Lesson 1.2
Tortoise Parts
Lesson Overview

Students learn about how animals use the structures on their bodies to help meet their survival needs. The teacher introduces the visualizing strategy and leads a Shared Reading of *Tortoise Parts* to provide students with examples of how an animal uses its structures to do what it needs to do to survive. Partners observe each other eating carrots to gather evidence of how another animal, a human, uses its structures to get and eat food. Students share these observations with the class and make connections to how the tortoise uses its structures in *Tortoise Parts*. The teacher introduces the What Scientists Do chart as a place to record how students work as scientists throughout the unit. The purpose of this lesson is to lay the foundation for students to understand that living things have body parts that help them meet their survival needs.

**Anchor phenomenon:** Spruce the Sea Turtle will survive in the ocean.

**Investigative phenomenon:** A tortoise survives.

**Students learn:**

- Visualizing how something happens can help scientists understand pictures and words as they read.
- Observing animals and plants helps scientists understand how living things survive.
- Animals have structures with functions that help them get and eat their food.
- Scientists start with questions and conduct investigations to find answers.
Reading: Tortoise Parts

The teacher leads a Shared Reading of *Tortoise Parts* and introduces the strategy of visualizing while reading.

Instructional Guide

1. Revisit the aquarium.
   - We have been working as aquarium scientists to help the aquarium director. We are trying to help the director explain to kids who visit the aquarium how sea turtles, like Spruce, survive in the ocean.

2. Connect to prior learning.
   - In our last lesson, we thought about what animals and plants need to do to survive. During the Survival Game, we figured out that animals and plants need certain things to survive. What did we learn that animals and plants need to survive?
     - [They need to get air. They need to get water. They need to get food.]
   - Spruce the Sea Turtle is an animal. Just like other living things, she needs to get air, water, and food to survive. Now we can work to figure out how Spruce gets these things that she needs to survive.

3. Introduce the Investigation Question. Discuss how scientists often ask follow-up questions to help them learn about their first question.
   - Sometimes, scientists ask other questions that can help them answer part of the first question they asked. As scientists, we need to figure out how animals and plants do what they need to do to survive.

   Read aloud the Investigation Question you have written on the board, pointing to each word.
   - How do animals and plants do what they need to do to survive?

4. Introduce the book *Tortoise Parts*.  

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Today we will read a book about one kind of animal—a tortoise. Learning about one kind of animal will help us figure out more about many different animals and plants, and how they do what they need to do to survive.

5. Display the front cover of *Tortoise Parts*. Read the title and invite students to share what they notice on the cover.

6. Clarify the distinction between tortoises and sea turtles.

- Tortoises and sea turtles are animals that look similar to each other, but they are different kinds of animals.

Point to the tortoises on the front cover of the book.

- Tortoises live on land. Sea turtles, like Spruce, live in the water.


- An important way that readers learn from a book is to visualize as they read. When you visualize, you make a picture or movie in your mind.

Point to the “beaky mouth” label on page 6.

- The tortoise uses this structure—its beaky mouth—to bite leaves. We can see in the picture that the beaky mouth is sharp. I can visualize, or make a movie in my mind, about the sharp, beaky mouth biting leaves and ripping the leaves off the plant. Then, I visualize the tortoise closing its mouth and chewing the leaves.

- The beaky mouth helps the tortoise survive because it helps the tortoise get the food it needs to survive.

Invite students to close their eyes and visualize the tortoise using its beaky mouth to eat leaves.

- Visualizing helps us figure out how a tortoise does what it needs to do to survive. As we read, we will continue to visualize to help figure out how tortoises do what they need to do to survive.

8. Continue reading and pause at the end of page 9. Pause to visualize how the turtle uses its long neck. Point to the “long neck” label on page 8.

- The tortoise uses this structure—its long neck—to reach up to the food it needs. I am going to visualize, or make a movie in my mind, the neck stretching out and reaching up to help the tortoise get a leaf that is up off the ground.

Invite students to close their eyes and visualize the tortoise using its long neck to reach up to get leaves.

- The long neck helps the tortoise survive because it helps the tortoise get the food it needs to survive.
9. **On-the-Fly Assessment: Students visualize external structures.** Continue reading, prompting students to visualize each structure in use. After reading about each new structure, have students to close their eyes and visualize the tortoise using the structure. Invite a few students to describe what they saw when they visualized.

10. **Pause at the end of page 17 and have students visualize and discuss the external structure.** Point to the “eyes” label on page 16.

