction in a circuit.	Kristen Basiaga
4.5: Daily Video 2	Kirchhoff's Junction Rule and the Conservation of Electric Charge	Mathematical routines can be used to determine current in a circuit with resistors.	Kristen Basiaga
4.5: Daily Video 3	Kirchhoff's Junction Rule and the Conservation of Electric Charge	We will quantitatively analyze circuits with resistors and capacitors to determine when the current is maximized.	Anastacia (Staci) Murray
4.5: Daily Video 4	Kirchhoff's Junction Rule and the Conservation of Electric Charge	We will quantitatively analyze circuits with resistors and capacitors immediately after a switch is closed and after a long time. We will qualitatively design circuits with resistors and capacitors.	Anastacia (Staci) Murray
4.5: Daily Video 5	Kirchhoff's Junction Rule and the Conservation of Electric Charge	We will qualitatively analyze circuits in terms of current, potential difference, and power when the circuit elements are rearranged.	Anastacia (Staci) Murray
4.5: Daily Video 6	Kirchhoff's Junction Rule and the Conservation of Electric Charge	We will compare and contrast resistors and capacitors; we will compare the loop rule, junction rule, and Ohm's law.	Anastacia (Staci) Murray

Unit 5

Video Title	Topic	Video Focus	Instructor
5.1: Daily Video 1	Magnetic Systems	In this video, we will analyze the internal structure of a system to determine how its properties affect the magnetic behavior of the material.	Anastacia (Staci) Murray
5.2: Daily Video 1	Magnetic Permeability and Magnetic Dipole Moment	In this video, we will explore the magnetic field created by an air-core solenoid and observe the impact on the magnetic field when we add an iron core.	Holley Mosley
5.3: Daily Video 1	Vector and Scalar Fields in Magnetism	In this video, we will explore the vector nature of magnetic fields created by one or more sources and use known magnetic fields to make inferences about the source.	Holley Mosley
5.4: Daily Video 1	Monopole and Dipole Fields	In this video, we will look at the similarities and differences between gravitational, electric, and magnetic fields.	Anastacia (Staci) Murray
5.5: Daily Video 1	Magnetic Fields and Forces	In this video, we will learn how to use the right-hand rule to determine the relationship between magnetic force, magnetic field, and velocity for charged particles.	Anastacia (Staci) Murray
5.5: Daily Video 2	Magnetic Fields and Forces	In this video, we will learn how to calculate the magnitude of the magnetic force on a charge moving in a magnetic field.	Holley Mosley
5.5: Daily Video 3	Magnetic Fields and Forces	In this video, we will analyze the magnetic field produced by a long, straight, current-carrying wire.	Anastacia (Staci) Murray
5.5: Daily Video 4	Magnetic Fields and Forces	In this video, we will explore the magnetic domains of ferromagnetic materials and use domains to describe the behavior of a bar magnet.	Holley Mosley
5.6: Daily Video 1	Magnetic Forces	In this video, we will determine the magnitude and direction of the magnetic force on a current-carrying wire in a magnetic field.	Holley Mosley
5.6: Daily Video 2	Magnetic Forces	In this video, we will discuss how a moving charge can be used to determine the direction of charge flow in a circuit.	Holley Mosley
5.6: Daily Video 3	Magnetic Forces	In this video, we will determine the magnitude of the magnetic force between two current-carrying wires.	Holley Mosley
5.6: Daily Video 4	Magnetic Forces	In this video, we will determine the direction of the magnetic force between two current-carrying wires.	Anastacia (Staci) Murray
5.7: Daily Video 1	Forces Review	In this video, we will use Newton's second law to predict the motion of a charged particle in a uniform magnetic field.	Holley Mosley
5.7: Daily Video 2	Forces Review	In this video, we will look at the similarities and differences between gravitational, electric, and magnetic fields and forces.	Holley Mosley
5.7: Daily Video 3	Forces Review	In this video, we will determine how a combination of electric and magnetic fields affects a moving charged particle.	Anastacia (Staci) Murray
5.7: Daily Video 4	Forces Review	In this video, we will determine how a combination of electric and magnetic fields affect moving charged particles of different speeds.	Anastacia (Staci) Murray

