# Science Spin

Crosscutting Concept



#### Objective

Explain how scientists obtained evidence that sea stars could help kelp forests flourish.

#### Practice

#### **Next Generation Science Standards**

- Practice: Constructing Explanations
- •Core Idea: LS2.A: Interdependence in
- Ecosystems • Crosscutting Concept: Stability and
- Change

#### \_Core Idea

<u>Common Core State Standards</u> Writing 2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

# ATTENTION TEACHERS! Activate your online resources! SCHOLASTIC.COM/SCIENCESPIN3-6

#### ANSWERS

• Quick Quiz (p. 4) 1. A 2. B 3. B 4. D. 5. D • Find the full answer key online! VIDEO Watch a video showing sea stars eating sea urchins during a lab experiment.



**SKILLS SHEET** Download a skills sheet activity asking students to explain a scientific investigation.

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#### **BEFORE READING**

#### 1. Brainstorm different things scientists do.

Write the word *scientist* on the board. Ask: What is a scientist? What do scientists do? Have students form small groups and brainstorm things they associate with scientists. Make a list on the board of things scientists do. (*Answers will vary but may include that scientists ask questions; make observations; plan investigations; collect data in nature and in laboratories; communicate with other scientists; explain their observations using data.)* 

#### 2. Introduce the concept of ecosystems.

Write the word *ecosystem* on the board. Ask the class: What is an ecosystem? (*Answers will vary but may include all the living and nonliving things in an area and how they interact with one another.*) Ask: What may happen in an ecosystem if one plant's or animal's numbers grow out of control? (*Answers will vary but may include that it could possibly harm other plants or animals in the ecosystem.*) Explain that students will read an article about scientists studying an underwater ecosystem.

#### **DURING READING**

### Read the article and review the type of scientific investigation it describes.

- Ask students to read the article in pairs. Instruct students to take turns reading each paragraph. When they've finished, give each pair time to discuss what they read.
- Hand out the "Think Like a Scientist: Sea Star Hunters" skills sheet found at **scholastic.com/sciencespin3-6** and have students use it to answer the article's Think Like a Scientist questions. (Answers can be found in the online answer key.)

#### **AFTER READING**

#### Watch a video from the experiment.

**1.** Go to **scholastic.com/sciencespin3-6** and watch the video "Sea Star Hunters." This video shows actual footage from the experiments described in the article. Have students watch the video. Ask: How do a sea stars' adaptations help it survive? Ask whether students think the footage helps to prove the scientists' ideas about how sea stars could help kelp forests. Discuss students' ideas.

#### 2. Extend the lesson with a food web activity.

Hand out the skills sheet "Underwater Food Web" found on the back of the Teacher's Guide. Have students complete the activity individually. Ask: Did the food web help you understand the importance of sea stars in the kelp forest ecosystem?

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INTEGRATING VISUALS

# **UNDERWATER FOOD WEB**

In "Hungry Sea Stars," you read about how sunflower sea stars might help reduce populations of Pacific purple sea stars harming kelp forests. This diagram shows a food web in a kelp forest. Food webs are made up of multiple connected food chains. The arrows in a food web point from an organism to what eats it. Study the food web below, then answer the questions.

## **Kelp Forest Food Web**



ILLUSTRATIONS BY KATE FRANCIS

# 1. Which of the following organisms in the food web make their own food?

A clams	© sea stars
<b>B</b> crabs	(D) seaweeds

- 2. Which of the following is an example of one food chain in the diagram?
  - (a) sea otter  $\rightarrow$  sea star  $\rightarrow$  crab  $\rightarrow$  sun  $\rightarrow$  kelp
  - (B) kelp  $\rightarrow$  phytoplankton  $\rightarrow$  clam  $\rightarrow$  sea otter
  - © phytoplankton → mussel → crab → sea otter
  - (**D** crab → sea star → sea urchin → sea otter

- 3. True or False: Sea urchins get energy by eating kelp.
- 4. Which organism gives energy to the most organisms in the food web?
- 5. Describe what might happen to the kelp forest food web if sea otters became extinct.