

Lesson needs to be reworked. Links are no longer active.

Strand: 8.2	Standard: 8.2.5	Episode 5	Big Idea: The structure of a wave affects its ability to be reflected, absorbed, or transmitted through various materials.
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Title: Devices using energy waves	Time: 45 minutes plus 3-4 days for video project	CCCs: <u>Structure and function</u>	Practices: Constructing Explanations and Designing Solutions
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Narrative of episode: In this episode students will conduct research to **explain** how humans use the reflective and refractive properties of energy waves for specific functions that benefit us; including lenses in eyeglasses and telescopes, soundproof rooms, periscopes, and probing the interior of the earth using seismic waves. They will create a short video to present their findings and share them with the class.

Gather

Separate the students into small groups of 2-3 people. Each group will select a topic from the list below. They will research how lenses, prisms, and/or mirrors are used to create useful items; how wave properties like reflection, absorption, transmission or refraction are used to explain phenomenon or design special rooms.

Reason

Each group will present their findings in a 1-2 minute video which includes a diagram of the path the energy waves take through the instrument. Students will use filmmaking worksheets ([Choosing a Topic Handout \(filmmaking\)](#), [What Make a Good Instructional Video Handout](#), [Four Storyboard Template](#), [Filmmaking Rubric Front](#), [Filmmaking Rubric Back](#)) to guide their topic selection, video outline, and filming process. Topic selection may include, but is not limited to:

- Using seismic waves to probe the interior of the earth
- Eyeglasses
- Telescopes: how they work
- Periscopes
- Binoculars
- How is a sound-proof room designed?
- How are concert/music/performance halls constructed?

Communicate

Each group will show their video to the class.

Assessment: Students will create and show a video that demonstrates their understanding of how waves get reflected, absorbed, or transmitted through mediums.	Materials, resources, handouts, etc: Choosing a Topic Handout (filmmaking) What Make a Good Instructional Video Handout Four Storyboard Template Filmmaking Rubric Front Filmmaking Rubric Back <i>Teacher Note: The filmmaking handouts are provided by the Utah Film Center www.utahfilmcenter.org</i>
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