

Lesson	Concepts / Key Terms	Tools / Materials	Lesson Strategy	Assessment
Lesson 1: Viewing Light Energy	<ul style="list-style-type: none"> • Assessment of prior knowledge • Incident rays, reflected rays • First Law of Reflection • Light travels in straight lines • Drawing angles accurately 	<ul style="list-style-type: none"> • Flat plane mirrors • An object to hide 	<p>Assessment of prior knowledge, asking questions about real-world phenomenon related to light:</p> <p>Why does sunlight (and other light) behave the way it does? How does color work? Is it a property of light?</p> <p>What happens when light hits a mirror?</p>	<p>Students will work in groups to answer these questions</p> <p>Also, students will have an opportunity to pose their own questions on light and optics</p> <p>Try This Activity: Hide an object behind a box or desk, set up mirrors around the room to find it. Draw a diagram of the classroom, show mirror locations.</p> <p>In what locations is the object still hidden? Where to position a mirror to find it (draw in diagram)</p>
Lesson 2: Light Energy and Its Sources	<p>Sources of light energy:</p> <ul style="list-style-type: none"> • Incandescence • Phosphorescence • Electric Discharge • Fluorescence • Chemiluminescence • Bioluminescence • Luminous vs. nonluminous 	<ul style="list-style-type: none"> • Light bulb • Wrist-watch with luminous dials • Glow in the dark stars • Neon light • Fluorescent light tube 	<p>Review different forms of energy (light, chemical, thermal, electrical)</p> <p>Use a strobe light to show that a nonluminous object is only visible when it reflects light (doesn't generate its own light)</p> <p>Comparing fluorescent tube and an incandescent bulb, to illustrate difference in energy emitted as heat (good tie-in to energy efficient bulbs)</p> <p>Test clothing to determine what parts are fluorescent</p>	<p>Understanding Concepts Questions</p> <p>Students will examine the classroom for as many different types of light sources as possible, and group them into the appropriate categories</p> <p>Homework: Identify bulb types, locations, and quantities in your home. Organize this into a chart. Assume these lights are turned on all the time, how much money would this cost per month?</p>
Lesson 3: Watching Light Travel	<ul style="list-style-type: none"> • Properties of visible light (identify through experimentation) • Rectilinear propagation • Wave/particle dual nature of light 	<ul style="list-style-type: none"> • Ray boxes • Rubber stopper • Pencil and paper • Ruler 	<p>Students will carry out an investigation involving ray boxes to answer the question "What property of light allows shadows to form?"</p> <p>Hypothesis/Procedure/Analysis.</p>	<p>Monitor student activity during the investigation. Who takes charge of the group, and who stands back? Note this when picking groups in the future.</p> <p>Making Connections questions:</p>