Lesson 2.6
Observing Radish Roots
Lesson Overview

Students continue their investigation of how plants get the water they need to grow by gathering evidence from firsthand (investigation) and secondhand (text) sources. Students make observations of the radish seeds with water and with no water to gather more evidence as they construct an understanding that all plants need water to grow. The class uses a new set of Explanation Language Frames to explain what they have learned about both garlic and radish plants. The teacher reads several new sections about plant roots from the *Handbook of Plants* big book. Students make a second observation of their radish plants and record these observations in their Investigation Notebooks. Partners discuss how they think the radish plants use their roots to get the water they need to grow. The lesson concludes with the introduction of a new key concept. The purpose of this lesson is to support students’ understanding that plants use their roots to get the water they need to grow.

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

**Investigative Phenomenon:** Radish seeds without water don’t grow; radish seeds in water do grow.

**Students learn:**

- Plants have roots that grow underground.
- Plants get the water they need with their roots from the soil around them.
The teacher reads two sections of *Handbook of Plants*—one about radish roots and another about how plants get the water they need to grow.

**Instructional Guide**

1. **Revisit the Investigation Question.** Point to the Investigation Question on the board as you read it.
   - How do plants get the water they need?
   - We already have some evidence from our investigations with radish and garlic plants and from reading *A Plant in the Desert* to help us answer this question. Today we will read *Handbook of Plants* again to see if we can gather even more evidence.

2. **Display the front cover of the *Handbook of Plants* big book.** Remind students they have used this book several times to learn new things about plants.
   - Remember, 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.]
   - When we set a purpose for reading a book, 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 of how plants get the water they need to live and grow.

3. **Turn to the Contents page on page 3.**
   - Remember we can use the Contents page to find out the important sections of a book. If we want to learn more about how radish plants get the water they need, what kinds of things should I look for in the contents? [Radishes. Water.]
   - Let’s look for a section in the book about radishes.
Point to the “Radish” heading in the Contents and read it aloud.

4. Turn to the “Radish” section on page 24 and read it aloud. Direct students’ attention to the diagram and invite volunteers to point out which part of the radish plant helps it get the water it needs to live and grow. Encourage students to draw comparisons between the radish plant and the sage plant students read about in *A Plant in the Desert*.

5. Turn back to the Contents page on page 3.

   Some of you said that a section about water would also be helpful for figuring out how plants get the water they need. Let’s look for a section in the book about water.

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

6. Turn to the “Getting Water” section on page 7 and read it aloud. Direct students’ attention to the illustration and invite volunteers to point out which part of the plant helps it get the water it needs to live and grow.

   Roots help plants get the water they need. We have made observations of roots and read about roots in other places. Where else have we seen roots helping a plant get water? [Our garlic. Our radish plants. The sage plant in *A Plant in the Desert*.]

7. Revisit evidence.

   We are investigating how plants get the water they need. We now have more evidence that plants use their roots to get water. Remember, evidence is information scientists use to figure out the answer to a question.

   We observed the radish seed growing roots in the cup with water. We also saw our garlic growing roots in the cup with water. That is evidence that plants get water with their roots.

   We also read the book *A Plant in the Desert* and learned that sage plants use their roots to get water from the desert ground.

8. Revisit the Plant Growth movement routine. Lead students through the Plant Growth movement routine, emphasizing how the roots help the plant grow.

   Now that we know plants use their roots to get the water they need, let’s use our bodies to pretend we are seeds growing into full-grown plants.

   A plant grows roots underground. How do the roots help a plant grow? [Plants use their roots to get water.]
Teacher Support

Rationale

Providing More Support: Time for Exploration of the Reference Book
Students may want to spend more time exploring *Handbook of Plants*. Providing extra time can be valuable for students who are learning about informational text, as they may notice text features, photographs, words they know, and other elements. Exploration time can spark interest in reading and finding information in the reference book. This type of open-ended exploration also provides students with the opportunity to share their thinking and learn from their peers as they look through the book with a partner and talk about what they notice.

