

### About the Book

Text Type: Nonfiction/Informational Page Count: 20 Word Count: 1,164

#### Book Summary

This informational text describes many animals that glow in the dark, from fireflies to krill to cookie-cutter sharks. The author explains the three different ways an animal glows, as well as the many different reasons that animals glow. Scientific information about habitats and current research is highlighted. Photographs support the text.

### About the Lesson

#### Targeted Reading Strategy

- Connect to prior knowledge

#### Objectives

- Use the reading strategy of connecting to prior knowledge to understand text
- Identify details to compare and contrast information in nonfiction text
- Understand and use prepositions within sentences
- Arrange words in alphabetical order

#### Materials

Green text indicates resources available on the website

- Book—*Glow-in-the-Dark Animals* (copy for each student)
- Chalkboard or dry erase board
- Dictionaries
- Prior knowledge, compare and contrast, prepositions, alphabetical order worksheets
- Discussion cards



Indicates an opportunity for students to mark in the book. (All activities may be demonstrated by projecting book on interactive whiteboard or completed with paper and pencil if books are reused.)

#### Vocabulary

Content words:

Story critical: *bacteria* (n.), *bioluminescent* (adj.), *camouflages* (v.), *molecule* (n.), *predators* (n.), *prey* (n.)

Enrichment: *chemicals* (n.), *firefly* (n.), *luciferase* (n.), *luciferin* (n.), *oxygen* (n.), *twilight zone* (n.)

### Before Reading

#### Build Background

- Write the words *glow in the dark* on the board. Have students share what they know about the subject. Encourage them to share the names of different things that glow in the dark, both living and nonliving (fireflies, reflectors, glow sticks, glowworms, and so on). Point to the things that are living and ask students how they think living things are able to glow.

### Preview the Book

#### Introduce the Book

- Give students their copy of the book. Guide them to the front and back covers and read the title. Have students discuss what they see on the covers. Encourage them to offer ideas as to what type of book it is (genre, text type, fiction or nonfiction, and so on) and what it might be about.
- Show students the title page. Discuss the information on the page (title of book, author's name).
- Preview the table of contents on page 3. Remind students that the table of contents provides an overview of the book. Ask students what they expect to read about in the book, based on what they see in the table of contents. (Accept all answers that students can justify.)

#### Introduce the Reading Strategy: **Connect to prior knowledge**

- Explain that good readers use what they already know about a topic to understand and remember new information as they read a nonfiction book.
- Model connecting to prior knowledge.  
*Think-aloud: As I read this book, I am going to look at the photos and think about what I have read. Then I will think about what I already know about animals that glow in the dark. This is called background knowledge. After thinking about what I know, I will read the book and use my background knowledge about animals that glow to help me figure out new information in the book. I will continue reading and thinking about what I already know as I read the rest of the book.*
- Return to the covers of the book. Ask students questions to facilitate the discussion: What do you notice? What do you think it might be? Why do you think the author chose these photographs?
- Give students the **prior knowledge worksheet**. Have them read the sentences and write "Yes" or "No" to complete the column on the left.
- As students read, encourage them to use other reading strategies in addition to the targeted strategy presented in this section.

#### Introduce the Comprehension Skill: **Compare and contrast**

- Explain that one way to organize information in a book is to explain how topics are alike and different, which is called *comparing and contrasting*. Create a Venn diagram on the board and write the words *Writing and Drawing Tools* above the diagram. Label the left side *Pencil* and the right side *Marker*.
- Show students a pencil and a marker. Invite them to explain how the objects are alike and different (alike: used for writing, approximately the same length, used in art, and so on; different: the marker produces color and a pencil produces gray markings, you can erase mistakes with the pencil but not with the marker, and so on). Model how to write each response on the Venn diagram.
- Ask students how identifying ways that a pencil and a marker are alike and different helped them understand the topic of *Writing and Drawing Tools*.
- **Think-aloud:** *To understand and remember new information in a book, I can think about how information is alike and different. I know that this is one skill that good readers use, so I'm going to compare and contrast new information as I read.*

#### Introduce the Vocabulary

- Write the following words from the content vocabulary on the board: *camouflages, predators, and oxygen*.
- Give groups of students three pieces of blank paper. Have them write or draw what they know about each word. Create a definition for each word using students' prior knowledge.



- Review that the glossary contains a list of vocabulary words and their definitions. Model how students can use the glossary or a dictionary to find a word's meaning. Have them locate the glossary at the back of the book. Invite a volunteer to read the definition for *predators* in the glossary. Have students compare the definition with their prior knowledge of the word. Then have them follow along on page 7 as you read the sentence in which the word *predators* is found to confirm the meaning of the word. Repeat the exercise with the remaining vocabulary words.
- Invite students to review the photograph on the cover. Have them write a short paragraph about animals that glow in the dark that utilizes all three vocabulary words. Repeat the activity after reading the book to check for student understanding of the vocabulary.