Video Title	Topic	Video Focus	Instructor
5.8: Daily Video 1	Magnetic Flux	In this video, we will discuss how the magnetic properties of some materials can be affected by other objects in a system.	Holley Mosley
5.8: Daily Video 2	Magnetic Flux	In this video, we will derive an equation for the potential difference between the two ends of a conducting rod moving through a magnetic field.	Holley Mosley
5.8: Daily Video 3	Magnetic Flux	In this video, we will learn how to calculate magnetic flux.	Holley Mosley
5.8: Daily Video 4	Magnetic Flux	In this video, we will use Lenz's law to determine the direction of the induced current when a loop of wire experiences a changing magnetic flux.	Holley Mosley
5.8: Daily Video 5	Magnetic Flux	In this video, we will use Faraday's law to calculate the magnitude of the induced emf when a loop of wire experiences a changing magnetic flux.	Holley Mosley

Unit 6

Video Title	Topic	Video Focus	Instructor
6.1: Daily Video 1	Waves	In this video, we will explore the mechanical properties of transverse and longitudinal waves as commonly found in stretched strings and sound.	Drew Blazo
6.1: Daily Video 2	Waves	In this video, we will compare the differences between the propagation of mechanical and electromagnetic waves.	Drew Blazo
6.1: Daily Video 3	Waves	In this video, we will observe how a mechanical wave can be polarized and examine how data can be used to describe the direction of that polarization.	Drew Blazo
6.2: Daily Video 1	Electromagnetic Waves	There is an inverse relationship between the wavelength and frequency of electromagnetic waves.	Holley Mosley
6.2: Daily Video 2	Electromagnetic Waves	Electromagnetic waves are able to propagate through empty space. When they pass through a medium, their wavelengths change.	Holley Mosley
6.2: Daily Video 3	Electromagnetic Waves	Polarized glasses can be used to create 3D images.	Holley Mosley
6.3: Daily Video 1	Periodic Waves	In this video, we will record the strength of an oscillating magnetic field over time and create a graphical representation of that field.	Drew Blazo
6.3: Daily Video 2	Periodic Waves	In this video, we will use a mathematical relationship to describe a simple wave in terms of its frequency, amplitude, and period.	Drew Blazo
6.4: Daily Video 1	Refraction, Reflection, and Absorption	In this video, we will examine how light reflects off of plane mirrors to create virtual images according to the law of reflection.	Drew Blazo
6.4: Daily Video 2	Refraction, Reflection, and Absorption	When light travels from one transparent material to another, the wavelength and speed change, but the frequency does not.	Holley Mosley
6.4: Daily Video 3	Refraction, Reflection, and Absorption	In this video, we will examine how the path of light changes as it moves from one transparent medium into another.	Drew Blazo
6.4: Daily Video 4	Refraction, Reflection, and Absorption	In this video, we will analyze data collected from the path of a beam of light passing from one transparent medium into another.	Drew Blazo
6.4: Daily Video 5	Refraction, Reflection, and Absorption	The path that a light ray will follow when it changes media can be predicted with Snell's law.	Holley Mosley
6.4: Daily Video 6	Refraction, Reflection, and Absorption	We can use the refraction lab data to determine critical angle and describe the behavior known as total internal reflection.	Holley Mosley
6.5: Daily Video 1	Images from Lenses and Mirrors	In this video, we will construct ray diagrams to show the position, orientation, and type of image formed by converging and diverging lenses.	Drew Blazo
6.5: Daily Video 2	Images from Lenses and Mirrors	In this video, we will construct ray diagrams to show the position, orientation, and type of image formed by converging and diverging mirrors.	Drew Blazo

Video Title	Topic	Video Focus	Instructor
6.5: Daily Video 3	Images from Lenses and Mirrors	Mathematical representations can be used to predict image formation from lenses and mirrors.	Holley Mosley
6.5: Daily Video 4	Images from Lenses and Mirrors	In this video, we will perform an experiment to determine the focal length of a lens.	Holley Mosley
6.6: Daily Video 1	Interference and Diffraction	When two waves overlap in space, interference occurs.	Holley Mosley
6.6: Daily Video 2	Interference and Diffraction	The path length difference of two waves contributes to their interference pattern.	Holley Mosley
6.6: Daily Video 3	Interference and Diffraction	In this video, we will examine how the wavelength of light is related to interference patterns produced when passing through a diffraction grating or reflecting off of a CD.	Drew Blazo
6.6: Daily Video 4	Interference and Diffraction	In this video, we will examine the mathematical relationship between wavelength and slit spacing in the production of interference patterns.	Drew Blazo
6.6: Daily Video 5	Interference and Diffraction	When light is incident on a thin film, both reflection and refraction occur.	Holley Mosley
6.6: Daily Video 6	Interference and Diffraction	When light is incident on a thin film, reflection and refraction result in an interference pattern.	Holley Mosley

