

Content Map

Lesson 1	Lesson 2	Lesson 3
Types of Energy	Learning Topic: Energy transformation	Learning Topic: Energy transfer
Lesson Essential Question: What is the relationship between potential and kinetic energy? How do the types and forms of energy compare?	Lesson Essential Question: How can energy be changed from one form to another without any loss of energy? Key Question: What are the sources of energy? (energy can't be created or destroyed so where does it come from/)	Lesson Essential Question: How is energy transferred through matter?
Vocabulary: Energy Work Potential energy Kinetic energy Elastic potential energy Gravitational potential energy Thermodynamics Velocity Gravitational acceleration Mechanical energy Electrical energy Electromagnetic energy Nuclear energy Sound Thermal energy Chemical energy Velocity temperature	Vocabulary: energy transformation conversion fuel Law of conservation of energy Fuel Fossil fuel Power Energy sources	Vocabulary: Conduction Convection Radiation Convection current Insulator Waves Medium Mechanical waves Electromagnetic waves Conductors Transverse waves Longitudinal waves Surface waves heat

Content Map

Lesson 4	Lesson 5	Lesson 6
Learning Topic: Nature of Waves	Learning Topic: Wave properties	Learning Topic: Manipulation of light waves
Lesson Essential Question: What is the nature of waves? Key Questions: What are waves? What do waves do? What are the parts of a wave? What causes waves? What are two kinds of waves?	Lesson Essential Question: How do the properties of electromagnetic and mechanical waves compare? Key questions: How is frequency and pitch related? How is a wave's speed related to its wavelength and frequency? How are amplitude and frequency related to the energy of a wave?	Lesson Essential Question: How do waves interact with matter (including our eyes)? Key questions: How is the behavior of light waves manipulated causing reflection, refraction, diffraction, and absorption? How does the human eye see objects and colors? What are some everyday technologies that relate to the properties of sound? What happens when waves interact with a different medium or barrier? What are some everyday technologies that relate to the properties of sound and light?
Vocabulary: wave medium vibration compression rarefaction longitudinal wave transverse wave crest trough	Vocabulary: Amplitude field Wavelength Doppler effect Frequency decibels Speed intensity pitch crest trough transverse wave longitudinal wave hertz electromagnetic radiation electromagnetic spectrum mechanical wave	Vocabulary: Reflection visible spectrum Refraction echolocation Absorption diffraction scattering Law of Reflection interference incidence transmission luminous translucent illuminated transparent sonar opaque ultrasonography visible light