

# 02 Physical Science-Light, Sound and Communication

Content Area: **Science**  
Course(s):  
Time Period: **Full Year**  
Length: **1 Trimester**  
Status: **Published**

## **General Overview, Course Description or Course Philosophy**

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## **OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

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Can you see objects in the dark?

How does light travel?

How is light reflected?

How can you bend light?

How do people use light to communicate?

How do engineers solve problems?

How do people use sound and light to communicate?

## **CONTENT AREA STANDARDS**

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SCI.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.
SCI.1-PS4-1	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
SCI.1-PS4-2	Make observations to construct an evidence-based account that objects can be seen only when illuminated.
SCI.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.
SCI.K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

## **RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

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LA.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).
LA.W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
LA.RI.1.1	Ask and answer questions about key details in a text.
MA.1.MD.C.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
MA.1.OA.A.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.

## **STUDENT LEARNING TARGETS**

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### **Declarative Knowledge**

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Students will understand:

- Sound can make matter vibrate, and vibrating matter can make sound.
- Objects can be seen if light is available to illuminate them or if they give off their own light.

### **Procedural Knowledge**

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Students will be able to:

- Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
- Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light
- Make observations to construct an evidence-based account that objects can be seen only when illuminated.
- Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

## **EVIDENCE OF LEARNING**

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### **Formative Assessments**

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- Whole-Class Conversations
- Turn and Talk Discussions
- Participation
- Lab Experiments
- Science Journal Pages and Drawings

### **Summative Assessments**

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#### Benchmark Assessments

- Multiple Choice Assessment administered at the end of each trimester (T1, T2, T3)

#### Alternative Assessments

- Oral Presentations
- Questions for Comprehension
- Performance Tasks
- Scientific Journals/Notebooks
- Self-Assessment

- WebQuests

## **RESOURCES (Instructional, Supplemental, Intervention Materials)**

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- Brain Pop Jr.
- Mystery Science Resource Guide (online)
- <https://mysteryscience.com/docs/new-jersey>

## **INTERDISCIPLINARY CONNECTIONS**

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- Educational Tech Applications
- Google
- Art-Transparent and Opaque window art.
- Music-Where do sounds come from? Activity

## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

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See link to Accommodations & Modifications document in course folder.