Unit 7

Video Title	Topic	Video Focus	Instructor
7.1: Daily Video 1	Systems and Fundamental Forces	In this video, we will examine models that represent structure on the atomic scale, and the fundamental particles that make up atoms.	Drew Blazo
7.1: Daily Video 2	Systems and Fundamental Forces	The notation we use to name atoms contains information about the particles that make up the atom.	Joe Mancino
7.1: Daily Video 3	Systems and Fundamental Forces	In this video, we will discuss the fractional charge of the fundamental particles that make up nucleons, and the strong nuclear force that binds them together within the nucleus.	Drew Blazo
7.1: Daily Video 4	Systems and Fundamental Forces	Unstable nuclei decay by emitting particles and rays, each of which have different properties.	Joe Mancino
7.1: Daily Video 5	Systems and Fundamental Forces	The spectrum emitted when a sample of an element is burned tells us about the element and also provides evidence for modern atomic theory.	Joe Mancino
7.2: Daily Video 1	Radioactive Decay	The process of radioactive decay follows conservation laws.	Joe Mancino
7.2: Daily Video 2	Radioactive Decay	In this video, we will discuss how momentum is conserved during nuclear decay processes.	Drew Blazo
7.3: Daily Video 1	Energy in Modern Physics (Energy in Radioactive Decay and $E = mc^2$)	In this video, we will examine how matter can be converted into energy in nuclear reactions such as fusion.	Drew Blazo
7.3: Daily Video 2	Energy in Modern Physics (Energy in Radioactive Decay and $E = mc^2$)	Physics is the study of transformations between many types of energy. Mass itself is related to a form of energy.	Joe Mancino
7.3: Daily Video 3	Energy in Modern Physics (Energy in Radioactive Decay and $E = mc^2$)	The energy of a photon of light is related to the light's frequency. This helps explain atomic spectra.	Joe Mancino
7.3: Daily Video 4	Energy in Modern Physics (Energy in Radioactive Decay and $E = mc^2$)	A quantitative analysis of atomic specra helps us predict photos that the atom could absorb or emit.	Joe Mancino
7.4: Daily Video 1	Mass-Energy Equivalence	In the light of new evidence, the conservation of mass was replaced with the conservation of mass energy.	Joe Mancino
7.4: Daily Video 2	Mass-Energy Equivalence	In this video, we will quantitatively assess the interchangeable nature of mass and energy.	Drew Blazo
7.5: Daily Video 1	Properties of Waves and Particles	Things we used to think of as particles have wave-like properties.	Joe Mancino
7.5: Daily Video 2	Properties of Waves and Particles	In this video, we will discuss how light can be treated as a quantized particle that carries momentum.	Drew Blazo
7.5: Daily Video 3	Properties of Waves and Particles	Observers moving at high speeds relative to each other may disagree about measurements of distance and time.	Joe Mancino

Video Title	Topic	Video Focus	Instructor
7.5: Daily Video 4	Properties of Waves and Particles	In this video, we will examine the wave nature of electrons as evidenced by diffraction patterns created by electrons passing through narrow slits.	Drew Blazo
7.5: Daily Video 5	Properties of Waves and Particles	The diffraction of light through thin slits is affected by properties of the light and the slits.	Joe Mancino
7.6: Daily Video 1	Photoelectric Effect	The photoelectric effect is an example of the conservation of energy in many forms.	Joe Mancino
7.6: Daily Video 2	Photoelectric Effect	The photoelectric effect is evidence for the particle model of light.	Joe Mancino
7.6: Daily Video 3	Photoelectric Effect	In this video, we will discuss the quantitative relationship between the energy carried by a photon and the resulting kinetic energy of a photoelectron.	Drew Blazo
7.6: Daily Video 4	Photoelectric Effect	In this video, we will examine the graphical relationship between the energy of a photon and the resulting kinetic energy of a photoelectron.	Drew Blazo
7.7: Daily Video 1	Wave Functions and Probability	In this video, we will discuss the rate at which different unstable elements undergo radioactive decay.	Drew Blazo
7.7: Daily Video 2	Wave Functions and Probability	An electron's position cannot be expressed in absolute terms but rather in a probability wave.	Joe Mancino
7.7: Daily Video 3	Wave Functions and Probability	In this video, we will discuss how the orbit of an electron around a nucleus can be represented as a standing wave that is related to the de Broglie wavelength of an electron.	Drew Blazo