Lesson 3.2
Environment News
Lesson Overview

Students read *Environment News*, a book that chronicles three different environmental changes and how each change affected which traits were adaptive in a particular population of organisms. Partners choose one of three sets of news stories to read, make inferences as they read, and discuss their inferences with their partners. After reading, each student is paired with a new partner who read about a different population of organisms, and these new pairs share how the population they read about was affected by an environmental change. Students engage in the Think-Write-Pair-Share routine to reflect on how traits could be adaptive in one environment and non-adaptive in another. The class discusses how these ideas connect to the crosscutting concept of Structure and Function. The purpose of this lesson is for students to continue developing their understanding of the concept that environmental changes can affect whether a trait is adaptive or non-adaptive.

**Anchor Phenomenon:** Over the past 10 years, the snails with yellow shells have not survived as well as the snails with banded shells. Before that time, snails with yellow shells were surviving as well as snails with banded shells.

**Investigative Phenomenon:** Traits in populations of cliff swallows, armadillo lizards, and gloxinia plants change after a change in the environment.

**Students learn:**

- Environments can be changed in many different ways, such as by drought, fire, or as a result of human impact.
- Discussing a text with others can help you understand key ideas.
Introducing Environment News

Students are introduced to the book *Environment News* and practice making inferences.

Instructional Guide

1. **Return to the Investigation Question.** Draw students’ attention to the Investigation Question on the board.

   We are still trying to figure out how organisms can have traits that are adaptive at one time and non-adaptive at another time.

   In the Marmot Survival Model, light fur color was an adaptive trait for the marmots at first—more marmots with light-colored fur were able to avoid being eaten by the golden eagles. Then, dark fur color became an adaptive trait. Why did this happen? [The environment changed. The glacier melted, and there was dark rock underneath. When the environment changed from white to dark, the trait for dark fur color became adaptive.]

   Call on several students to share their ideas.

2. **Summarize students’ ideas and focus on environment.**

   So, we figured out that when the environment changed from glacier to dark rock, the marmot trait for dark fur became adaptive, and the trait for light fur became non-adaptive.

3. **Introduce *Environment News* and set purpose for reading.** Hold up a copy of the book.

   This book has news stories about three different environments that changed. The news stories describe what happened to a particular population of organisms in each environment when that environment changed.

   Today, you will each read about one population of organisms.

4. **Distribute books.** Distribute one copy of *Environment News* to each pair.
5. **Review the Contents.** Have students turn to page 3.

The table of contents tells us that the book contains sections about three different populations of organisms: cliff swallows, armadillo lizards, and gloxinia plants.

Explain that you will read the introduction together.

6. **Read aloud page 4.** Have students turn to page 4 and follow along as you read aloud. After reading, focus students on changes to the environments.

I read that the book is about changes to environments and how the changes had something to do with whether an organism’s traits are adaptive or non-adaptive.

7. **Read aloud page 5.** Have students turn to page 5.

- **Focus on photographs and labels.** Have students examine each photograph and its label.

I can see that the environment in this area has changed. What caused it to change? [A fire.]

- **Read aloud the caption.** Read aloud the caption at the bottom of the page.

This environment was changed by a wildfire. Different plants are growing after the fire. How do you think this change might affect the other organisms in the environment?

Accept all responses.

8. **Remind students of the strategy of making inferences.**

The book doesn’t say how other organisms were affected by the change in the environment, but we can make an inference to figure that out.

When you read, you can make inferences based on what you observe in the photographs and what you read in the text, together with what you already know.

9. **Model making an inference.**

I observe that months after the fire, the plants close to the ground are smaller, and there is more space between them. The grassy plants that used to cover the ground aren’t there anymore. So, I can make an inference that the grassy plants aren’t as likely to survive months after the fire.

10. **Students make inferences.** Encourage students to connect what they read or observed with something they already know in order to make inferences.
What other inferences can you make about how the change in this environment might affect organisms in the environment?

Have pairs discuss and then call on several students to share their ideas.