### Set the Purpose

- Have students read the book to find out more about animals that glow in the dark. Introduce and explain the [compare-and-contrast worksheet](#). Remind students to think about what they already know about glow-in-the-dark animals and to identify similarities and differences between what they know and information in the text as they read.

### During Reading

#### Student Reading

-  **Guide the reading:** Have students read to the end of page 9. Ask them to put an asterisk or a star next to information where they connected to prior knowledge. Encourage students who finish before everyone else to go back and reread.
- Model making connections using prior knowledge.  
**Think-aloud:** *I read that people carry light around to help us see or be seen. I remember going to school this morning and seeing a bicyclist wearing a helmet with a flashlight on it. The bike had red reflectors on the back and white reflectors on the front. All of these things helped us see the bike and the person on the bike because it was still a little dark outside. I know that these things helped keep her safe.*
- Ask open-ended questions to facilitate discussion about the pages that students have read so far: *What do you know about fireflies? Where do you think you could find a firefly? Why do you think they glow?*
- Ask students to share additional ways they connected to prior knowledge as they read. Then have them identify whether the information in the text is similar to or different from what they already knew about animals that glow in the dark.
- **Check for understanding:** Have students read to the end of page 12. After they finish reading, ask them to share examples of how they connected to prior knowledge. Ask students to turn to page 6 and identify the type of animal that uses its light as a tool (anglerfish). Have them identify whether this usage of light is similar to or different from the use of light for protection (different; page 6: *Some glowing sea animals use their light to hunt*; page 7: *Other animals use their glow to hide from predators*).
- Have students explain the meaning of the word *camouflage*. Ask them to explain how this word represents either a similarity or difference between animals that use their light for protection (difference). Have students identify the pages that support their answer (page 9: *The blue-green glow camouflages, or hides, the shark.... When a bigger fish comes near to catch it, the cookie-cutter shark attacks and eats the fish.*). Ask students to record these similarities and differences on their compare-and-contrast worksheet.
-  Have students read the remainder of the book. Remind them to think about what they know about animals that glow in the dark as they read and to identify similarities and differences between animals that use their light as a tool and animals that use their light for protection. Have them continue to put an asterisk or a star next to information where they connected to prior knowledge.

 Have students make a question mark in their book beside any word they do not understand or cannot pronounce. Encourage them to use the strategies they have learned to read each word and figure out its meaning.

### After Reading

- Ask students what words, if any, they marked in their book. Use this opportunity to model how they can read these words using decoding strategies and context clues.

### Reflect on the Reading Strategy

- Have students complete the prior knowledge worksheet and compare what they knew before they read the book with what they know after reading it.
- Discuss how making connections between information read and information known about the topic keeps readers actively involved and helps them remember what they have read.
- **Think-aloud:** *When I read page 19, I thought about oceans covering about 70 percent of Earth's surface. It reminded me of looking at a globe and seeing all of the blue parts that represent the oceans. I remembered learning about percentages in math, and I know that the biggest percentage that you can have is 100. I know that 70 percent means that more than half of Earth is covered by oceans. Thinking about what I know helped me to understand and remember this information.*
- Have students share examples of how they connected to prior knowledge to understand the information in the book.

### Reflect on the Comprehension Skill

- **Discussion:** Review the similarities and differences between animals that use their light as a tool and animals that use their light for protection. Tell students to review what they have recorded on their worksheet so far. Write the phrases *use light as a tool* and *use light for protection* on the board. Have students work with a partner to locate the author's words that tell about the animals that use their light as a tool and the animals that use their light for protection. Ask if any animals use their light as both a tool and for protection. Invite pairs of students to share their answers and the information that supports it.
- **Independent practice:** Have students record the information discussed on their compare-and-contrast worksheet.
- **Enduring understanding:** The author tells us that when scientists explore new parts of oceans, they discover new kinds of animals. Now that you know this information, what does it tell us about the need for scientific exploration and discovery? What new glow-in-the-dark animals do you think will be found next?

### Build Skills

#### Grammar and Mechanics: Prepositions

- Explain that *prepositions* are words that show a relationship between things. They provide information about *where*, *when*, *how*, *why*, and *with what* something happens. For example, in the sentence *I'll do this after lunch*, the word *after* is a preposition that provides information about when something happens.
- Ask students to turn to page 7. Write the following sentence from the book on the board: *Some squid squirt chemicals into the ocean water to make a glowing cloud.* Point to the word *into*. Have a volunteer explain how the preposition is used in this sentence (it explains *where* the squid squirt chemicals).
- Explain that prepositions are also defined as relationship indicators; they explain the relationship of a subject to the rest of the sentence. Have a volunteer draw a shark on the board. Have another volunteer draw a piece of coral in front of the shark. Ask a volunteer to name a preposition that tells where the coral is in relation to the shark.

