

Grade 1: Light and Sound Waves

Stage 1 Desired Results		
ESTABLISHED GOALS: <u>Competencies:</u> <u>Nature of Science and Engineering</u> - Students will demonstrate the ability to work collaboratively and individually to generate testable questions or define problems, plan and conduct investigations using a variety of research methods in various settings, analyze and interpret data, reason with evidence to construct explanations in light of existing theory and previous research, and effectively communicate the research processes and conclusions. <u>Cause & Effect</u> - Students will demonstrate the ability to investigate, explain, and evaluate potential causal relationships by using evidence to support claims and predictions about the mechanisms that drive those relationships. <u>Content Standards:</u> 1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. 1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated. 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. 1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	Transfer	
	<i>Students will be able to independently use their learning to interpret and react to sensory information produced by sound and light waves.</i>	
	Meaning	
	ENDURING UNDERSTANDINGS <i>Students will understand that...</i> - simple tests can be designed to gather evidence to support or refute ideas about causes. - people depend on various technologies in their lives; human life would be very different without technology.	ESSENTIAL QUESTIONS Which is more important: light and sound?
	Acquisition	
	<i>Students will know...</i> - that sounds can make matter vibrate, and vibrating matter can make sound. - that objects can be seen if light is available to illuminate them or if they give off their own light. - that some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. - that mirrors can be used to redirect a light beam. - that people also use a variety of devices to communicate (send and receive information) over long distances. <u>vocabulary:</u> vibration, transparent, opaque, translucent, sound, light, communicate	<i>Students will be skilled at...</i> - planning and conducting investigations collaboratively to produce data as evidence to answer questions about light and sound. - making observations on the effect of placing objects made with different materials in the path of a beam of light. - providing evidence that vibrating materials can make sounds. - providing evidence that sound can make materials vibrate. - providing evidence that objects can only be seen when illuminated. - designing and building a communication device that uses light or sound.
Content Area Literacy Standards		21st Century Skills
not applicable		- reason effectively - think creatively - communicate clearly

Stage 2 - Evidence

<i>Evaluative Criteria</i>	<i>Assessment Evidence</i>
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan <i>Summary of Key Learning Events and Instruction</i>	
<i>Language Arts Integration</i> • W.1.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. • W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions). • W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. • SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.	<i>Mathematics Integration</i> • MP.5 Use appropriate tools strategically. • 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. • 1.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
<i>Technology Integration</i>	<i>District Materials</i>