Teacher Support

Instructional Suggestion

Providing More Experience: Today’s Daily Written Reflection

*What are some ways that environments can change?* This prompt (on page 46 in the Investigation Notebook) asks students to reflect on what they learned in the previous lesson about how environments can change. In addition, it provides students the opportunity to draw on their background knowledge about how environments can change and to record their own ideas and experiences.

Background

About the Book: *Environment News*

*Environment News* showcases three examples of how a change in environment can cause traits that were once adaptive to become non-adaptive, or vice versa. These three examples, featuring cliff swallows, armadillo lizards, and gloxinia plants, are presented as a series of news articles based on real-life problems caused by drought and human activity. Readers are taken back in time as they read the news articles. As each situation unfolds, they learn why and how changes in a particular environment happened and how these changes affected the survival of organisms in that environment. This book provides students with several examples of how a trait that helps an organism survive in one environment may no longer help it survive if that environment changes. In addition to providing context for students’ investigations by presenting illustrative examples of adaptive and non-adaptive traits, this book reinforces the important, but often misunderstood, concept that an organism can’t just change its traits to be adaptive in a new environment.

Rationale

Literacy Note: Approach to Making Inferences

Skillful readers use the sense-making strategy of making inferences to actively engage with the text. With each book, the reading scaffolds are lessened, which allows students to read more independently as the unit progresses. In this activity, you briefly model making an inference and then release more of the responsibility for making inferences to students by having them discuss and make inferences with their partners.
Partner Reading

Students browse and then read *Environment News* with a partner and record inferences while reading.

**Instructional Guide**

1. **Introduce structure of the book.**

   The rest of this book is a collection of news stories about the three different populations of organisms: cliff swallows, armadillo lizards, and gloxinia plants.

2. **Orient students to the news source and date on page 6.** Have students turn to page 6. Point out that the title at the top indicates that this news story is from a magazine called the *Nebraska Bird Watchers Magazine*. Point out the date to the right of the magazine title and explain that this indicates that the news story was written in the year 1954.

3. **Partners browse the book.**

   You and your partner will browse through the book to see what other types of news stories are in it. In a moment, you and your partner will choose one organism to read about. Think about this as you browse, as well.

   Explain that students should briefly browse each page, spending enough time to understand what kind of news stories are in the book.

4. **Briefly discuss different news sources and dates.** Ask students to briefly share what they noticed about the types of news stories.

   - **Have students turn to pages 6–7.** Point out the 20 years later heading in the upper-right corner of page 7. Explain that each section has three different news stories from different times. Students should look at the headings above the second and third news story in a section to get a sense of how much time has passed between one news story and the next. They can also pay attention to the dates on the news stories.
5. **Pairs choose a section to read.** Give pairs a minute to agree on which population they will read about. Alternatively, you may assign populations to students. If you have students choose, check to ensure that no more than half the class has chosen the same population. Let students know that after they read, they will discuss what they read with a new partner who read about a different population.

6. **Introduce page 48, Making Inferences When Reading: Environment News, in the notebook.** Have students turn to page 48 in their notebooks. Remind students that they will record inferences as they read, just as they did when they read *Earthworms Underground* and *Mystery Mouths*. Make sure students understand that they only need to read the three news stories about the population they chose.

7. **On-the-Fly Assessment: Students read about one population and record their inferences.** Circulate and listen to how students are using what they observe and what they already know to make inferences as they read. Notice the inferences that students decide to record in their notebooks.

8. **Project Discussing Inferences.** Read aloud the sentence frames. Explain that students should choose one of their inferences to discuss with their partners and use this language when they discuss the inference they recorded.

   **Discussing Inferences**

   I observed/read that ________________.
   
   I already know that ________________.
   
   So, my inference is ________________.

9. **Whole-class share.** If time allows, call on a few students to share the inferences they made.
Embedded Formative Assessment

On-the-Fly Assessment 8: Making Inferences About Environment News

Look for: This is students’ third opportunity to independently make inferences when reading. Look for students to clearly combine the text with an idea from their background knowledge to make an inference. This inference should be something that is not explicitly stated in the text. Students’ inferences may vary widely, and that is okay in this context. To engage in the practice of making inferences, it is most important that students can combine what they read with their own ideas to draw a conclusion.

