Lesson 3.1
Habitat Scientist
In this lesson, students begin to consider the Chapter 3 Question: *Why aren’t the chalta seeds getting to places where they can grow?* After being introduced to the next investigation question, students engage in the Think-Draw-Pair-Share routine to begin to think about how seeds get to new places in a habitat. Students read *Habitat Scientist* to gather more information about the different parts of a habitat and to extend their ideas about what parts of a habitat might help seeds get to new places. The book also introduces students to the idea that plants and animals depend on each other for the things they need to grow and live. Pairs then record the different parts of the habitat featured in the book. At the end of the lesson, students are introduced to the idea that animals hide seeds for later retrieval. Students hide seeds around the classroom to retrieve in a later lesson. The purpose of this lesson is to initiate students’ ideas about the parts of a habitat system, how those parts work together, and what parts might help seeds get to new places.

**Anchor phenomenon:** No new chalta trees are growing in the Bengal Tiger Reserve in India.

**Investigative phenomenon:** Seeds can get to new places in a habitat.

**Students learn:**

- A habitat is a system with many parts that affect each other.
- Habitats include not just where a plant or animal lives, but all the things it needs to grow in that place, such as sunlight, water, and other living things.
- There are many different plants and animals in the same habitat.
- Animals sometimes move seeds.
- Scientists use different ways to study the world.
- Scientists search for cause-and-effect relationships to explain natural events.
- Science knowledge helps us know about the world.
- Scientists study the natural and material world.
Setting a Purpose for Reading

The teacher introduces *Habitat Scientist* and sets the purpose for reading. The teacher reads aloud the beginning of the book.

Instructional Guide

1. **Introduce *Habitat Scientist* and set a purpose for reading.** Hold up a copy of the book as you introduce it.

   To figure out how seeds get to new places in their habitats, let’s first investigate more about the parts of a habitat.

   Write “Learn more about the parts of a habitat” in the Reading column of the Setting a Purpose chart.

2. **Discuss plant and habitat scientists.** Remind students of their role as plant scientists and discuss what a habitat scientist does.

   All scientists try to answer questions about the natural world in order to know more about it. Different kinds of scientists study different things.

   We are plant scientists. What do plant scientists do?
   
   [Plant scientists try to answer questions about plants in the places where they live.]

   This book is about a habitat scientist. What do you think a habitat scientist does?
   
   [I think a habitat scientist studies the plants and animals that live in a habitat.]

3. **Remind students of the concept of systems.**

   When we read the book *A Plant Is a System*, we learned that a plant is a system—a group of parts that work together. A habitat is also a system.

   Science searches for cause-and-effect relationships to explain natural events in habitats.

   This book will help us learn about the different parts of a habitat system and how the parts work together.
4. Distribute books. Distribute one copy of *Habitat Scientist* to each pair of students.

5. Read pages 3–5 aloud and return to purpose. Have students follow along as you read. When you’ve finished, remind students that they were reading to learn more about the parts of a habitat.

What have we learned so far about the parts of a habitat?

Call on several volunteers to share their ideas. Students should mention water, food, sunlight, space to grow, and a place to stay safe.

Teacher Support

Background

About the Book: *Habitat Scientist*

*Habitat Scientist* introduces students to John Harte, a scientist who investigates plants and animals in the places where they live. John studies how the parts of a habitat work together as a system. In this book, John investigates the interdependent relationships in a mountain habitat in Colorado. Plants in this habitat depend on animals to move their pollen so they can make new plants. Animals in this habitat depend on plants and other animals for food. Each part of the habitat depends on the other parts of the habitat for survival. John works with other scientists to investigate what happens to living things when part of their habitat changes. John and his team discovered that when the Colorado mountain habitat got too hot, the plants and animals there could no longer depend on one another to get what they needed. *Habitat Scientist* models the investigation practices of measuring and counting, while supporting students’ understanding of the interdependent relationships among the living things within a habitat.

Crosscutting Concept: Systems and System Models Across Chapter 3

In Chapter 3, students investigate the question *Why aren’t the chalta seeds getting to places where they can grow?* Students focus on the role that plants and animals play in a habitat and how these organisms rely on each other to grow and live. The system that students are investigating in this chapter is the system of a habitat. By focusing on how the plants in a habitat interact with animals, students come to understand how the parts of the habitat interact as parts of a system, and that these interactions result in seeds getting to new places where they can grow.

Background

Student Thinking: What Is a Habitat?

