Lesson 1.2
Can You See in the Dark?
Lesson Overview

Students begin learning about bright and dark places by exploring them in firsthand and secondhand ways. First, they try to create a very dark space in the classroom. Next, they observe a video of a completely dark cave that is gradually illuminated by a flashlight. Then, the teacher reads a book to support students in thinking about dark and darker places. Students learn about asking questions to gather additional information while they read. The class begins to create the What We Know About Light chart to record new understandings about light and dark. The purpose of this lesson is to draw on students’ previous experiences and to connect to their hands-on explorations and reading explorations to understand that most places, even those that seem dark, usually have some source of light and that you need this light to see.

**Design Problem:** Design a puppet-show scene, using light.
**Everyday Phenomenon:** It is difficult to see in the dark.

**Students learn:**

- Light makes things look bright.
- You need some light to see.
- Science knowledge can change when new information is found.
Reading: Can You See in the Dark?

The teacher reads aloud *Can You See in the Dark?* Students are introduced to the practice of asking questions to gather additional information.

### Instructional Guide

1. **Set purpose for reading.** Explain that engineers read to gather information. Let students know that when engineers and other skilled readers gather information from books, they often ask questions as they read.

   When I do not understand or when I wonder about something, I ask questions. As I read, I’m going to look for evidence to help me answer my questions.

2. **Introduce *Can You See in the Dark?***

   As I start to read this book, I am going to look at the cover and the title as well as the illustrations. I am going to ask questions about what I am wondering when I read the book.

3. **Hold up the cover of the book.** Point out the title and read it aloud.

   *Can You See in the Dark?* This title is already a question. It makes me wonder, are there places so dark that you can not see?

   Point to the illustration on the cover.

   This illustration shows people camping at night. What do you see in the illustration? [A flashlight. A tent. Trees. Stars. Dark sky.]

   Since we are thinking about the dark, it makes me wonder. How dark will it be if the flashlight goes out?

   When we start reading with questions in mind, it helps us find out answers as we read. We can keep asking more questions along the way.
4. **Begin reading the book aloud.** Pause at the end of page 5 to model monitoring your own understanding as you ask a question.

   I read a question here: *Is there any light in the theater?* I have another question because there is something I do not understand.

   I think there is light in the theater because I see light in the illustration. The thing I do not understand—or my question—is *Where is the light coming from?*

   I am going to keep reading to find an answer to my question.

5. **Continue reading.** Pause at the end of page 6 to answer the question you posed about where the light is coming from. Point to the picture of the movie projector on this page.

   Now I can answer my question about where the light is coming from. My evidence is that I see the light coming from the movie projector.

Continue reading and pause at the end of page 13 to model reflecting on your first question.

   When I started reading, I wondered, *How dark will it be if the flashlight goes out?* Now I can see that it is darker than before. However, I can see that there are stars in the sky. The book says that stars are light sources. That is evidence that it is still not completely dark.

   Now I have a new question. *Are there sources of light everywhere?*

6. **On-the-Fly Assessment: Students ask questions about something they wonder.** Prompt students to ask partners what they are wondering about the light and the dark.

7. **Continue reading.** Pause as appropriate to have students briefly share thoughts about whether or not they can see in these dark places.

8. **Finish reading the text.** Check for students’ comprehension.

   What is happening in the cave?
   [They turned out the light. It is dark. There is no light.]

   So now we have evidence that helps us answer the question *Can you see in the dark?* Just like when we observed the cave at the beginning of the video, it was completely dark in the cave we observed in the book. There was no light from anywhere. They could not see anything at all! That is evidence that we can only see when there is light.
Embedded Formative Assessment

On-the-Fly Assessment 1: Asking Questions

Look for: Students have not yet been given much instruction on how to ask questions about science content and the books they read. Note whether or not students are using question words and asking questions, rather than making comments and connections. You can also observe if students’ questions are relevant to the content of the book, or if students are having difficulty attending to the lesson’s focus on light.

Now what? Listening to students’ questions will help you know how much to scaffold question-asking in subsequent reading and science lessons. If students are not using question words, consider writing “How?” “What?” “Where?” “When?” and “Why?” on a chart or on the board as a reference to help students. You might also post language frames such as I wonder, . . . and I do not understand . . . . You may consider rereading sections of Can You See in the Dark? and offering examples of questions and non-questions to help students determine which is asking a question (e.g., Where is the light coming from in the theater? vs. There is a lot of light in the theater.). Similarly, if students’ questions are not related to the content you are discussing, you may have students listen to and choose between a related question and a non-related question (e.g., Why does the theater screen look so bright even when it is dark? vs. What movie are we watching later?).

Teacher Support

Background

About the Book: Can You See in the Dark?
Can You See in the Dark? invites students to wonder about whether or not they need light to see. The main character searches for a completely dark place, testing a movie theater, a dark bedroom, a closet, a starlit campsite, and finally a deep cave where there truly is no light at all. In each new place the narrator asks, “Is it completely dark? Can you find any light?” Although each place seems dark at first, a little searching always reveals light sources, until the main character reaches the cave, where there is no light whatsoever—and he cannot see! This finally answers the question posed in the book’s title, reinforcing the idea that you need light to see. Can You See in the Dark? is a Read-Aloud book that provides an intriguing invitation into the unit, setting the context for students’ understanding that all light comes from a source and that light sources can be dim or bright.

