



In This Guide

In this guide, you will find language arts and science lessons for the stories in the May issue of EXPLORER PIONEER.

Explorer Magazine

EXPLORER magazine is a classroom magazine specifically written for each grade, 2-5. Each grade's magazine contains a grade-appropriate reading experience, develops literacy skills and teaches standards-based science content. Great storytelling and stunning photographs teach your students about our planet and the people, plants, and animals that live on it. Use EXPLORER in your classroom to encourage students to explore our world and make it a better place.

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Into the Hive

LANGUAGE ARTS

Objectives

- Students will identify and explain connections between vocabulary words.
- Students will know and use various text features to locate key facts or information efficiently.

Resources

- Vocabulary Assessment Master (page 6)
- Language Arts Assessment Master (page 7)

Summary

- The article “Into the Hive” introduces students to honeybees, explores how worker bees take care of the hive, and explains why plants need honeybees for pollination.

BUILD VOCABULARY AND CONCEPTS

- **beeswax**
- **hive**
- **nectar**
- **pollen**
- **pollinate**

Display the Wordwise section on page 9 of the projectable magazine. Invite volunteers to read aloud the words and their definitions. Encourage students to share what they know about each word.

Give each student a copy of the **Vocabulary Assessment Master**. Divide the class into pairs. Instruct partners to record each word and its definition. Then have them think about how the vocabulary words are related. As a class, write three sentences telling how two or more words are connected. For example: Honeybees carry pollen back to the hive. Have students copy the sentences on their worksheets.

READ

Inform students that in this article they will read about honeybees. They will learn how worker bees take care of their hive and why plants need honeybees for pollination.

Display pages 2-3 of the projectable magazine. Ask students what type of animal is shown in the photo. (honeybees) Then ask where the honeybees are going. (into the hive) Highlight the article's headline.

Ask: *How many of you used the article's headline to answer these questions?* Guide the class to recognize that a headline is a text feature that helps readers locate key facts quickly.

Point out that this article contains other text features that help in this way, too. Model how to identify and use text features to learn about a topic. **Say:** *A honeybee is a small brown and yellow insect. It has six legs and two antennae. I know this because the photograph shows me what a honeybee looks like. Honeybees fly. The photo shows me that, too.*

Have students review the article to identify captions, bold print, subheads, photographs and the glossary. Discuss how each text feature can help readers get information quickly.

Give each student a copy of the **Language Arts Assessment Master**. Have students read the article on their own. As they do, instruct them to record one key fact they learned from each type of text feature in the article.

Into the Hive

LANGUAGE ARTS

TURN AND TALK

Have students turn and talk to discuss what they learned about honeybees. **Ask:** *Where do honeybees live?* (in hives) *Which type of bee does the most work in the hive?* (worker bees) *What do honeybees store inside their hives?* (pollen and nectar) Invite students to share what else they learned about honeybees.

- **Finding Connections** Explain to students that reading definitions tells people what words mean. But readers can learn even more if they see how important words are connected. Point out that this is exactly what they did when they wrote sentences about the vocabulary words in the article. Instruct students to turn and share the sentences they wrote on their **Vocabulary Assessment Masters** with a partner. Encourage them to discuss similarities and differences in their sentences to get an even deeper understanding of the vocabulary words.

- **Using Text Features** After reading the article, divide the class into small groups. Instruct students to ask each other questions about honeybees. Encourage them to use the information they recorded on their **Language Arts Assessment Masters** to find the answers. Rejoin as a class. Discuss how using various text elements helped them quickly locate key information about honeybees.

WRITE AND ASSESS

You may want students to write about what they learned to assess understanding. Encourage students to reflect upon what they read and how it affected their ideas about the topic.

- *What jobs does a worker bee have in the hive?*
- *What does a queen bee do?*
- *What surprised you about what you read?*

Into the Hive

SCIENCE

Objectives

- Students will understand how honeybees collect pollen and nectar.
- Students will understand how honeybees pollinate flowers so the flowers can make seeds.
- Students will recognize characteristics that distinguish honeybees from wasps and other types of bees.

