Lesson 3.2
Observing Light Investigations
Lesson Overview

Students continue to investigate whether light is something that plants need to live and grow. They use their observations from the Do All Plants Need Light Investigation in a Shared Listening routine to explain whether plants need light to live and grow. Students engage in a Read-Aloud of *Handbook of Plants* that provides additional information about whether all plants need light and then act out the effects of light on sunflower growth through an extended version of the Plant Growth movement routine. The lesson concludes with the teacher posting a new key concept and students using the Explanation Language Frames to explain why plants can live and grow well in some places but not others. The purpose of this lesson is to solidify students’ understanding that plants need light to live and grow.

**Anchor Phenomenon:** There are no monarch caterpillars in the Mariposa Grove community garden since a vegetable garden was planted.

**Investigative Phenomenon:** Seeds with light grow well; seeds without light do not.

**Students learn:**

- Plants need light to live and grow.
Students engage in a Read-Aloud of *Handbook of Plants* and learn that all plants need light to live and grow.

**Instructional Guide**

1. **Display the front cover of the *Handbook of Plants* big book.** Point to and read the title aloud, reminding students that they have used this book multiple times to learn new things about plants.

   What are some of the things we have learned from reading this book?  
   [Caterpillars eat milkweed. Plants have leaves, roots, and a stem. Different plants live in different habitats.]

2. **Set a purpose for reading.**

   Readers set a purpose when reading. What does it mean to set a purpose when reading?  
   [To decide what you want to figure out by reading.]  
   How does setting a purpose help us as readers?  
   [We can ask ourselves whether we are getting the information we want from the book.]  
   Our purpose for reading today is to gather more evidence to help us figure out if plants need light to live and grow.

3. **Turn to the Contents on page 3.**

   This is the Contents page. How can this page help me find the information I am looking for?  
   [It tells you the important parts of the book and what page to turn to.]  
   If we want to learn more about plants and if they need light, what kinds of things should I look for in the Contents?  
   [Light.]
Let’s look for a section in the book about light.

Point to the “Getting Light” section heading in the Contents and read it aloud.

4. Turn to the “Getting Light” section and read pages 8 and 9 aloud.

We know that our sunflower plants that grew in light are growing well, but our sunflower plants that grew in no light are not growing well. But that was just one investigation. We did not yet know if all plants need light to live and grow.

Our purpose for reading this section of the book was to figure out if plants need light to live and grow. What did we figure out by reading this part of the book?
[All plants need light to live and grow. Plants have parts that help them get light.]

All plants need light to live and grow. Why do you think our sunflower plants that had no light still started to grow?
[Maybe there was a little light. Maybe they will grow for a little bit, but then they will stop.]

Teacher Support

Background

Science Note: Why Plants Can Grow in the Dark—for a Little While
In this unit, students observe sunflower plants that have grown in the dark and compare them with ones that grew in the light. Plants react to being placed in the dark in a variety of ways, depending on the type of plant and its age. An adult plant has stored reserves that allow it to survive, if not grow, in the dark for a period of time. While a seedling does not have these same reserves, the food stored in a germinated seed’s cotyledon does allow it to begin to grow. Plants growing from seeds in the dark are characterized by having long, thin, pale stems and leaves. The phenomenon can be explained by etiolation, or the process of developing plant parts in the absence of light. This occurs naturally when plants grow from below soil or leaf litter, or in a low-light environment. The process in some cases increases a plant’s likelihood of survival because growing a long, thin stem often allows the plant to reach a light source. Note that it is possible to de-etiolate an etiolated plant, simply by allowing the plant to access light.

Instructional Suggestion

Going Further: Revisit Predictions
If students made predictions as to what might happen to the seeds in the light and in the dark, they can revisit and compare their predictions to the evidence they gathered in this activity. Explain that scientists continue to change and revise their predictions as they gather more evidence, and encourage students to do the same.
Read About How Plants Need Light

Students engage in a Read-Aloud of Handbook of Plants and learn that all plants need light to live and grow.

Instructional Guide

1. Display the front cover of the Handbook of Plants big book. Point to and read the title aloud, reminding students that they have used this book multiple times to learn new things about plants.

¿Cuáles son algunas cosas que hemos aprendido al leer este libro?
[Las orugas comen algodóncillo. Las plantas tienen hojas, raíces y un tallo. Diferentes plantas viven en diferentes hábitats].

2. Set a purpose for reading.

Los lectores establecen un propósito al leer. ¿Qué significa definir un propósito al leer?
[Decidir lo que quieres averiguar al leer].

¿De qué manera definir un propósito nos ayuda como lectores?
[Podemos preguntarnos si estamos obteniendo la información que queremos del libro].

Nuestro propósito para leer hoy es reunir más evidencia para ayudarnos a averiguar si las plantas necesitan luz para vivir y crecer.

3. Turn to the Contents on page 3.

Esta es la página del Contenido. ¿Cómo me puede ayudar esta página a encontrar la información que estoy buscando?
[Te dice las partes importantes del libro y a qué página pasar].
Point to the “Getting Light” section heading in the Contents and read it aloud.

4. Turn to the “Getting Light” section and read pages 8 and 9 aloud.

Teacher Support

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