

Lessons 1–3

Life at a Pond

Prepare

Throughout this module, students explore how plants and animals use their body parts to survive. Lesson 1 introduces students to the module anchor phenomenon: life at a pond. Students read *Over and Under the Pond* by Kate Messner and Christopher Silas Neal (2017) to identify some plants and animals found in a pond environment and begin to generate questions about what can live in and around a pond. In Lesson 2, students make observations about pond plants and pond animals to notice the pattern that all plants and animals have body parts but that the body parts of plants and animals differ in many ways. Students use these observations to generate questions about pond plants and pond animals on a driving question board, which will guide student exploration throughout the module. In Lesson 3, students draw models of pond plants and pond animals before capturing their learning in an anchor model that shows various plants and animals that live in a pond environment. Students update the anchor model throughout the module to reflect their growing knowledge of pond plants and pond animals.

Concept 1: Body Parts

Focus Question

How do plants and animals use their body parts to survive in their environment?

Phenomenon Question

How are pond plants similar to and different from pond animals?

Student Learning

Knowledge Statement

All plants and animals have external parts.

Objectives

- Lesson 1: Observe the many different plants and animals found in a pond environment.
- Lesson 2: Observe and sort photographs to identify patterns in plant and animal body parts.
- Lesson 3: Begin a class model to show how plants and animals survive in a pond environment.

Texas Essential Knowledge and Skills Addressed

- 1.2A **Ask questions about organisms**, objects, and events observed in the natural world. (Addressed)
- 1.10A **Investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats.** (Introduced)
- 1.10B **Identify and compare the parts of plants.** (Introduced)

English Language Proficiency Standards Addressed

- 3E Share information in cooperative learning interactions.
- 4A Learn relationships between sounds and letters of the English language and decode (sound out) words using a combination of skills such as recognizing sound-letter relationships and identifying cognates, affixes, roots, and base words.
- 4C Develop basic sight vocabulary, derive meaning of environmental print, and comprehend English vocabulary and language structures used routinely in written classroom materials.


Materials

		Lesson 1	Lesson 2	Lesson 3
Student	Science Logbook (Lesson 1 Activity Guide)	•		
	Body part cards (1 set per group)		•	
	Science Logbook (Lesson 3 Activity Guide)			•
Teacher	Pond Environment Photograph (Lesson 1 Resource A)	•		
	<i>Over and Under the Pond</i> (Messner and Neal 2017)	•		
	<i>Fish Magic</i> (Lesson 1 Resource B)	•		
	Class plant and animal chart: chart paper (1 sheet), glue or tape, marker (1), color copy of each photograph in Lesson 2 Resource A (1), scissors (1)		•	
	Class plant and animal body part chart: body part cards (1 set), chart paper (1 sheet), glue or tape, marker (1)		•	
	Leaf Drawing (Lesson 3 Resource)			•
Preparation	Identify a large, open outdoor area (e.g., sports field, school lawn) to take students to during the Lesson 1 Launch.	•		
	Prepare class plant and animal chart. (See Lesson 2 Resource A.)		•	
	Prepare body part cards. (See Lesson 2 Resource B.)		•	

Lesson 2

Objective: Observe and sort photographs to identify patterns in plant and animal body parts.

Launch 5 minutes

Display the prepared class plant and animal chart. (See Lesson 2 Resource A.) Have students compare the plants with the animals by using an instructional routine such as a Whip Around. 

- How are plants different from animals?
 - *Plants have leaves, but animals don't.*
 - *Animals have eyes, but I don't think plants have eyes.*
 - *Animals can have feathers, but I don't think plants can have feathers.*
 - *Some plants have flowers, but animals don't have flowers on their body.*
- How are plants similar to animals?
 - *I'm not sure how plants and animals are similar because they look so different from each other.*
 - *I think these plants and animals are similar because they all live in a pond environment.*

Agenda

Launch (5 minutes)

Learn (22 minutes)

- Sort Animal Body Part Cards (8 minutes)
- Sort Plant Body Part Cards (8 minutes)
- Describe Similarities and Differences between Body Parts (6 minutes)

Land (8 minutes)



Teacher Note

A Whip Around is a collaborative conversation routine that allows each student an opportunity to respond. Students share their responses one after another until they have all participated. For more information, see the Instructional Routines section of the Implementation Guide (3E).




Teacher Note

At the end of this lesson, the class develops a driving question board. Record some of students' responses on sticky notes and save the responses to create a Related Phenomena section at the bottom of the driving question board. When students share experiences or prior knowledge that relate to their learning in the module, record and post in this section.

