



Grade 1 Science - Unit 1 - Exploring Light & Sound

Unit Focus

This Grade 1 Science unit, Exploring Light and Sound, introduces students to the fascinating world of vibrations, light, and communication. In the opening portion of the unit, students engage in hands-on investigations to discover how vibrating materials can create sound and how sound can cause materials to vibrate—using selected lessons from Mystery Science to support and enrich their learning. They then explore how light is necessary for us to see objects and how different materials interact with light by allowing it to pass through, partially blocking it, or reflecting it.

Building on these foundational ideas, students will apply their knowledge and creativity to design simple devices that use light or sound to communicate over distances. By the end of the unit, students will gain a deeper understanding of how light and sound help us experience the world and connect with others.

Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer	
Next Generation Science Standards Cross Cutting Concepts: 1 - Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-2),(1-PS4-3) (1.W.CC.1.1) - People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4) (1.W.CC.2.1) Disciplinary Core Ideas: 1 - Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1) (1.PS4.A.1) - Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2) (1.PS4.B.1) - 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. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1- PS4-3) (1.PS4.B.2) - People also use a variety of devices to communicate (send and receive information) over long distances. (1- PS4-4) (1.PS4.C.1) Performance Expectations: 1 - Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. (1-PS4-1) - Make observations to construct an evidence-based account that objects can be seen only when illuminated. (1-PS4-2)	<i>Students will be able to independently use their learning to...</i> T1 Create models to explore complex systems, show mastery of key science concepts, and/or develop solutions through creation of a product open to testing and redesign.	
	Meaning	
	Understanding(s)	Essential Question(s)
	<i>Students will understand that...</i> U1 Vibrations can create sound, and sound can cause materials to vibrate. U2 Light is necessary for objects to be seen, and light can come from various sources. U3 Materials can affect how light travels and behaves. U4 Light and sound can be used to communicate over distances.	<i>Students will keep considering...</i> Q1 How do vibrations and sound relate to each other? Q2 Why do we need light to see things? Q3 How do different materials change how light travels? Q4 How can we use light or sound to send messages?
	Acquisition of Knowledge and Skill	
	Knowledge	Skill(s)
<i>Students will know...</i> K1 Vibrating materials can make sounds, and sounds can make materials vibrate. K2 Objects can only be seen when they are illuminated by light.	<i>Students will be skilled at...</i> S1 Plan and conduct investigations to explore sound and vibrations. S2 Make observations about how light helps us see objects in darkness.	

Stage 1: Desired Results - Key Understandings

- 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-PS4-3)
- Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. (1-PS4-4)

Science and Engineering Practices: 1

- Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1),(1-PS4-3) (1.W.SEP.1.1)
- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena (1-PS4- 2) (1.W.SEP.2.1)
- Use tools and materials provided to design a device that solves a specific problem. (1- PS4-4) (1.W.SEP.2.2)
- Science investigations begin with a question. (1-PS4-1) (1.W.SEP.3.1)
- Scientists use different ways to study the world. (1-PS4-1) (1.W.SEP.3.2)

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- Design: Engaging in a process to refine a product for an intended audience and purpose. (POG.2.2)

K3 Light can pass through some materials, be partially blocked, completely blocked, or reflected.

K4 Tools can be created using light or sound to solve communication problems.

K5 Vocabulary: Sound, Vibration, Volume, Transparent, Translucent, Opaque, Reflective, Light, Source, Communicate, Device, Material.

S3 Investigate how materials affect the path of light.

S4 Design and build a device that uses light or sound for communication.