The definition of *habitat* is broader than some students think. Some students may think that a habitat is a place where animals live. Remind students that a habitat is a place where plants live as well. Students may need to be reminded about the diversity of habitats presented in Chapter 1. Students might also need help understanding that a habitat is not just a place; habitats also includes the things that an animal or plant depends on to meet its needs, such as its food sources, other water sources, and the space it lives in. Habitats consist of many plants and animals.
Background

Literacy Note: Setting a Purpose for Reading
In this lesson, setting a purpose for reading helps students learn about the different parts of a habitat, and how these parts depend on each other. This prepares students to focus on how seeds get to new places. In Activity 2, you set the purpose for students: to learn more about the parts of a habitat. After reading the first few pages aloud, you guide students to reflect on the purpose by asking them to think about what they have learned so far about the parts of a habitat. Then, in Activity 3, you pause students partway through their own reading and ask them to reflect once more on their purpose for reading, and to discuss with their partner what they have learned so far about the parts of the habitat. This reflection supports students in developing the habit of keeping their purpose in mind, as they read.

Rationale

Pedagogical Goals: Understanding the Nature of Science
One goal set forth by the Next Generation Science Standards (NGSS) is for students to understand the nature of science as a discipline and how scientific knowledge develops over time. The NGSS call out eight understandings about the nature of science, which are woven throughout the Amplify Science curriculum. This unit gives students an opportunity to experience the understanding that Scientific Investigations Use a Variety of Methods; Scientific Models, Laws, Mechanisms, and Theories Explain Natural Phenomena; Science Is a Way of Knowing; and Science Addresses Questions About the Natural and Material World. Specifically, the book Habitat Scientist illustrates the following ideas:

- Scientists use different ways to study the world.
- Scientists search for cause-and-effect relationships to explain natural events.
- Science knowledge helps us know about the world.
- Scientists study the natural and material world.

For example, the scientist John Harte studied the natural world by investigating the effect of heating up part of a mountain habitat with heat lamps, measuring plant growth, and counting the number of plants with flowers. Investigating cause-and-effect relationships between temperature change and plant growth and between plants and animals in a habitat helped John understand the habitat system and enabled him to teach others about the natural world.
Partners Reading

Pairs read the rest of *Habitat Scientist* and complete a notebook page on which they record the parts of the habitat described in the text.

Instructional Guide

1. **Remind students of their purpose for reading.** Let students know they will read the rest of the book and think about what else they can learn about the parts of a habitat.

2. **Pairs read.** Circulate and offer assistance as necessary.

3. **Students reflect on purpose for reading.** After 5–10 minutes, have pairs pause reading and ask them to return to their purpose for reading.

   Our purpose for reading is to learn more about the parts of a habitat. What new things have you learned about the parts of a habitat?

   Give students a couple of minutes to share their ideas with their partner.

4. **On-the-Fly Assessment: Students share their ideas with a partner.** As students discuss, circulate and listen for understanding of what information in the book helps them meet the purpose that was set for reading: to learn more about the parts of a habitat.

5. **Pairs read the rest of the book.** Have students read the rest of the book. Encourage them to continue thinking about what they can learn about the parts of a habitat as they read.

6. **Set the purpose for returning to the book.** Refer students to the Investigation Question on the board.

   We are trying to figure out how seeds can get to new places. Let’s go back to the book and think about this more.

7. **Project notebook page 41.** Have students turn to page 41, *Habitat Scientist: Parts of the Larkspur Plant’s Habitat*, in their notebooks. Read the directions aloud. Point out that the Colorado Mountain Habitat is the Larkspur Plant’s habitat. Have students complete the notebook page.
8. Project *Habitat Scientist* Mountain Habitat and have students share. Project the illustration and ask students to reflect on how seeds are moved in this habitat.

Based on what you read, what things in this habitat might help seeds get to new places? [Wind, bears that eat seeds, and chipmunks that bury pine tree seeds.]

9. Return to key vocabulary from the book. When students have finished reading, regain their attention. Let students know that you want to look back at an important science word from the book.

10. Discuss the word *habitat*. Explain that you want students to think more deeply about the word *habitat*. Have students turn to page 5 in *Habitat Scientist* and follow along as you read the page aloud.

Could our classroom be our habitat? [No, we can’t get everything we need from our classroom.]

Are plants and animals the only things in a habitat? [No, things like sun, water, and wind are part of a habitat.]