Acknowledge that it can be hard to notice similarities between plants and animals because they look so different from each other. Consider asking students questions such as these:


- Why do you think it is easier to notice the differences between plants and animals than it is to notice the similarities?
 - *It's easier because animals have fur and eyes, but plants don't.*
 - *I think it's easier to notice the differences because plants and animals don't have the same parts.*

Highlight student responses that refer to similarities among animal body parts and similarities among plant body parts. Point out that animals seem more similar to each other than to plants because of these similar body parts. 


Review the Phenomenon Question **How are pond plants similar to and different from pond animals?**, and explain that looking more closely at the body parts of plants and animals may help describe how they are similar and different.

Learn 22 minutes

Sort Animal Body Part Cards (8 minutes)

Introduce the animal body part cards (Lesson 2 Resource B). Explain that students will observe these cards to get a closer look at the body parts of the pond animals they saw in the Launch. 

Tell students that they will sort the cards into categories that show similar body parts. Divide the class into groups, and distribute a set of animal body part cards to each group. Encourage groups to discuss their thinking as they sort the cards.

After groups finish sorting, direct students' attention to a central location in the classroom. Post a sheet of chart paper on the wall and create two columns. Label one column Animals and the other column Plants. Tell students that the class will now work together to organize the animal body parts into categories. 



English Language Development

Students will encounter the term *body part* throughout the module. Support students by sharing examples of familiar human body parts, such as hands, feet, and arms.



Teacher Note

If students have trouble matching an animal with its body part card, direct their attention to the class plant and animal chart from the Launch and help them match the photograph of the animal's whole body to the card that shows one of its body parts.

If necessary, consider the same approach in the next section of the lesson, when students sort plant body parts (3E).




Content Area Connection: Mathematics



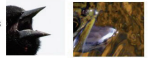


Support students' mathematics skills in this lesson in which they organize data into two or three categories. They have learned to represent information on linear or horizontal graphs. This two-column chart, made for plant and animal body parts, combines these emerging organizational and representational skills in a new way.

▶ How did your group sort the animal body part cards?

- *We sorted the cards that show mouths in one group and the cards that show eyes in a different group.*
- *We put the cards that show noses in a group.*

As students share, use glue or tape to arrange the class set of animal body part cards into categories on the class chart. Work with students to label each category based on the body parts the cards depict (noses, eyes, mouths, hands, feet). 

Sample class plant and animal body part chart:

	Animals	Plants
Noses		
Eyes		
Mouths		
Hands		
Feet		

▶ How are the body parts in each category similar? How are they different?

- *Both noses have holes, but the noses aren't shaped the same.*
- *Both mouths look open, but the fish's mouth looks round and the bird's mouth looks pointy.*
- *All the hands have fingers, but the fingers aren't the same color.*

Use student responses to explain that many animals have the same body parts, but these body parts may not look exactly alike.



Teacher Note

Students may suggest a variety of acceptable labels for each body part category. For example, they may suggest *legs* instead of *feet* and *paws* instead of *hands*.

Students may also group feet and hands in the same category. In upcoming lessons, students learn more about the functions of different body parts, such as the functions of the front and back paws of various animals (4C).

Sort Plant Body Part Cards (8 minutes)

Next, distribute a set of plant body part cards (Lesson 2 Resource B) to each group, and tell students they will observe these cards to get a closer look at the body parts of the pond plants they saw in the Launch.

Instruct students to work with their group to sort the cards into categories by following the same process they used to sort the animal body part cards. Encourage groups to discuss their thinking as they sort.

After groups finish sorting, direct students' attention to the class chart again.

- ▶ How did your group sort the plant body part cards?
 - *We put the flowers together.*
 - *The pictures of leaves went together in their own group.*

As students share, arrange the class set of plant body part cards into categories on the class chart. Work with students to label each category based on the body parts shown on the cards (fruits, roots, leaves, flowers, stems).

Sample class plant and animal body part chart:

	Animals	Plants	
Noses			Fruits
Eyes			Roots
Mouths			Leaves
Hands			Flowers
Feet			Stems

- ▶ How are the body parts in each category similar? How are they different?
 - *In both root pictures, the roots look like strings, but some of the roots look big and the other roots look small.*



Teacher Note

Although students will likely be familiar with a tree trunk, they may not know how to sort the tree trunk card. Support their discussion by confirming that a trunk is considered the stem of a tree.

- *The flowers are both purple, but they are not the same shape.*
- *Both the fruits look sort of round, but the purple ones look bumpy and the red ones look smooth.*

Use student responses to explain that, like animals, many plants have the same body parts, but their body parts may not look exactly alike.