Rationale

Literacy Note: Approach to Reading
The books in K–1 units are designed to gradually release the responsibility of reading science text to students by using a combination of the Read-Aloud, Shared Reading, and Partner Reading approaches. The readability level and design of each book aligns with an instructional mode of reading to provide rich opportunities for scaffolding reading development. All first-grade units begin with a Read-Aloud, providing students with an introduction to the language of science they will come to use in their discussions and in later reading. In a Read-Aloud, the teacher models fluent and expressive reading of the text and verbally interacts in order to model strategic reading, thinking aloud about the content, introducing new vocabulary, and facilitating students’ comprehension of the text. As the unit progresses,
students will take more responsibility for reading when they engage in Shared Reading and Partner Reading with other books in the unit. By structuring reading instruction in this way, students have multiple experiences with the content and vocabulary of the unit before they are responsible for reading more independently.

Background

Literacy Note: Purpose of the Read-Aloud Book
The Read-Aloud book in this unit serves many purposes. In this Read-Aloud, you will stop at key points to model asking questions and to point out key science ideas. Throughout the Read-Aloud, we encourage you to pause and provide an opportunity for partners to discuss ideas from the text. In this lesson, the focus is on understanding why we cannot see in the dark. Students will also be guided through making sense of the core vocabulary in the text. In later lessons, the book will be referred to as a resource for learning and understanding other science ideas. You may wish to read the book aloud at least one more time during the unit. An additional read will build familiarity with the content and vocabulary.

Background

Literacy Note: Using Vocabulary Before Formally Defining It
The vocabulary words for this unit were strategically selected to support students’ learning about light and sound as well as the practices engineers use when designing solutions. At the beginning of the unit, it is expected that students will vary in their proficiency in receptive (listening, reading) and productive (speaking, writing) use of the words. Throughout the unit, words are formally introduced after students have had multiple opportunities to hear and see them in context. Exposure to words in print and conversation is a first step in making connections to their meanings. As an example, in this lesson the word source is not formally introduced. (It will be introduced in Lesson 1.3.) You may want to clarify the meaning within the context of the book (on page 7) without pausing to formally introduce it with the vocabulary routine.

Background

Nature of Science: Evidence in Science and Engineering
Evidence plays a fundamental role in science and engineering. New ideas are only accepted if they can be supported by evidence. In general, evidence is credible information that is used to support proposed answers to questions. In science and engineering, evidence consists of data (observations or measurements) or ideas taken from credible sources such as texts that are written and reviewed by people knowledgeable in the field. In this unit, students are first exposed to using evidence to answer questions through teacher modeling and then have supported opportunities to use evidence to answer questions.
Reading: Can You See in the Dark?

The teacher reads aloud *Can You See in the Dark*? Students are introduced to the practice of asking questions to gather additional information.

**Instructional Guide**

1. **Set purpose for reading.** Explain that engineers read to gather information. Let students know that when engineers and other skilled readers gather information from books, they often ask questions as they read.

   > Cuando no entiendo o cuando tengo dudas sobre algo, hago preguntas. Mientras leo, voy a buscar evidencia para ayudarme a responder mis preguntas.

2. **Introduce Can You See in the Dark?**

   > Mientras comienzo a leer este libro, voy a mirar la portada, el título y las ilustraciones. Voy a hacer preguntas sobre las dudas que tenga mientras leo el libro.

3. **Hold up the cover of the book.** Point out the title and read it aloud.

   > ¿Puedes ver en la oscuridad? El título ya es una pregunta. Hace que me pregunte, ¿hay lugares tan oscuros donde no puedas ver?

   Point to the illustration on the cover.


   > Como estamos pensando en la oscuridad, me pregunto ¿qué tan oscuro estará si se apaga el fuego?

   > Si comenzamos a leer con preguntas en mente, eso nos ayuda a descubrir respuestas mientras leemos. Podemos continuar haciendo más preguntas a lo largo del camino.
4. **Begin reading the book aloud.** Pause at the end of page 5 to model monitoring your own understanding as you ask a question.

- Aquí leí una pregunta: ¿Hay luz en el teatro? Tengo otra pregunta porque hay algo que no entiendo.
- Pienso que hay luz en el teatro porque veo luz en la ilustración. Lo que no entiendo (o mi pregunta) es: ¿De dónde viene la luz?
- Voy a continuar leyendo para encontrar una respuesta a mi pregunta.

5. **Continue reading.** Pause at the end of page 6 to answer the question you posed about where the light is coming from. Point to the picture of the movie projector on this page.

- Ahora puedo responder mi pregunta sobre de dónde viene la luz. Mi evidencia es que veo que la luz viene del proyector de películas.

Continue reading and pause at the end of page 13 to model reflecting on your first question.

- Cuando comencé a leer, me preguntaba: ¿Qué tan oscuro estará si se apaga el fuego? Ahora veo que está más oscuro que antes. Sin embargo, veo que hay estrellas en el cielo. El libro dice que las estrellas son fuentes de luz. Eso es evidencia de que aún no está completamente oscuro.
- Ahora tengo una nueva pregunta. ¿Hay fuentes de luz en todas partes?

6. **On-the-Fly Assessment:** Students ask questions about something they wonder. Prompt students to ask partners what they are wondering about the light and the dark.

7. **Continue reading.** Pause as appropriate to have students briefly share thoughts about whether or not they can see in these dark places.

8. **Finish reading the text.** Check for students’ comprehension.

- ¿Qué está sucediendo en la cueva? [Apagaron la luz. Está oscuro. No hay luz].
- Así que ahora tenemos evidencia que nos ayuda a responder la pregunta: ¿Puedes ver en la oscuridad? Igual que cuando observamos la cueva al principio del video, estaba completamente oscuro en la cueva que observamos en el libro. No había luz desde ninguna parte. ¡No podían ver nada en absoluto! Eso es evidencia de que solo podemos ver cuando hay luz.