## Lesson Plan *(continued)*

## Glow-in-the-Dark Animals

- Write the following sentences on the board: *The fish goes \_\_\_\_\_ the reef. The fish is \_\_\_\_\_ the reef.* Next, draw a line from the fish *over, under, through, beside, and to* the reef, one at a time. Have a volunteer come to the board and write each preposition in the correct sentence.



**Check for understanding:** Have students look through the text and circle examples of prepositions. Record on the board the prepositions that students identify in the book. Discuss the type of information each preposition provides (how, when, why, and so on) and how each one links the words in the sentence.

- **Independent practice:** Introduce, explain, and have students complete the [prepositions worksheet](#). If time allows, discuss their responses.

### Word Work: **Alphabetical order**

- Review or explain the process of putting a list of words in alphabetical order, modeling with a dictionary. Remind students that if the first letter of two words is the same, they must compare the next two letters instead.
- Write the words *firefly* and *glowworm* on the board. Have a volunteer explain which word would appear first in alphabetical order (*firefly*) and why (because *f* comes before *g* in the alphabet).
- Write the words *bacteria* and *bioluminescent* on the board. Point out that the words begin with the same letter (*b*). Ask a volunteer to tell which word would appear first in alphabetical order and to explain his or her thinking (*bacteria*, because the second letter, *a*, in *bacteria* comes before the second letter, *i*, in *bioluminescent*). Have pairs of students work together to find each word in the dictionary to confirm their answer.
- Write the words *prey* and *predator* on the board. Point out that the words begin with the same three letters (*pre*). Ask a volunteer to tell which word would appear first in alphabetical order and to explain his or her thinking (*predator*, because the fourth letter, *d*, in *predator* comes before the fourth letter, *y*, in *prey*).
- **Check for understanding:** Write the words *plants* and *pants* on the board. Have students write the words in alphabetical order and explain their thinking on a separate piece of paper. Discuss their answers aloud, pointing out that it is necessary to examine the second letter in each word to correctly alphabetize the words. Invite pairs of students to work together to find each word in the dictionary, comparing their placement on the pages of the dictionary.
- **Independent practice:** Introduce, explain, and have students complete the [alphabetical order worksheet](#). If time allows, discuss their responses.

## Build Fluency

### Independent Reading

- Allow students to read their book independently. Additionally, partners can take turns reading parts of the book to each other.

### Home Connection

- Give students their book to take home to read with parents, caregivers, siblings, or friends. Have them compare with someone at home their prior knowledge about animals that glow in the dark.

## Extend the Reading

### Informational Writing Connection

Have students utilize Internet sources to research and find more information about the 2009 scientific discovery of the green bomber. Have them search to find answers to such questions as: *In which ocean was it discovered? How deep was the discovery? What does the swimming worm eat?* and so on. Have them write an informational paragraph with a summary sentence at the end. Encourage students to add photographs or illustrations to their work.

Visit [Writing A-Z](#) for a lesson and leveled materials on expository writing.

### Science Connection

Remind students that scientists study glowing animals to learn more about nature. Talk about the importance of scientists studying animal bioluminescence to learn about diseases such as cancer. Using an overhead projector, show students how to employ a search engine such as Google to find more information about a topic. Type in: *animal bioluminescence* and *cancer*, and point out the articles that come up. Model how to locate the best information and how to review that information to further understand a subject.

### Skill Review

**Discussion cards** covering comprehension skills and strategies not explicitly taught with the book are provided as an extension activity. The following is a list of some ways these cards can be used with students:

- Use as discussion starters for literature circles.
- Have students choose one or more cards and write a response, either as an essay or as a journal entry.
- Distribute before reading the book and have students use one of the questions as a purpose for reading.
- Cut apart and use the cards as game cards with a board game.
- Conduct a class discussion as a review before the book quiz.

### Assessment

**Monitor students to determine if they can:**

- use the strategy of connecting to prior knowledge to understand nonfiction text during discussion and on a worksheet
- accurately identify similarities and differences between information in nonfiction text during discussion and on a worksheet
- correctly identify and use prepositions during discussion and on a worksheet
- understand the process of arranging words in alphabetical order during discussion and on a worksheet

### Comprehension Checks

- **Book Quiz**
- **Retelling Rubric**