Now what? If students need more support with making inferences, guide them to make inferences from the photographs in Environment News. For example, have students turn to page 11 and observe the photographs of the environment before the drought and during the drought. Ask students what they observe. Then, ask them what inference they can make about how this environment change would affect organisms living there. If necessary, explain that a drought is when it hasn’t rained much for a long time and there is not very much water in an environment. You can use additional questions to prompt students to make inferences (e.g., Why are there so few plants during the drought?) As students explain their answers, point out that they are using what they know (e.g., plants need water to survive, a drought means that there is not much water in the environment) and what they observe (e.g., there are no plants visible in the photograph taken during the drought) to make the inference that the drought caused many plants to die.

Teacher Support

Rationale

Literacy Note: Why Have Students Choose Only One Organism to Read About?
Environment News showcases three examples of how a change in environment can cause traits that were once adaptive to become non-adaptive, or vice versa. Instead of taking the time to read the entire book, students focus on one section and have the time to make sense of what they read—through talking with their partners as well as recording their inferences in their notebooks. Having students read only one section of the book provides the opportunity for each student to be an “expert” about their organism and provides motivation for students to tell others about what they’ve read and to listen to others as they share what they read.

Possible Responses

Investigation Notebook
Making Inferences When Reading: Environment News (page 48)
Answers will vary. Examples:

Page 6
Cliff swallows build nests out of mud.
The mud dries out and turns hard. It probably doesn’t rain much there or else the mud nests might break.

Page 7
They built a highway in Nebraska.
The highway could be dangerous for the cliff swallows.

Page 9
Cliff swallows can’t just decide to have shorter wings.
Cliff swallows can’t change the way their body structure is.
**Making Inferences When Reading: Environment News**

Directions:
1. Make inferences as you read *Environment News* to help you understand the book.
2. In the table below, record the page number and what you observed or read.
3. Then, record the inference you made.

<table>
<thead>
<tr>
<th>Page number</th>
<th>I observed/read that . . .</th>
<th>My inference is . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page:</td>
<td></td>
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<td>Page:</td>
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<td>Page:</td>
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</table>
Introducing Environment News

Students are introduced to the book *Environment News* and practice making inferences.

### Instructional Guide

1. **Return to the Investigation Question.** Draw students’ attention to the Investigation Question on the board.

   - Todavía estamos tratando de averiguar cómo pueden los organismos tener rasgos que son adaptativos en un momento y no adaptativos en otro.

   - En el Modelo de supervivencia de la marmota, el color de pelaje claro era al principio un rasgo adaptativo para las marmotas, es decir, más marmotas con pelaje de color claro podían evitar ser comidas por las águilas caudal. Luego, el color de pelaje oscuro se convirtió en un rasgo adaptativo. ¿Por qué sucedió esto? [El ambiente cambió. El glaciar se derritió y había roca oscura debajo. Cuando el ambiente cambió de blanco a oscuro, el rasgo para el color de pelaje oscuro se convirtió en adaptativo].

   Call on several students to share their ideas.

2. **Summarize students’ ideas and focus on environment.**

   - So, we figured out that when the environment changed from glacier to dark rock, the marmot trait for dark fur became adaptive, and the trait for light fur became non-adaptive.

3. **Introduce *Environment News* and set purpose for reading.** Hold up a copy of the book.

   - Este libro tiene historias de noticias sobre tres ambientes distintos que cambiaron. Las historias de noticias describen qué le sucedió a una población de organismos en particular en cada ambiente cuando el ambiente cambió.

   - Hoy cada uno de ustedes leerá acerca de una población de organismos.

4. **Distribute books.** Distribute one copy of *Environment News* to each pair.
5. **Review the Contents.** Have students turn to page 3.

   La tabla de contenido señala que el libro contiene secciones sobre tres poblaciones de organismos distintas: golondrinas de los acantilados, lagartos armadillo y plantas de gloxinia.

   Explain that you will read the introduction together.

6. **Read aloud page 4.** Have students turn to page 4 and follow along as you read aloud. After reading, focus students on changes to the environments.