Instructional Suggestion

Providing More Experience: Features of Reference Books
If you would like to spend more time developing students’ knowledge and use of reference books, gather a variety of reference books and ask students to work in small groups to look through them. Students can make observations about how the books are organized, what kind of information they contain, and what text features are present. Invite students to share their observations as you record them on a class chart. As students share, you may want to organize their observations by how the books are the same and different. Point out text features that the books have in common, modeling how some of the text features in a reference book help a reader know what the book is about and some help locate information. Invite students to connect the concept of setting purposes for reading to selecting a book based on its topic. More experience with a variety of reference books can help students be more strategic in selecting books that match the purposes they have for reading.
Reading More About Roots

The teacher reads two sections of *Handbook of Plants*—one about radish roots and another about how plants get the water they need to grow.

**Instructional Guide**

1. **Revisit the Investigation Question.** Point to the Investigation Question on the board as you read it.
   
   ¿Cómo obtienen las plantas el agua que necesitan?

   Ya tenemos evidencia de nuestras investigaciones con las plantas de rábano y de ajo, y de la lectura de *Una planta en el desierto* para ayudarnos a responder esta pregunta. Hoy leeremos el *Manual de plantas* para ver si podemos reunir aún más evidencia.

2. **Display the front cover of the Handbook of Plants big book.** Remind students they have used this book several times to learn new things about plants.
   
   Recuerden, los lectores definen un propósito al leer. ¿Qué significa definir un propósito al leer? [Decidir lo que quieres averiguar al leer].

   Cuando definimos un propósito para leer un libro, podemos preguntarnos si estamos obteniendo la información que queremos del libro.

   Nuestro propósito para leer hoy es reunir más evidencia de cómo las plantas obtienen el agua que necesitan para vivir y crecer.

3. **Turn to the Contents page on page 3.**
   
   Recuerden que podemos usar la página de Contenido para averiguar las secciones importantes de un libro. Si queremos aprender más acerca de cómo las plantas de rábano obtienen el agua que necesitan, ¿qué tipos de cosas debería buscar en el contenido? [Rábanos. Agua].

   Busquemos una sección en el libro acerca de los rábanos.
Point to the “Radish” heading in the Contents and read it aloud.

4. **Turn to the “Radish” section on page 24 and read it aloud.** Direct students’ attention to the diagram and invite volunteers to point out which part of the radish plant helps it get the water it needs to live and grow. Encourage students to draw comparisons between the radish plant and the sage plant students read about in *A Plant in the Desert*.

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

   - Algunos de ustedes dijeron que una sección acerca del agua también sería útil para averiguar cómo obtienen las plantas el agua que necesitan. Busquemos una sección en el libro acerca del agua.

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

6. **Turn to the “Getting Water” section on page 7 and read it aloud.** Direct students’ attention to the illustration and invite volunteers to point out which part of the plant helps it get the water it needs to live and grow.

   - Las raíces ayudan a las plantas a obtener el agua que necesitan. Hemos hecho observaciones de raíces y hemos leído acerca de las raíces en otros lugares. ¿Dónde más hemos visto a las raíces ayudando a una planta a obtener agua?
     [Nuestro ajo. Nuestras plantas de rábano. La planta de salvia en *Una planta en el desierto*.]

7. **Revisit evidence.**

   - Estamos investigando cómo obtienen las plantas el agua que necesitan. Ahora tenemos más evidencia de que las plantas usan sus raíces para obtener agua. Recuerden, evidencia es información que usan los científicos para averiguar una respuesta a una pregunta.

   - Observamos la semilla de rábano creciendo raíces en el vaso con agua. También vimos a nuestro ajo creciendo raíces en el vaso con agua. Eso es evidencia de que las plantas obtienen agua con sus raíces.

   - También leímos el libro *Una planta en el desierto* y aprendimos que las plantas de salvia usan sus raíces para obtener agua de la tierra del desierto.

8. **Revisit the Plant Growth movement routine.** Lead students through the Plant Growth movement routine, emphasizing how the roots help the plant grow.

   - Ahora que sabemos que las plantas usan sus raíces para obtener el agua que necesitan, usemos nuestros cuerpos para simular que somos semillas creciendo y convirtiéndonos en plantas completamente crecidas.

   - Una planta crece raíces bajo tierra. ¿De qué manera las raíces ayudan a una planta a crecer?
     [Las plantas usan sus raíces para obtener agua].