Lesson 1.3
Investigating Animal Senses
Lesson Overview

Students continue to answer the Investigation Question: How do animals use their senses to get information about their environment? Students read Investigating Animal Senses, a book about students who investigate how animals use their senses to find food. Students are introduced to the sense-making strategy Asking Questions and practice using this strategy as they read. The book also introduces students to the scientific practice of changing only one variable at a time during an investigation. After reflecting on how students in the book investigated animal senses, the teacher demonstrates how information about the environment can be carried by sound and scent and how this information can be blocked from getting to them. The purpose of this lesson is for the class to construct the concept that sound and scent carry information about the environment and that animals have structures whose function is to get this information.

Anchor Phenomenon: The population of Tokay geckos in a rain forest in the Philippines has decreased since the installation of new highway lights.

Investigative Phenomenon: Animals get information about their environment.

Students learn:

- Sound and scent can carry information about the environment to an animal.
- Animals have different structures that allow them to get information from their environment.
- Asking questions as you read helps you better understand the text.
- In an investigation, you should only change one thing in order to tell what makes a difference.
- The methods scientists use are determined by the questions they are investigating.
- Science theories are based on a body of evidence and many tests.
- Science findings are limited to what can be answered with evidence.
- Science is a way of knowing that is used by many people.
Reading: Investigating Animal Senses

Pairs read *Investigating Animal Senses* and record questions as they read. Students reflect on whether or not their questions were on-topic.

**Instructional Guide**

1. **Introduce Partner Reading Guidelines.** Let students know that they will read the book with a partner. Point out the guidelines that you posted on the wall and review them with the class. If Partner Reading is an unfamiliar activity for your students, let them know they can refer to the guidelines as they read.

2. **Review the reading task.** Explain that students should take turns reading and recording questions in their Investigation Notebooks. Pairs should record their own questions when they read; they do not need to have the same questions as their partner. You may want to discuss how pairs can share a book and still stop and record their own questions individually.

3. **Pairs read.** Provide students with time to read the rest of the book with their partners. Remind them to record their questions and answers in their notebooks as they read.

4. **On-the-Fly Assessment: Partners ask questions as they read.** Circulate as students read, listening to and making notes about the questions students are asking.

5. **Introduce the first guideline on the Asking Questions When You Read chart.** Refer students to the chart. Explain that having an on-topic question helps you stay focused on the important information of a text.

   - **Model asking an off-topic question.** Hold up a copy of *Investigating Animal Senses* open to pages 4–5 and model asking an off-topic question.

   I know this book is about kids who are investigating animal senses. If I asked *What is the name of their school?*, that doesn’t help me think about animals and how they use their senses.
Have students review their notebook page and draw a star by any questions that are on-topic. Explain that the next time students read, they can focus on asking the on-topic questions.

7. Discuss students’ questions. Have students turn and share the questions they asked while reading with a partner. Then invite several students to share with the class the questions they asked during reading.

8. Collect the books.

Embedded Formative Assessment

On-the-Fly Assessment 2: Asking Questions

Look for: This is students’ first opportunity to ask questions while reading in order to deepen their understanding of the text. This lesson serves as an introduction to the sense-making strategy of asking questions and is a chance for students to try out the strategy themselves with Investigating Animal Senses. Students will continue to develop facility with this strategy throughout the unit through additional modeling and continued practice. As you circulate, make note of the questions that students are asking. Do their questions relate to the Investigation Question? Will their questions help them think about how animals use their senses to get information about their environment?

Now what? If students are having trouble getting started with asking questions, or if they are asking unrelated questions, you may want to provide additional modeling by using another example from Investigating Animal Senses. Depending on how many students need this support, you could either coach a few students individually during the Partner Reading activity, or you could work with a small group or the whole class. Remind students that they are trying to figure out how animals use their senses to get information about their environment.