   Yo leí que el libro se trata de cambios a los ambientes y cómo estos cambios estaban relacionados a si los rasgos de un organismo son adaptativos o no adaptativos.

7. **Read aloud page 5.** Have students turn to page 5.

   - **Focus on photographs and labels.** Have students examine each photograph and its label.

   Puedo ver que el ambiente en esta área ha cambiado. ¿qué causó que cambiara? [Un incendio].

   - **Read aloud the caption.** Read aloud the caption at the bottom of the page.

   Este ambiente fue cambiado por un incendio forestal. Hay plantas diferentes creciendo después del incendio. ¿Cómo piensan ustedes que este cambio podría afectar a los otros organismos en el ambiente?

8. **Remind students of the strategy of making inferences.**

   El libro no dice cómo fueron afectados otros organismos por el cambio en el ambiente, pero podemos hacer una inferencia para resolverlo.

   Cuando leen, pueden hacer inferencias basándose en lo que observan en las fotos y en lo que leen en el texto, eso sumado a lo que ya conocen.

9. **Model making an inference.**

   Yo observo que unos meses después del incendio, las plantas cerca del suelo son más pequeñas y hay más espacio entre ellas. Las plantas de los pastizales que solían cubrir el suelo ya no están. Así que puedo inferir que las plantas de los pastizales no tienen tantas probabilidades de sobrevivir meses después del incendio.

10. **Students make inferences.** Encourage students to connect what they read or observed with something they already know in order to make inferences.

   ¿Qué otras inferencias pueden hacer sobre cómo el cambio en este ambiente podría afectar a los organismos del ambiente?
Have pairs discuss and then call on several students to share their ideas.

Teacher Support

Instructional Suggestion

Providing More Experience: Today’s Daily Written Reflection

*What are some ways that environments can change?* This prompt (on page 46 in the Investigation Notebook) asks students to reflect on what they learned in the previous lesson about how environments can change. In addition, it provides students the opportunity to draw on their background knowledge about how environments can change and to record their own ideas and experiences.

Background

About the Book: *Environment News*

*Environment News* showcases three examples of how a change in environment can cause traits that were once adaptive to become non-adaptive, or vice versa. These three examples, featuring cliff swallows, armadillo lizards, and gloxinia plants, are presented as a series of news articles based on real-life problems caused by drought and human activity. Readers are taken back in time as they read the news articles. As each situation unfolds, they learn why and how changes in a particular environment happened and how these changes affected the survival of organisms in that environment. This book provides students with several examples of how a trait that helps an organism survive in one environment may no longer help it survive if that environment changes. In addition to providing context for students’ investigations by presenting illustrative examples of adaptive and non-adaptive traits, this book reinforces the important, but often misunderstood, concept that an organism can’t just change its traits to be adaptive in a new environment.

Rationale

Literacy Note: Approach to Making Inferences

Skillful readers use the sense-making strategy of making inferences to actively engage with the text. With each book, the reading scaffolds are lessened, which allows students to read more independently as the unit progresses. In this activity, you briefly model making an inference and then release more of the responsibility for making inferences to students by having them discuss and make inferences with their partners.
Partner Reading

Students browse and then read *Environment News* with a partner and record inferences while reading.

**Instructional Guide**

1. **Introduce structure of the book.**

   El resto de este libro es una colección de historias de noticias sobre las tres diferentes poblaciones de organismos: golondrinas de los acantilados, lagartos armadillo y plantas de gloxinia.

2. **Orient students to the news source and date on page 6.** Have students turn to page 6. Point out that the title at the top indicates that this news story is from a magazine called the *Nebraska Bird Watchers Magazine*. Point out the date to the right of the magazine title and explain that this indicates that the news story was written in the year 1954.

3. **Partners browse the book.**

   La gente lee las noticias en diferentes lugares. En parejas, van a hojear el libro para ver qué otro tipo de noticias hay. Dentro de un momento, van a elegir un organismo sobre el cual leer. Piensen en eso también mientras van hojando el libro.

   Explain that students should briefly browse each page, spending enough time to understand what kind of news stories are in the book.

4. **Briefly discuss different news sources and dates.** Ask students to briefly share what they noticed about the types of news stories.

