

Lesson 26

Parents and Offspring

Prepare

In Lesson 26, students complete a Conceptual Checkpoint, in which they apply their Concept 3 learning to animal parents and offspring they have not yet studied. Students begin by revisiting the driving question board to reflect on their questions and review their learning before the Conceptual Checkpoint. Next, students observe the features of three different kinds of animal parents and offspring to describe the pattern that offspring are similar to but not exactly like their parents. Students then watch a video of a swan parent protecting its offspring and use observations as evidence to explain how this behavior helps the swan offspring survive. Finally, students respond to the Concept 3 Focus Question.

Student Learning

Knowledge Statement

Individual animals of the same kind are recognizable as similar, but they can also vary in many ways. Many animal parents engage in behaviors that help their offspring survive.

Concept 3: Parents and Offspring

Focus Question

How do parents help their offspring survive?

Phenomenon Question

How do parents and offspring compare with each other?

Objective

- Lesson 26: Use observations of parents and offspring as evidence that offspring are very much, but not exactly, like their parents and that parents engage in behaviors that help their offspring survive.

Texas Essential Knowledge and Skills Addressed

- 2.2E **Communicate observations and justify explanations using student-generated data from simple descriptive investigations.** (Introduced)

English Language Proficiency Standards Addressed

- 1C Use strategic learning techniques such as concept mapping, drawing, memorizing, comparing, contrasting, and reviewing to acquire basic and grade-level vocabulary.
- 2E Use visual, contextual, and linguistic support to enhance and confirm understanding of increasingly complex and elaborated spoken language.

Materials

		Lesson 26
Student	Parent and offspring cards (1 set per group)	•
	Response cards (1 set)	•
	Conceptual Checkpoint (Lesson 26 Resource C)	•
Teacher	None	
Preparation	Prepare parent and offspring cards. (See Lesson 26 Resource A.)	•
	Prepare response cards. (See Lesson 26 Resource B.)	•
	Prepare to distribute a copy of Lesson 26 Resource C to each student.	•
	Cue swan video (pijnacker01 2016): http://phdsci.link/1525 .	•

Lesson 26

Objective: Use observations of parents and offspring as evidence that offspring are very much, but not exactly, like their parents and that parents engage in behaviors that help their offspring survive.

Launch 5 minutes

Display the driving question board. The first and second columns contain the questions students have already answered, and the last column contains unanswered questions. Read aloud the unanswered questions on each sticky note in the last column. Have students use a nonverbal signal to show whether they can now answer each question. As students respond, keep the newly answerable questions in the last column, and place the questions that still cannot be answered in an open space next to the driving question board.   Continue this process until all questions have been sorted.

Then tell students they will apply their learning to new animals.

Learn 25 minutes

Prepare for Conceptual Checkpoint (5 minutes)

Divide the class into groups and distribute a set of parent and offspring cards (Lesson 26 Resource A) to each group.  

Draw students' attention to the Offspring A card.

Agenda

Launch (5 minutes)

Learn (25 minutes)

- Prepare for Conceptual Checkpoint (5 minutes)
- Conceptual Checkpoint Part A (10 minutes)
- Conceptual Checkpoint Part B (7 minutes)
- Debrief Conceptual Checkpoint (3 minutes)

Land (5 minutes)



Teacher Note

The end-of-module lessons will address the unanswered questions in the space next to the driving question board.



Teacher Note

Leave space in the last column, above student questions, to post the Concept 3 Focus Question later in the lesson. For a sample driving question board, see the Land of the lesson.



Teacher Note

The animals pictured on the cards are an Asian forest scorpion, a mute swan, and a white-tailed deer (2E).



Teacher Note

The parents and offspring in this activity are representative pairs for each species. They are not actual parent-offspring pairs.

► Which parent do you think Offspring A belongs to? Why do you think that?

- Parent B because the offspring and the parent have similar features, like a white body.
- I think Offspring A belongs to Parent B because they both look like birds, and the other parents don't look like birds.