Teacher Support

Rationale

Literacy Note: Partner Reading
Throughout this unit, we suggest that students read the books with a partner. This allows students time to apply and practice the reading strategies they’re learning, keeps them focused on the task at hand, and provides opportunities for them to assist each other with reading. Of course, you can use any effective reading procedures you’ve already established with your class. Before reading this first book in the unit, you may need to provide instruction on how to read with a partner by using the Partner Reading Guidelines (provided in Digital Resources) or your own guidelines. Establishing procedures takes time at first, but will pay off in terms of student learning and management of the lessons. Over time, students gain practice working together and will need fewer reminders about reading together effectively.
Background

Literacy Note: Teaching Science Vocabulary in Context
To know a word is to know more than just its definition. Sophisticated word knowledge involves an understanding of how words relate to other words and how words are used in context. The vocabulary words for this unit were strategically selected to support students’ learning of science concepts and their understanding of the practices of science. Throughout the unit, words are usually introduced after students have had multiple opportunities to hear and see the words in context. Students will be exposed to unit vocabulary words many times, in many ways, to help them develop flexible word knowledge. In this lesson, students read about how the children in the book investigate animal senses. You may wish to discuss the word investigation in more detail after students have had a chance to read the word used in context.

Rationale

Literacy Note: Asking Questions When You Read Chart
The Asking Questions When You Read chart will be used both when students read and when students investigate. The guidelines are further supported in a table located in the Investigation Notebooks. In this lesson, students are introduced to the first Asking Questions When You Read guideline. Students’ questions are expected to be on-topic; their questions should help them think about the content of the unit. In Lesson 2.3, the next reading lesson, students are introduced to the second guideline. As students progress through the unit, they will learn more ways to investigate, both through their own investigations and through reading about how a real scientist investigates in Chapter 3.

Rationale

Pedagogical Goals: Focal Science Practice
Students are introduced to the focal practice of changing only one variable at a time when they read Investigating Animal Senses. Changing one variable at a time in an investigation is an essential aspect of conducting controlled experiments. By changing one variable at a time, scientists can gather empirical evidence of the effect this change had on experimental outcomes. This lesson marks students’ introduction to the scientific practice of changing one variable at a time, which they will return to throughout the unit to build mastery of this practice over time.

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 calls out eight understandings about the nature of science that are woven throughout the Amplify Science curriculum. This unit gives students an opportunity to experience the following four understandings about the nature of science: 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 Investigating Animal Senses illustrates the ideas that science is a way of knowing that is used by many people and that the methods scientists use are determined by the questions they are investigating. In the book, different groups of students design investigations to answer questions about how animals use their senses to find food. The students incorporate different materials into their investigations to gather evidence about their ideas and they perform multiple tests, which illustrates the idea that science theories are based on a body of evidence and many tests. The students in the book also find evidence for some of their ideas but not all of them, which demonstrates that science findings are limited to what can be answered with evidence.
Possible Responses

Investigation Notebook
Asking Questions When Reading: Investigating Animal Senses (page 11)

Answers will vary.
Asking Questions When You Read (1.3)

- Is my question on topic? (1.3)
- Is there information in the book to help me answer my question? (2.3)
- What else could I do to investigate my question? (3.2)
- What new questions do I have? (3.2)
### Asking Questions When Reading: *Investigating Animal Senses*

1. As you read the book, record questions you have.

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Investigating Animal Senses
Reading: Investigating Animal Senses

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4. **On-the-Fly Assessment:** Partners ask questions as they read. Circulate as students read, listening to and making notes about the questions students are asking.

5. **Introduce the first guideline on the Asking Questions When You Read chart.** Refer students to the chart. Explain that having an on-topic question helps you stay focused on the important information of a text.

   - **Model asking an off-topic question.** Hold up a copy of *Investigating Animal Senses* open to pages 4–5 and model asking an off-topic question.

> Sé que este libro se trata de unos niños que están investigando los sentidos de los animales. Si preguntara ¿cuál es el nombre de su escuela?, eso no me ayudaría a pensar sobre animales y sobre cómo usan sus sentidos.
6. **Have students star on-topic questions in their notebooks.** Have students review their notebook page and draw a star by any questions that are on-topic. Explain that the next time students read, they can focus on asking the on-topic questions.

7. **Discuss students’ questions.** Have students turn and share the questions they asked while reading with a partner. Then invite several students to share with the class the questions they asked during reading.

8. **Collect the books.**

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**Embedded Formative Assessment**

**On-the-Fly Assessment 2: Asking Questions**

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**Teacher Support**

**Rationale**

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Possible Responses

Investigation Notebook
Asking Questions When Reading: Investigating Animal Senses (page 11)

Answers will vary.
Hacer preguntas al leer: *Investigar los sentidos de los animales*

1. Mientras lees el libro, apunta las preguntas que tengas.