Describe Similarities and Differences between Body Parts (6 minutes)

Revisit the Phenomenon Question **How are pond plants similar to and different from pond animals?**, and ask students to use their new learning about plant and animal body parts to discuss the following questions.

► How are plants and animals similar?

- *Plants and animals are both living things.*
- *Plants have body parts that are similar to each other, and animals have body parts that are similar to each other.*

► How are plants and animals different?

- *Plants and animals have different body parts.*
- *I think they are different because animals have body parts like noses and feet, but plants do not. Plants have body parts like leaves and flowers.*

Summarize the pattern students identify: Plants and animals are similar because they are both living things with body parts, but plants and animals are different because they have different kinds of body parts. ✓

Explain to students that to keep track of their understanding of plants and animals, the class will begin an anchor chart to capture learning throughout the module. Refer to the previous class discussion, and distill the key learning that plants and animals have body parts. Record this learning on a sentence strip, and place the sentence strip on the anchor chart. 📄

Sample anchor chart:

Survival
<p>Body Parts</p> <ul style="list-style-type: none"> • Plants and animals have body parts.



Check for Understanding

Students use patterns to observe and describe that all plants and animals have body parts but their body parts are different. Look for evidence that students have identified patterns of similarities and differences among plants and animals.


If students need additional support, consider working with small groups to look at a photograph of a familiar animal such as a cat or dog. Ask students to circle and label the different body parts of the animal. Then show a photograph of a common, local plant, and work with students to circle and label the body parts of the plant. After students successfully identify the body parts of the plant and animal, ask them to describe how the body parts of the plant and animal are different.




Teacher Note

For more information on how to develop the anchor chart, see the Anchor Visuals section of the Implementation Guide (4C).

Land 8 minutes

Ask students to work with a partner to discuss at least one new question they have about the pond plants and pond animals they observed in this lesson or the previous one.  Then have students share their questions with the class. Record at least one question from each pair on a sticky note, and tell students they will now use their questions to create a driving question board. Post the sticky notes on a sheet of chart paper, and explain that students will return to this driving question board as they try to answer their questions and ask new ones.

Review student questions and summarize the theme of many of these questions to develop the Essential Question: **How do pond plants and pond animals survive in their environment?**  Write this question across the top of the driving question board.

Keep the driving question board posted in a prominent place where it is easy to update and revisit throughout the module. Consider leaving space to post sample student work along the way.



Teacher Note

The driving question board will be developed throughout the module, and questions will eventually be divided into three columns, with unanswered questions in a separate area. At this point in the module, group all sticky notes in the Unanswered Questions area below the Essential Question. At the end of each concept, create a new column in the space below the Essential Question. Each column serves as a space to post student questions related to the learning in each concept. Questions that are not associated with the learning in a concept can remain posted in an Unanswered Questions area of the driving question board.

By the end of the module, many student questions will be posted in the relevant columns, while some will still be considered unanswered questions. Students address these remaining questions in the End-of-Module lessons to show that, in science, unanswered questions can inspire more learning.

To develop the driving question board with greater ease, consider writing the Essential Question, Unanswered Questions header, and Concept Focus Questions on sentence strips and affixing them to the driving question board with repositionable tape.



Differentiation

Students will likely need support to formulate questions. Statements that express wonder are also acceptable for this task. If necessary, draw on student responses during group discussions to help guide student thinking.

For students who may need scaffolds to formulate questions or statements that express wonder, consider providing a short list of sentence frames.



English Language Development

Students will encounter the term *survive* throughout the module. Tell students that *survive* means “to stay alive.” Sharing the Spanish cognate *sobrevivir* may also be helpful. Consider connecting to students’ prior knowledge with questions such as these (4A):

- What do plants need to survive?
- What do humans need to survive?

Sample driving question board:

Essential Question: How do pond plants and pond animals survive in their environment?
Unanswered Questions <ul style="list-style-type: none">▪ <i>Can a moose swim?</i>▪ <i>Why do some fish have teeth?</i>▪ <i>Why do some animals have fins and some have feet?</i>▪ <i>Why do turtles have a shell?</i>▪ <i>Why does a caddisfly larva cover itself with pebbles and sand?</i>▪ <i>How does a heron know where a fish is underwater?</i>
Related Phenomena <ul style="list-style-type: none">▪ <i>Plants have leaves, but animals do not.</i>▪ <i>Animals have eyes, but plants do not.</i>

Optional Homework

Students create a field guide entry for their favorite plant or animal by drawing a picture of the plant or animal, labeling its body parts, and adding a title. Consider collecting student work and compiling entries into a class field guide.