Are there different kinds of habitats on Earth? [Yes, we know about the mountain habitat and the broadleaf forest habitat.]

Why are habitats important for plants and animals? [They are important because they are the places where plants and animals get everything they need.]

11. Give the science meaning of the word. Remind students that a habitat is the place where an animal or plant lives and gets what it needs.
Embedded Formative Assessment

On-the-Fly Assessment 8: Reading About a Habitat System

Look for. As students discuss, circulate and listen for students’ understanding of what information in the book helps them meet the purpose that was set for reading: to learn more about the parts of a habitat. Are students discussing different plants, animals, and non-living things that are part of a habitat? Are they returning to the text if they are unsure about whether or not they have met the purpose for reading?

Now what? If students have trouble identifying information in the book that meets their purpose, you may want to ask students to check in with the purpose after they read each page. Ask students to record the purpose for reading on a sticky note. Have them place the sticky note on each page as they read. Encourage students to stop after each page, read the purpose on their sticky note, and then reflect on whether or not they have met (or partially met) that purpose. Depending on the needs of your class, you may wish to do this with the whole class, a small group, or with individual students.

Teacher Support

Background

Pedagogical Goals: Pausing to Reflect on the Purpose for Reading
In this activity, you ask students to pause reading and consider the purpose that was set for reading. Different pairs will likely be at different places in the book when you ask them to pause their reading. The goal for the reflection is not to engage students in a whole-class discussion about what they’ve learned so far, but to provide pairs an opportunity to monitor their own progress towards meeting the purpose that was set for reading. Pairs’ discussions also offer you insight into students’ ability to use the sense-making strategy of setting a purpose for reading.

Possible Responses

Investigation Notebook

Habitat Scientist: Parts of the Larkspur Plant’s Habitat (page 41)

- Sunlight
- Water
- Space
- Larkspur
• Hummingbirds
• Wind v
• Bees
• Snakes
• Hawks
• Chipmunks v
• Bears v
• Currant bushes
Habitat Scientist: Parts of the Larkspur Plant's Habitat

Directions:
1. Turn to page 12 in Habitat Scientist.
2. On the lines below, list the parts of the habitat.
3. Draw a check mark next to the things in your list that might help a larkspur seed get to a new place.

Parts of the Colorado Mountain Habitat

• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
Setting a Purpose for Reading

The teacher introduces *Habitat Scientist* and sets the purpose for reading. The teacher reads aloud the beginning of the book.

**Instructional Guide**

1. **Introduce *Habitat Scientist* and set a purpose for reading.** Hold up a copy of the book as you introduce it.

   > Para averiguar cómo pueden llegar las semillas a lugares nuevos en sus hábitats, primero investiguemos más acerca de las partes de un hábitat.

   Write “Learn more about the parts of a habitat” in the Reading column of the Setting a Purpose chart.

2. **Discuss plant and habitat scientists.** Remind students of their role as plant scientists and discuss what a habitat scientist does.

   > Todos los científicos intentan responder preguntas acerca del mundo natural para saber más acerca de él. Diferentes tipos de científicos estudian diferentes cosas.

   > Nosotros somos científicos y científicas de plantas. ¿Qué hacen los científicos de plantas? [Los científicos de plantas intentan responder preguntas sobre las plantas en los lugares donde viven].

   > Este libro trata sobre un científico de hábitats. ¿Qué piensan que hace un científico de hábitats? [Piense que un científico de hábitats estudia las plantas y los animales que viven en un hábitat].

3. **Remind students of the concept of systems.**

   > Cuando leímos el libro *Una planta es un sistema*, aprendemos que una planta es un sistema: un grupo de partes que trabajan juntas. Un hábitat también es un sistema.

   > La ciencia busca relaciones causa y efecto para explicar los eventos naturales en los hábitats.
4. Distribute books. Distribute one copy of *Habitat Scientist* to each pair of students.

5. Read pages 3–5 aloud and return to purpose. Have students follow along as you read. When you’ve finished, remind students that they were reading to learn more about the parts of a habitat.

Call on several volunteers to share their ideas. Students should mention water, food, sunlight, space to grow, and a place to stay safe.

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**Background**

**About the Book: Habitat Scientist**

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**Background**

**Crosscutting Concept: Systems and System Models Across Chapter 3**

In Chapter 3, students investigate the question *Why aren’t the chalta seeds getting to places where they can grow?* Students focus on the role that plants and animals play in a habitat and how these organisms rely on each other to grow and live. The system that students are investigating in this chapter is the system of a habitat. By focusing on how the plants in a habitat interact with animals, students come to understand how the parts of the habitat interact as parts of a system, and that these interactions result in seeds getting to new places where they can grow.