Confirm that Offspring A, the swan offspring, belongs to Parent B, the swan parent. Ask groups to place the swan offspring and swan parent cards next to each other. Then ask students to work with their group to match the other two offspring to Parent A and Parent C. Invite students to share their thinking.

Sample student responses:

- Offspring B belongs to Parent C because they have similar features. They are both brown with big ears.
- I think Offspring C belongs to Parent A because they both have bumpy lines on their bodies and they both have pincers.

Confirm that Offspring B, the deer offspring, belongs to Parent C, the deer parent, and that Offspring C, the scorpion offspring, belongs to Parent A, the scorpion parent. Point out that students matched each offspring to its parent by looking for similarities in their features. Tell students that in this lesson they will take a closer look at these animals to answer the Phenomenon Question **How do parents and offspring compare with each other?**

Conceptual Checkpoint Part A (10 minutes)

Ensure that groups have correctly matched each parent and offspring pair. Then distribute both response cards (Lesson 26 Resource B) to each student.

Ask students to focus their attention on the swan parent and swan offspring cards. Tell students that they will hear features of the swans read aloud. If only the parent has the feature, then students should hold up the Parent response card, which has an arrow pointing to an adult. If only the offspring has the feature, then they should hold up the Offspring response card, which has an arrow pointing to a child. If both the parent and the offspring have the feature, they should hold up both response cards.

Read aloud the swan features one at a time, allowing time for all students to hold up their response cards. As students hold up their cards, capture correct responses on a class chart.  Then repeat this process for scorpions and deer. The following lists contain suggested features for each kind of animal.



Teacher Note

If students need support to identify the features of the parents and offspring, point to the relevant body parts on both the parent and offspring photographs and ask questions such as the following: Does the parent swan have a black beak? Does the offspring swan have a black beak? Prompt students to hold up the card that matches their response to each question.



Differentiation

Consider adding drawings to the chart to support student understanding (1C).

- ▶ Swans: beak, black beak, orange beak, white body
- ▶ Scorpions: tail, many legs, black body, white body
- ▶ Deer: brown body, spots, black nose, round ears

Sample class chart:

Swans	Scorpions	Deer
<i>Beak: both</i>	<i>Tail: both</i>	<i>Brown body: both</i>
<i>Black beak: offspring</i>	<i>Many legs: both</i>	<i>Spots: offspring</i>
<i>Orange beak: parent</i>	<i>Black body: parent</i>	<i>Black nose: both</i>
<i>White body: both</i>	<i>White body: offspring</i>	<i>Round ears: both</i>

Tell students they will now work independently to show what they have learned about the features of parents and offspring. Distribute a copy of the Conceptual Checkpoint (Lesson 26 Resource C) to each student. Read the following question and answer choices aloud, and ask students to respond independently by circling the answer they think is correct.

- ▶ Do animal parents look exactly the same as their offspring?



Next, draw students' attention to the second question in the Conceptual Checkpoint, and ask students to independently write why they answered yes or no to the preceding question. Tell students to use evidence from the parent and offspring cards or class chart for at least one kind of animal parent and offspring. 

- ▶ Why do you think that?
 - *The swan parent has an orange beak. The swan offspring has a black beak.*
 - *The parent scorpion has a black body. The baby scorpion has a white body.*
 - *The deer offspring has spots. The deer parent does not have spots.*

Differentiation

If students struggle with the writing demands of this task, consider scribing their responses or conducting one-on-one interviews. Alternatively, ask students to draw or label a picture to show their reasoning (1C).

Conceptual Checkpoint Part B (7 minutes)

Play the swan video (pijnacker01 2016) (<http://phdsci.link/1525>) with the sound turned on. Ask students to Think–Pair–Share in response to the following question.

► What do you think is happening in the video?

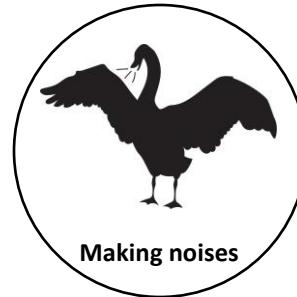
- *The swan parent is making angry noises at the sheep.*
- *Maybe the swan parent is trying to scare the sheep away from its babies.*

Next, tell students they will work independently to show what they have learned about swan parent behavior. Tell students to look at the third question in the Conceptual Checkpoint (Lesson 26 Resource C). Read the question and answer choices aloud. Ask students to respond independently by circling the answer they think is correct.