   - **Have students turn to pages 6–7.** Point out the *20 years later* heading in the upper-right corner of page 7. Explain that each section has three different news stories from different times. Students should look at the headings above the second and third news story in a section to get a sense of how much time has passed between one news story and the next. They can also pay attention to the dates on the news stories.
5. **Pairs choose a section to read.** Give pairs a minute to agree on which population they will read about. Alternatively, you may assign populations to students. If you have students choose, check to ensure that no more than half the class has chosen the same population. Let students know that after they read, they will discuss what they read with a new partner who read about a different population.

6. **Introduce page 48, Making Inferences When Reading:** *Environment News, in the notebook.* Have students turn to page 48 in their notebooks. Remind students that they will record inferences as they read, just as they did when they read *Earthworms Underground* and *Mystery Mouths.* Make sure students understand that they only need to read the three news stories about the population they chose.

7. **On-the-Fly Assessment:** Students read about one population and record their inferences. Circulate and listen to how students are using what they observe and what they already know to make inferences as they read. Notice the inferences that students decide to record in their notebooks.

8. **Project Discussing Inferences.** Read aloud the sentence frames. Explain that students should choose one of their inferences to discuss with their partners and use this language when they discuss the inference they recorded.

   **Discutir inferencias**

   - Observé/Leí que ________________ .
   - Ya sé que ________________ .
   - Entonces, mi inferencia es ________________ .

9. **Whole-class share.** If time allows, call on a few students to share the inferences they made.
Embedded Formative Assessment

**On-the-Fly Assessment 8: Making Inferences About Environment News**

**Look for:** This is students’ third opportunity to independently make inferences when reading. Look for students to clearly combine the text with an idea from their background knowledge to make an inference. This inference should be something that is not explicitly stated in the text. Students’ inferences may vary widely, and that is okay in this context. To engage in the practice of making inferences, it is most important that students can combine what they read with their own ideas to draw a conclusion.

**Now what?** If students need more support with making inferences, guide them to make inferences from the photographs in Environment News. For example, have students turn to page 11 and observe the photographs of the environment before the drought and during the drought. Ask students what they observe. Then, ask them what inference they can make about how this environment change would affect organisms living there. If necessary, explain that a drought is when it hasn’t rained much for a long time and there is not very much water in an environment. You can use additional questions to prompt students to make inferences (e.g., Why are there so few plants during the drought?) As students explain their answers, point out that they are using what they know (e.g., plants need water to survive, a drought means that there is not much water in the environment) and what they observe (e.g., there are no plants visible in the photograph taken during the drought) to make the inference that the drought caused many plants to die.

Teacher Support

**Rationale**

**Literacy Note: Why Have Students Choose Only One Organism to Read About?**

*Environment News* showcases three examples of how a change in environment can cause traits that were once adaptive to become non-adaptive, or vice versa. Instead of taking the time to read the entire book, students focus on one section and have the time to make sense of what they read—through talking with their partners as well as recording their inferences in their notebooks. Having students read only one section of the book provides the opportunity for each student to be an “expert” about their organism and provides motivation for students to tell others about what they’ve read and to listen to others as they share what they read.

**Possible Responses**

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Making Inferences When Reading: *Environment News* (page 48)
Answers will vary. Examples:

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Cliff swallows build nests out of mud.
The mud dries out and turns hard. It probably doesn’t rain much there or else the mud nests might break.

Page 7
They built a highway in Nebraska.
The highway could be dangerous for the cliff swallows.

Page 9
Cliff swallows can’t just decide to have shorter wings.
Cliff swallows can’t change the way their body structure is.
Hacer inferencias al leer: Noticias de ambientes

Instrucciones:
1. Haz inferencias mientras lees Noticias de ambientes para ayudarte a entender el libro.
2. En la tabla debajo, apunta el número de página y lo que observaste o leíste.
3. Luego, apunta la inferencia que hiciste.

<table>
<thead>
<tr>
<th>Número de página</th>
<th>Observé/leí que...</th>
<th>Mi inferencia es...</th>
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</thead>
<tbody>
<tr>
<td>Página:</td>
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