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Partner Reading

Pairs read the rest of *Habitat Scientist* and complete a notebook page on which they record the parts of the habitat described in the text.

**Instructional Guide**

1. **Remind students of their purpose for reading.** Let students know they will read the rest of the book and think about what else they can learn about the parts of a habitat.

2. **Pairs read.** Circulate and offer assistance as necessary.

3. **Students reflect on purpose for reading.** After 5–10 minutes, have pairs pause reading and ask them to return to their purpose for reading.

   Nuestro propósito para leer es aprender más sobre las partes de un hábitat. ¿Qué nuevas cosas han aprendido sobre las partes de un hábitat?

   Give students a couple of minutes to share their ideas with their partner.

4. **On-the-Fly Assessment: Students share their ideas with a partner.** As students discuss, circulate and listen for understanding of what information in the book helps them meet the purpose that was set for reading: to learn more about the parts of a habitat.

5. **Pairs read the rest of the book.** Have students read the rest of the book. Encourage them to continue thinking about what they can learn about the parts of a habitat as they read.

6. **Set the purpose for returning to the book.** Refer students to the Investigation Question on the board.

   Estamos intentando averiguar cómo las semillas pueden llegar a lugares nuevos. Regresemos al libro y pensemos más en esto.

7. **Project notebook page 41.** Have students turn to page 41, *Habitat Scientist: Parts of the Larkspur Plant’s Habitat*, in their notebooks. Read the directions aloud. Point out that the Colorado Mountain Habitat is the larkspur plant’s habitat. Have students complete the notebook page.
8. Project *Habitat Scientist* Mountain Habitat and have students share. Project the illustration and ask students to reflect on how seeds are moved in this habitat.

![Illustration of a mountain habitat]

- Basándose en lo que leyeron, ¿qué cosas en este hábitat podrían ayudar a las semillas a llegar a lugares nuevos? [El viento, osos que comen semillas y ardillas rayadas que entierran semillas de pinos].

9. Return to key vocabulary from the book. When students have finished reading, regain their attention. Let students know that you want to look back at an important science word from the book.

10. Discuss the word *habitat*. Explain that you want students to think more deeply about the word *habitat*. Have students turn to page 5 in *Habitat Scientist* and follow along as you read the page aloud.

- ¿Nuestro salón de clases podría ser nuestro hábitat? [No, no podemos obtener todo lo que necesitamos de nuestro salón de clases].

- ¿Las plantas y los animales son las únicas cosas en un hábitat? [No, cosas como el sol, el agua y el viento son parte de un hábitat].

- ¿Hay diferentes tipos de hábitats en la Tierra? [Sí, sabemos acerca del hábitat de la montaña y del hábitat del bosque de hoja ancha].

- ¿Por qué son importantes los hábitats para las plantas y los animales? [Son importantes porque son los lugares donde las plantas y los animales obtienen todo lo que necesitan].

11. Give the science meaning of the word. Remind students that a habitat is the place where an animal or plant lives and gets what it needs.
Embedded Formative Assessment

On-the-Fly Assessment 8: Reading About a Habitat System

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Teacher Support

Background

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In this activity, you ask students to pause reading and consider the purpose that was set for reading. Different pairs will likely be at different places in the book when you ask them to pause their reading. The goal for the reflection is not to engage students in a whole-class discussion about what they’ve learned so far, but to provide pairs an opportunity to monitor their own progress towards meeting the purpose that was set for reading. Pairs’ discussions also offer you insight into students’ ability to use the sense-making strategy of setting a purpose for reading.

Possible Responses

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- Water
- Space
- Larkspur
• Hummingbirds
• Wind ✓
• Bees
• Snakes
• Hawks
• Chipmunks ✓
• Bears ✓
• Currant bushes
Científico de hábitats: partes del hábitat de la planta espuela de caballero

Instrucciones:
1. Ve a la página 12 en Científico de hábitats.
2. Enumera las partes del hábitat en las líneas debajo.
3. Pon una marca de chequeo junto a las cosas en tu lista que podrían ayudar a una semilla de espuela de caballero a llegar a un lugar nuevo.

Partes del hábitat en las montañas de Colorado

- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________
- ___________________________________