► What is the swan parent doing in the video?



Carrying offspring



Making noises



Flying away

Tell students to look at the fourth question. Read the question aloud and then ask students to write a response independently in the sentence frame in the Conceptual Checkpoint (Lesson 26 Resource C).

► How does the behavior you circled help the offspring survive?

- *The behavior helps the offspring survive because the parent scares away danger.*
- *The behavior helps the offspring survive because it protects the offspring from getting hurt.*



Check for Understanding

This Conceptual Checkpoint assesses student understanding of the Concept 3 Focus Question: **How do parents help their offspring survive?**

Evidence	Next Steps
In Part A, students circle No to indicate that parents and offspring look similar but not exactly alike.	If students need support to determine whether to answer yes or no, refer to the parent and offspring photographs, repeat the question, and ask follow-up questions such as these: What does it mean to look exactly the same? Do the parents and offspring look the same in every way?
Students then use evidence from observations of patterns to explain that parents and their offspring do not look exactly the same.	If students need support to identify evidence, point to specific features in the photographs and ask students which animal has that feature, the parent or the offspring.
In Part B, students circle Making noises as the behavior they observed the swan parent engaging in.	If students need support to identify the parent's behavior, ask questions such as this: What do you see the swan parent doing?
Students then use evidence from observations to explain why the parent's behavior helps the offspring survive.	If students need support to formulate their explanation, replay the swan video and review what is happening in the video. Ask students what might happen to the offspring if the parent did not make noises when it sensed danger.

Debrief Conceptual Checkpoint (3 minutes)

Point out that students used evidence from photographs and a video to explain that animal offspring do not look exactly like their parents and to review the fact that some animal parents behave in ways that help the offspring survive.

Revisit the Phenomenon Question **How do parents and offspring compare with each other?**, and ask students to share how they can use their learning to answer this question.

Sample student responses:

- *Scorpion parents and offspring have some of the same features, like tails, but their body color is different.*
- *Deer parents and offspring are brown and have black noses, but only the offspring have spots.*
- *I learned that parents and offspring behave in different ways. Sometimes parents try to scare away danger so their babies don't get hurt.*

Land 5 minutes

Return to the driving question board and introduce the Concept 3 Focus Question: **How do parents help their offspring survive?** Write the Focus Question at the top of the last column.

Sample driving question board:

Essential Question: How do pond plants and pond animals survive in their environment?

How do plants and animals use their body parts to survive in their environment?		How do plants and animals respond to their environment?		How do parents help their offspring survive?	
Are prickles sharp?	Why do some animals have fins and some have feet?	How do animals sense food?	Why do the leaves and stems of some plants bend toward a window?	Do birds protect their offspring?	Can robin offspring fly away to get food?
Why do turtles have a shell?	Why do trees have bark?	Can a crayfish smell food?	How does a heron know where a fish is underwater?		
Related Phenomena:		Plants have leaves, but animals do not.	Animals have eyes, but plants do not.	Cats use their claws when they are mad.	Birds fly away when people get close.
				Some dogs bark when they see another dog.	

Remind students that they have seen many examples of animal parents helping their offspring survive, and prompt them to think about the previous lessons.  Then have students participate in a Mix and Mingle routine as they respond to the following prompt.

- Share one example of an animal parent helping its offspring survive.
 - *Otter parents help their babies learn to swim.*
 - *Loon parents help their babies by scaring away other animals.*
 - *Robin babies get help from their parents because the parents bring them food.*
 - *Moose parents scare away animals like foxes from their babies.*

Tell students that in subsequent lessons, they will summarize their understanding of the Essential Question: **How do pond plants and pond animals survive in their environment?**

Differentiation

Some students may benefit from visual reminders. Consider displaying the storyboards from Lessons 24 and 25 (2E).