   - How do you think the tortoise uses this structure—its eyes?
   - Ask students to close their eyes and visualize the tortoise using its eyes to survive.
   - How do eyes help the tortoise survive?
   - Invite students to share their ideas with a partner.

11. **Continue reading to the end of the book.**

12. **Introduce the word structure with the vocabulary routine.** Hold up the *structure* vocabulary card.

   - This is the word *structure*. A structure is a part of an object or a living thing that does something.
   - We are going to practice saying the word. Say the word after me: *structure*.
   - Now say the word together: *structure*.
   - Now whisper the word *structure* to your partner.
   - A structure is a part of an object or a living thing that does something.

Post the *structure* vocabulary card to the Vocabulary section of the classroom wall.
Embedded Formative Assessment

On-the-Fly Assessment 1: Visualizing Tortoise Structures in Use

Look for: Students’ descriptions of their visualizations of the tortoise using its various structures presents an opportunity to informally assess their initial ability to visualize based on what they see and read. Visualizing information read or seen in books is the focal sense-making strategy for this unit. In general, students should describe visualizations that reflect the elements in the image and text. For example, a student might say something like I saw the big toenails ripping and pushing the dirt behind the tortoise.

Now what? As students share what they visualized, take time to repeat one or two examples of visualizing that drew on the text and images, and emphasize those connections. For example, you might say something like We read about the tortoise’s big toenails and can see its feet in the dirt in this picture. You visualized those big toenails pushing that dirt backward, behind the tortoise. Good visualizing starts with the things we see and read, and uses them to imagine something more.

Teacher Support

Rationale

Pedagogical Goals: Visualizing
The cognitive strategy selected for this unit is visualizing by creating mental pictures in the mind to recall, refine, and clarify key information. Scientists working in the field and reading informational text often create pictures, or mental movies, in their minds to assist their learning and understanding. Being able to think visually is a critical strategy used to investigate science content. In this lesson, you will introduce and model this strategy and explain how visualizing can help students understand what they are reading or viewing. Embedded throughout the rest of the unit are multiple opportunities for you to model this strategy and then facilitate students’ independent practice.

Background

Literacy Note: About Shared Reading
Shared Reading provides opportunities for students to observe the teacher as an expert reader and to actively join in reading. Using a big book allows you to explicitly show and guide students to understand that informational texts use structural and visual cues to aid in the reading process, to recognize new vocabulary in print, and to practice reading strategies while students are reading to learn new science ideas. Engaging in Shared Reading provides instruction and practice that prepares students for reading more independently either with a partner or on their own. Tortoise Parts is designed to model visualizing and gives students a rich context in which to practice visualizing to make sense of the structures in the text. You will guide students in using the visualizing strategy to make meaning of this text.

About the Book: Tortoise Parts
Tortoise Parts introduces the concept of structure and function with the example of the giant Galápagos tortoise. Each external structure on a tortoise's body has a special shape, and each structure is good for doing specific things. For example, a tortoise has a beaky mouth that is good for biting leaves and long, strong toenails that are good for digging.
The repetitive structure of the book, with the same section headings on each spread, helps reinforce students’ understanding of the content. Beautifully clear illustrations with labeled parts offer additional help with the concepts and provide a bridge to understanding scientific diagrams. *Tortoise Parts* is used as a Shared Reading and supports students’ secondhand investigations as they explore the structure and function of animal parts in the unit.

**Background**

**Science Note: Body Structures and Survival**
All living things have structures that help them meet their survival needs. In animals, these include structures for motion (legs, wings, and flippers) that allow animals to move toward food and water or away from predators, structures for catching and eating food (pincers, arms, mouths, and tentacles), structures for breathing (mouths, noses, lungs, and gills), and structures that help them attract mates, build nests, lay eggs or birth offspring, and feed or protect their young. Plants have structures (roots) for getting water and structures for making their own food using sunlight (leaves and needles). Many plants and animals have structures, such as spines, for defense from predators. All living things also have many internal structures (muscles, bones, organs) which help them survive but are more difficult to observe. Not every structure an organism has necessarily helps it survive. As species evolve, they lose structures that do not aid survival if those structures have some disadvantage (for example, using energy to grow) or if random mutations arise that lead to individuals without the structure; some species still retain structures with no clear use.

