Lesson 1.3
Matter Makes It All Up
Lesson Overview

In this lesson, students explore initial ideas about the Investigation Question: How do animals grow? First, students engage with a teacher demonstration of the Scale Tool, a digital app that depicts the vast difference in scale between atoms, molecules, and a variety of organisms. As they read Matter Makes It All Up, students learn that everything is made of matter, including the bodies of animals. The teacher then creates the Matter chart—a visual representation of how matter, molecules, and atoms are related—with the class. After discussing these relationships, students return to the text to record information for a discussion about how animals grow by adding matter to their bodies. This discussion allows students to synthesize ideas from the text to reach a new understanding about the Investigation Question, on which they will continue to build in subsequent lessons. The purpose of this lesson is for students to explore the idea that all living things in an ecosystem are made of matter which, in turn, are made of molecules.

Anchor Phenomenon: The jaguars, sloths, and cecropia trees in a reforested section of a Costa Rican rain forest are not growing and thriving.

Investigative Phenomenon: A baby alligator grows into an adult.

Students learn:

- Organisms are made of matter. Matter is made of molecules.
- Molecules are tiny bits of matter that are too small to be seen.
- Synthesizing can help readers understand informational text.
Partner Reading

Pairs read *Matter Makes It All Up* and discuss ideas from the book.

Instructional Guide

1. **Introduce the Partner Reading Guidelines.** Let students know that they will now read the first half of the book *Matter Makes It All Up* with a partner. Point out the guidelines that you posted 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. Designate partners and distribute books.

3. Set purpose for reading.

   As you read, think about the question *How do animals grow?* Let’s read the first few pages together and think about this question.

4. **Read pages 3–5 together.** Call on volunteers to take turns reading while the rest of the class follows along.

5. **Discuss the text.** Stop on page 5 and point out an important idea.

   We did not yet read anything about animals growing, but we did read an important idea that connects to what we observed in the Scale Tool. On page 5, it says that everything in an ecosystem is made of billions and trillions of atoms and molecules that are too small to see.

6. **Remind students of the purpose for reading.** Let students know that you’d like them to read pages 6–11 with their partners. Remind them to continue thinking about the question *How do animals grow?* as they read.

7. **Partners read pages 6–11.** Encourage students to examine the photos, diagrams, and captions in order to help them better understand the text. Circulate and provide support as partners read.
Teacher Support

Background

About the Book: *Matter Makes It All Up*

*Matter Makes It All Up* explores the fundamental concept that everything in an ecosystem—both living and nonliving parts—is made of matter. Through engaging examples, students learn that matter makes up everything and that matter itself is made of atoms and molecules. The book also introduces the idea that matter moves through ecosystems. Using the example of an alligator in the Everglades Swamp ecosystem, the book follows how matter from what the alligator eats becomes part of its body as it grows and thrives in its environment. As matter is traced through the ecosystem, students learn that ecologists use food webs to show the movement of matter in an ecosystem from one organism to another. This book sets the context for the unit and introduces vocabulary and concepts that will be used extensively throughout the unit.

Instructional Suggestion

Literacy Note: Suggested Approach to Reading

Throughout the unit, we encourage you to provide an opportunity for partners to do a First Read of each of the books, followed by a shared class reading. During the Shared Reading, you can pause to discuss the text or pose during-reading questions. You can also guide students in making sense of challenging vocabulary. You may want to vary this approach given the needs of your students and your classroom routines.

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 of 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.

Rationale

Pedagogical Goals: Informational Text

A major goal of the Amplify Science curriculum is to deepen students’ awareness of and experience with the genres of science writing they are likely to encounter in school and in their lives outside of school. This curriculum is designed to address the Common Core State Standards for English Language Arts (CCSS-ELA) related to reading and writing informational text, with a specific focus on science text. Learning effective strategies and approaches for comprehension of informational text is extremely important for success in school, yet reading and writing these texts can be challenging for many students. The student books and related investigations in this curriculum provide explicit, supportive instruction around how to tackle informational text.

Background

Literacy Note: Teaching Vocabulary in the Context of Reading

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. In this unit, students are introduced to a small number
of conceptually important words, and students are exposed to these words many times in many ways to help them develop flexible word knowledge. In this lesson, students learn that matter is made up of molecules. The Partner Reading activity gives students the opportunity to read and discuss the words growth, matter, and molecule in context.
Synthesizing Ideas About How Animals Grow

1. Reread pages 8–11 of *Matter Makes It All Up* and think about the question below.
2. Record information in the boxes that could help answer the question.
3. Connect ideas together to come up with a new understanding that answers the question.
4. Record the new understanding in the box below the arrow.

Question: How do animals grow?

Page:

Page:

Page:

New understanding:
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2. **Designate partners and distribute books.**

3. **Set purpose for reading.**

   Mientras leen, piensen en la pregunta ¿Cómo crecen los animales? Leamos juntos las primeras páginas del libro y pensemos en esta pregunta.

4. **Read pages 3–5 together.** Call on volunteers to take turns reading while the rest of the class follows along.

5. **Discuss the text.** Stop on page 5 and point out an important idea.

   Aún no hemos leído nada sobre los animales creciendo, pero sí leimos una idea importante que se relaciona con lo que observamos en la Herramienta de escala. En la página 5, dice que todo en un ecosistema está hecho de billones y trillones de átomos y moléculas que son demasiado pequeños para verlos.

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Sintetizar ideas sobre cómo crecen los animales

1. Vuelve a leer las páginas 8 a 11 de La materia constituye todo y piensa en la pregunta siguiente.
2. En los cuadros, apunta información que podría ayudar a responder la pregunta.
3. Conecta las ideas para llegar a una nueva comprensión que responda la pregunta.
4. Apunta la nueva comprensión en el cuadro debajo de la flecha.

Pregunta: ¿Cómo crecen los animales?

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Nueva comprensión: