# Helping Animals Learn



## Lesson Plan

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Science 
Technology 
Engineering 
Arts 
Mathematics

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### **Answer Key:** Helping Animals Learn

#### page 10—Make the Connection

Sample responses are shown.



### page 11—Help a Kitten

Students' answers will vary but may look something like this:

- 1. Warm up milk or liquid in the microwave.
- 2. Fill a baby bottle with the warm milk or liquid.
- 3. Gently hold the kitten on its back.
- 4. Hold the bottle near the kitten's mouth to drink.

#### page 17—Helping Animals Learn Quiz

**1.** B

**2.** A

- 3. D
- **4.** Students' responses will depend on the animal they choose but should include evidence from the book about how keepers help animals learn.

## Helping Animals Learn

## **Materials**

- Helping Animals Learn books
- copies of student activity sheets (pages 9–19)
- STEAM Challenge materials include but are not limited to the following:

✓ raffia

✓ sticks

✓ scissors

- ✓ 1 kg (2 lb.) bag of rice
- *cardboardconstruction* paper
- glue or tape
- ✓ leaves
- ✓ paper tube

### Learning Objective

- Reading: Describe the connection between two individuals, events, ideas, or pieces of information in a text.
- Writing: Participate in shared research and writing projects.



Unit I: Animals

**Speaking and Listening:** Participate in collaborative conversations with diverse partners about grade appropriate topics and texts with peers and adults in small and larger groups.

**Engineering:** Define an engineering problem, design and evaluate solutions, and optimize a design based on test results.

### Phenomena

Animals can learn behaviors from their parents and from people.

## Lesson Timeline

Day I	Day 2	Day 3	Day 4	Days 5–10
<b>Introductory</b> and <b>Before Reading</b> <b>Activities</b> (page 4)	During Reading Ac	tivities (page 5)	After Reading Activities (page 5)	<b>STEAM Challenge</b> and <b>Assessments</b> (pages 6–8)
Define the STEAM Challenge and practice making connections among details.	Research how people learn, make connect in the text, and brain solutions.	e help animals ions between ideas astorm design	Write how-to guides for helping a kitten learn to drink.	Design, build, test, improve, reflect on, and share nests. Complete the assessments.

#### Unit I: Animals

## Helping Animals Learn (cont.)

**STEAM Vocabulary** 

keepers

machines

## Introductory Activity

### **Define the Problem**

- **I.** Display the cover of *Helping Animals Learn*. Ask students to describe what they see in the photograph on the cover.
  - Ask questions to get students thinking about the topic: Is a watermelon with fish in it something an otter would find in nature? Do the fish look like they were inserted into the watermelon deliberately? Why would someone do that? How do you think the photograph relates to the title of the book?
  - Turn to the Table of Contents and have students describe the photograph. Have students generate questions for this image similar to those you asked about the front cover. Encourage classmates to try to answer the questions.
- **2.** Distribute the *Helping Animals Learn* books to students. Reveal the STEAM Challenge by reading aloud to students pages 20–21 of the book.
  - Display the Interactiv-eBook for a more digitally enhanced introduction to the challenge.
- **3.** Distribute *Make a Plan* (page 9) to students. Have them summarize the STEAM Challenge. Summaries should include all the goals of the challenge.
  - **Support** students with the following sentence frame to help them summarize: *Design and build a \_\_\_\_\_ that can \_\_\_\_\_*.

## **Before Reading**

trimmings

- **I.** Review the vocabulary words in the glossary on pages 22–23 of the book. Define each word and discuss each photograph.
- 2. Make a three-column chart on the board, and write a vocabulary word at the top of each column. Call out the words listed below, and ask students to identify which category each word best fits into. Have students justify why the word belongs in the identified category. Then, write the word in the column.

care	watcher	branches
leaves	cars	robots
electronic	cutters	help

- **Challenge** students to add related words to each column or find words that could go in more than one category.
- **3.** Explain that as readers make connections between key details, they gain a better understanding of the main topic. Tell students that they will practice making connections between information in the text to better understand the main topic, helping animals learn.
- **4.** Distribute the *Helping Animals Learn* books to students. Take a picture walk together and practice making connections between the images. For example, discuss how the image of the baby on page 4 is similar to and different from the kitten on page 5.

#### Unit I: Animals

## Helping Animals Learn (cont.)

### **During Reading**

### **Research and Brainstorm**

- I. Distribute the *Helping Animals Learn* books to students. Read aloud the text as students follow along. Stop to discuss connections that can be made between what animals need to know and how humans help animals learn. Use textual evidence, photographic evidence, and captions as you guide students in making these connections.
  - Display the Interactiv-eBook for a more digitally enhanced reading experience. You may wish to have students annotate the PDFs as you read.
  - Play the audio recording as students follow along to serve as a model of fluent reading. This may be done in small groups or at a listening station. The recording will help English language learners practice fluency and aid in comprehension.
- 2. Distribute *Make the Connection* (page 10) to students. Have students reread the books in small groups. Have them complete their activity sheets, drawing connections between what animals need and how humans help them.
- **3.** Have students brainstorm and discuss the STEAM Challenge with some guiding thoughts or questions (e.g., *What size*, *shape*, *or materials will work best for a nesting area?*). Record their ideas on a sheet of chart paper.

### **After Reading**

- Write the vocabulary words on the board, and review their meanings. Have students describe personal experiences related to each term. For example, perhaps one day, the bushes were getting too tall, so you cut them down and had to pick up all the *trimmings*.
  - Have students share their experiences with the group, using the vocabulary words in their descriptions.
- Read "Career Advice" on page 24 of *Helping Animals Learn*. Explain to students that professionals in STEAM fields have to figure out ways to help baby animals when their parents cannot.
  - Distribute *Help a Kitten* (page 11) to students. Ask students to imagine that they have found a baby kitten in their yard and the mother is nowhere to be found. The baby must eat to live.
    - Display the photograph next to the Table of Contents. Ask guiding questions to promote student thinking: What do baby kittens or cubs eat? Why is a bottle a good tool to use? Who else uses bottles for milk? How would you get a kitten to drink from a bottle? Are there other ways a kitten can be fed besides a bottle?
- **4.** Have students work independently or in small groups to complete the writing activity. Encourage students to share their how-to guides with each other. Encourage them to add to or revise their writing as they hear ideas from others.

## Helping Animals Learn (cont.)

## Prep

- Review all designs prior to building.
- Prepare all materials for the STEAM Challenge.
- If doing the STEAM Challenge with multiple groups at once, you may choose to invite volunteers to help monitor and facilitate group work.

## **STEAM** Challenge

### Design and Build

- **I.** As a group, discuss the following questions to connect the reading to the STEAM Challenge:
  - ▶ What is the first thing keepers must do to help young animals? Reread page 8 with students, and guide them to understand that the babies must be safe. They also must be in a place that is similar to where they would normally be found.
  - Where are bird nests are located in the wild? Bird nests are usually located in trees, although students may know about some birds that build their nests in other places. Ask students to think about how that will influence their designs.
- 2. Review the STEAM Challenge on pages 20–21 together. List materials on the board, and allow students to see and (if needed) feel the various materials. Also, show students the rice bag and allow them to feel how heavy it is. Tell students that in addition to building nests, they can also add support or shelter around their nests.
- **3.** Ask students to independently sketch and label two designs on their *Make a Plan* activity sheets. Encourage them to label their designs with materials.
  - **Support** students as needed by showing them images of bird nests/homes in rural and urban areas from other books or online.

- **4.** Organize students into teams. Distribute one copy of *Team Designs* (page 12) to each team. Ask teams to have members share their designs. Then, have each team choose, sketch, and label a team design.
  - Review team designs and offer guidance as needed.
  - **Challenge** students by adding goals (e.g., the nest must be constructed to meet the needs of a local bird they have researched).
- **5.** Explain to students that they must follow their design plans when they build their models. Reassure them that they will have an opportunity to change and improve their designs after they present them. Review classroom expectations for working with materials. Then, give teams time to gather materials and build a place that can hold a nest.
  - Digitally record students' processes to share at a later date with students and parents.
- **6.** Distribute *Think about It* (page 13) to each student. Explain that reflection is an important part of the engineering design process. Read aloud number 1 on the activity sheet and have students write their responses. Ask volunteers to share.



#### Unit I: Animals

## Helping Animals Learn (cont.)

## Prep

- Review all designs prior to building.
- Prepare all materials for the STEAM Challenge.

## **STEAM** Challenge

### Test and Improve

- **I.** As a group, discuss the following questions to connect the reading to the STEAM Challenge:
  - ▶ What did keepers do to the wolves' area at the zoo? Direct students to pages 14-15 of the reader. Have students reread the text and look at the photographs to see that the habitat looks similar to what wolves experience in the wild, including how they can interact with the habitat by climbing on logs and hiding among plants.
  - ► How does your nest design look like something birds would find and use in the wild? How can you improve your design to make it look more like the wild? Encourage student teams to reflect on their designs to identify what already looks natural and what they can improve. Ask students to pay close attention to how other teams handled this in their designs and identify how they can improve their designs based on what they learn from others.
- 2. Gather teams for testing. Explain that teams will offer feedback after the test. Use *Friendly Feedback* (page 14) to review best practices for giving feedback.
- **3.** Distribute *Nice Nest Test Results* (page 15) to students, and ask them to record results for each team.

- **4.** Have one student from each team place the bag of rice on the nesting area. Have another member of the team set a timer for one minute. If the bag of rice can be held in place, then the design is successful. Ask for volunteers to give feedback.
- **5.** Provide time for teams to brainstorm ways to improve their designs based on test results and feedback. Refer students back to their *Team Designs* activity sheets. Ask them to sketch their improved designs and explain any changes.
  - Review improved designs and offer guidance as needed.
  - Challenge successful teams with additional goals for the second design (e.g., the design must hold for at least two minutes, or it must hold two bags of rice).
- **6.** Have teams gather materials to improve their designs. Then, have them make their improvements and retest their nests.
- **7.** Have students complete numbers 2 and 3 on their *Think about It* activity sheets.

## Helping Animals Learn (cont.)

## **STEAM** Challenge

### **Reflect and Share**

- I. Have students remain in their groups to reflect on working together as a team and the test results.
  - Encourage students to think about how they worked together with their teams. Ask questions such as: *Did everyone have a chance to contribute? Did people contribute ideas you had not thought of? How did your team work together? How did you decide which ideas to use? How did you determine what materials to use? How did you proceed with your design? What did you do when you encountered problems?* 
    - Provide students time to discuss these ideas. with their teams. Remind them they will have a chance to use the *Teamwork Rubric* to assess their teamwork at a later time.
- **2.** Have students complete number 4 on their *Think about It* activity sheets.
- **3.** Distribute *Engineering Design Process* (page 16) to students, and review how they used each step to complete the challenge. Annotate the infographic together with details specific to this challenge.
- **4.** Reread "Career Advice" on page 24 of the book. Ask students to brainstorm other tips for a career teaching animal babies.

### **Assessment Activities**

- **I.** Have students complete a short posttest, *Helping Animals Learn Quiz* (page 17), to assess this lesson's reading objective.
  - Students may use the Interactiv-eBook activities in the Digital Resources for assessment purposes (optional).
- 2. Have students complete *Teamwork Rubric* (page 18) and *Engineering Design Process Checklist* (page 19) to reflect on and evaluate their work and collaboration skills.
- Have students complete the Think and Do questions from the book.



Date:



# Make a Plan

**Directions:** Write the challenge in your own words. Sketch two designs. Then, circle the one you like best.



Date:

# Make the Connection

**Directions:** Draw lines to connect ideas. One has been done for you.



Name:

Date:

# Help a Kitten

**Directions:** You have found a lost baby kitten. It needs to eat. Write what you will do to help the kitten learn to drink.





Team Members: \_

## Date:

# **Team Designs**

**Directions:** Sketch your team's design in the first box. Sketch your team's new design in the second box.



Nar	ame: Date:	
	Think about It	
<b>I.</b>	I helped my team when	
2.	Our plan (worked/did not work) because	
3.	Our second plan was (better/worse) because	
4.	. My favorite part was	

Date:

# Friendly Feedback

**Directions:** Feedback from others can help you. Use these sentence stems. Give feedback to your peers.





# Nice Nest Test Results

**Directions:** Record the results for each team. Make a sketch of what each team built.

Team:		Team:		
Did if work? yes	no	Did it work?	yes	no
Team:		Team:		
Did it work? yes	no	Did it work?	<b>y</b> es	no

Date: \_\_\_\_\_

# **Engineering Design Process**



# Helping Animals Learn Quiz

**Directions:** Read each question. Fill in the bubble for the best answer. Then, answer the last question.



Name:

Date: \_\_\_\_\_



## **Teamwork Rubric**

**Directions:** Think about how you worked in your team. Score each item on a scale of 4 to 1.

4 = Always $3 = Often$ 2		2 = Som	ietimes	I = Never			
	I listened to people on my team.	4	3	2	I		
	I helped people on my team.	4	3	2	I		
	I shared ideas with people on my team.	4	3	2	I		
	We made choices as a team.	4	3	2	I		
Total							
Teache	er Notes:						



# Engineering Design Process Checklist

**Directions:** Read the list. Check the boxes to show what you did.



Research and Brainstorm	things that keep a bird's nest safe?	Design and Build	Draw your plan. How will it work? What materials will you use? Build	your model! Test and Improve	Place a 1 kg (2 lb.) bag of rice on vour model. The model should	stand for at least one minute without breaking. Did your model stay	whole? Can you make it better?	lry again. Reflect and Share	Why should people help	animals when animals have lost their parents? Are there other	ways to help animal babies?	
	CHALLENGE	The Problem	Bird nests near you have been damaged. Luckily, you have been	to build new nests. Can you model	The Goals	Build your model with any items     from nature that you can find.	Build a nest that can hold an egg.	Build your model so that it can     hold a 1-kilogram (2-pound) bag of	rice without breaking.			

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