**Background**

**Science Note: About Tortoises**
Tortoises are terrestrial, shelled reptiles. There are over 100 different species of tortoises. They vary greatly in size, appearance and behavior, but all have beaky mouths, hard shells, toenails, long necks, eyes, and legs that can tuck under their shells, as described in the book *Tortoise Parts*, and they all dig nests for their eggs. Most species of tortoises are herbivores, although some are omnivores, eating worms or insects in addition to plants. The tortoises illustrated in Tortoise Parts are Galapagos tortoises, the largest type of tortoise alive today. Galapagos tortoises can weigh over 400 kilograms (882 pounds) and have a lifespan of more than 100 years. Sea turtles and tortoises both belong to the taxonomic order Chelonia, and can be referred to as chelonians. Both types of animals have scales, lay eggs, and are cold-blooded. Most turtles spend most of their lives in water, while tortoises live mostly on land. If your students seem curious about the difference between turtles and tortoises, and you have time, conduct an internet search of turtles and tortoises and have students identify observable differences in the animals’ structures and habitats.
The teacher leads a Shared Reading of *Tortoise Parts* and introduces the strategy of visualizing while reading.

### Instructional Guide

1. **Revisit the aquarium.**

   - Hemos estado trabajando como científicos y científicas de acuarios para ayudar a la directora del acuario. Estamos intentando ayudar a la directora a explicar a los niños que visitan el acuario cómo las tortugas de mar, como Spruce, sobreviven en el océano.

2. **Connect to prior learning.**

   - En nuestra lección anterior, pensamos que lo que necesitan hacer los animales y las plantas para sobrevivir. Durante el Juego de supervivencia, averiguamos que los animales y las plantas necesitan ciertas cosas para sobrevivir. ¿Qué aprendimos que necesitan los animales y las plantas para sobrevivir? [Necesitan obtener aire. Necesitan obtener agua. Necesitan obtener comida].

   - Spruce la tortuga de mar es un animal. Tal como otros seres vivientes, ella necesita obtener aire, agua y comida para sobrevivir. Ahora podemos trabajar para averiguar cómo obtiene Spruce estas cosas que necesita para sobrevivir.

3. **Introduce the Investigation Question.** Discuss how scientists often ask follow-up questions to help them learn about their first question.

   - A veces, los científicos hacen otras preguntas que pueden ayudarlos a responder parte de la primera pregunta que hicieron. Como científicos, necesitamos averiguar cómo hacen los animales y las plantas lo que necesitan hacer para sobrevivir.

   Read aloud the Investigation Question you have written on the board, pointing to each word.

   - ¿Cómo hacen los animales y las plantas lo que necesitan hacer para sobrevivir?
4. Introducir el libro *Tortoise Parts*.

Hoy leeremos un libro sobre un tipo de animal: una tortuga terrestre. Aprender acerca de un tipo de animal nos ayudará a averiguar más acerca de muchos animales y plantas diferentes, y cómo hacen lo que necesitan hacer para sobrevivir.

5. Mostrar la portada del libro *Tortoise Parts*. Lee el título e invita a los estudiantes a compartir lo que notan en la portada.

6. Clarificar la distinción entre tortugas terrestres y tortugas de mar.

Las tortugas terrestres y las tortugas del mar son animales que se parecen entre sí, pero son diferentes tipos de animales.

7. Comenzar a leer y pausar al final de la página 7.

Una manera importante de que los lectores aprendan de un libro es visualizar mientras lo leen. Cuando visualizan, hacen una imagen o una película en su mente.

Invite students to close their eyes and visualize the tortoise using its long neck to reach up to get leaves.

El cuello largo ayuda a la tortuga terrestre a sobrevivir, porque ayuda a la tortuga a obtener la comida que necesita para sobrevivir.

9. On-the-Fly Assessment: Students visualize external structures. Continue reading, prompting students to visualize each structure in use. After reading about each new structure, have students to close their eyes and visualize the tortoise using the structure. Invite a few students to describe what they saw when they visualized.

10. Pause at the end of page 17 and have students visualize and discuss the external structure. Point to the “eyes” label on page 16.

¿Cómo piensan que la tortuga terrestre usa esta estructura, sus ojos?
Ask students to close their eyes and visualize the tortoise using its eyes to survive.

¿Cómo ayudan los ojos a la tortuga terrestre a sobrevivir?
Invite students to share their ideas with a partner.


12. Introduce the word structure with the vocabulary routine. Hold up the structure vocabulary card.

Esta es la palabra estructura. Una estructura es una parte de un objeto o de un ser viviente que hace algo.

Vamos a practicar decir la palabra. Digan la palabra después de mí: estructura.

Ahora digan la palabra juntos: estructura.

Ahora susurren la palabra estructura a su compañero o compañera.

Una estructura es una parte de un objeto o de un ser viviente que hace algo.

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