Resources

- Content Assessment Master (page 8)
- "The Buzz on Bees" poster (Teacher's Edition)
- Comprehension Check (page 9)
- "Into the Hive" Interactive Whiteboard (optional)

Science Background

Honeybees are small insects (5-15 mm) that live in very large colonies or swarms. There may be more than 60,000 honeybees in one hive.

There are three types of bees: the queen, drones, and workers. Each hive has one queen. The queen is the largest bee in the hive. She can live up to five years. Her one job is to lay eggs. A queen bee can lay up to 2,500 eggs a day.

There are several hundred drones, or male bees, in a hive. The sole purpose of the drone bee is to mate with the queen.

The vast majority of bees in a hive are workers. These are female bees that do all of the work to keep the hive going. Worker bees clean the hive, take care of the young, build wax combs, guard the entrance, and find the food that feeds all of the other bees. They also make honey.

Honeybees get their food from flowers. They eat pollen and drink nectar. To guide other bees to flower, a honeybee dances. The worker bee lands on a vertical surface. If she runs straight up, she's telling the other bees to fly toward the sun. If she runs down, the food is in the opposite direction. She wiggles her abdomen to communicate distance. The more she wiggles, the further away the food is.

ENGAGE

Tap Prior Knowledge

Ask students to think of a time when they saw a bee landing on a flower. Have them describe what the bee did when it got to the flower. As a class, discuss what the bee was doing and why it might have landed on the flower.

EXPLORE

Preview the Lesson

Display pages 2-3 of the projectable magazine. Read aloud the headline. Have students examine the photo. **Ask:** *What type of insect does this photo show? (honeybees) Where are they going? (into the hive) Why? (It is their home.)* Draw students' attention to the honeybee above the word "Into" in the headline. Point to its hind leg. **Say:** *This bee has a very fat hind leg. The leg looks yellow.* **Ask:** *Do you think that's just the way the leg looks in the photo or is there something on the honeybee's leg? If so, what could it be?* Encourage students to share their ideas. Tell them they'll know the answer after they read the article.

Set a Purpose and Read

Have students read the article in order to understand how honeybees collect pollen and nectar and how honeybees pollinate flowers. They will also recognize characteristics that distinguish honeybees from wasps and other types of bees.

Into the Hive

SCIENCE

EXPLAIN

Understanding How Honeybees Collect Food

Display pages 8-9 of the projectable magazine. Point out to students that the honeybee in this photo is visiting a flower. **Ask:** *Which text features tell you why the honeybee is visiting the flower?* (the caption and the subhead "Finding Food") Read that section aloud. **Ask:** *What do bees get when they visit flowers?* (pollen and nectar) Discuss how the honeybee collects pollen on its legs and the hairs on her body. Ask students if they think honeybees collect nectar in this same way. (no) **Ask:** *How do you think honeybees collect nectar? Why?* (They drink it. Nectar is a liquid.) **Say:** *Honeybees aren't the only ones who get what they need when they visit flowers. Plants do, too. Worker bees spread pollen from flower to flower. This helps pollinate flowers so they can make seeds.* Give each student a copy of the **Content Assessment Master**. Instruct students to draw a picture of a honeybee visiting a flower. Then have write sentences telling how the visit helps both the plant and the honeybee.

Honeybees vs. Wasps and Other Bees

Display "**The Buzz on Bees**" poster. Invite a volunteer to read aloud the headline and subhead. Then examine the four bees on the poster. Discuss how the bees are different. Then zoom in on the section "Wasp vs. Bee." Review the traits of wasps and bees. As a class, discuss how wasps and bees are different.

ELABORATE

Find Out More

Point out to students that the article told how honeybees get food from flowers. But all it said about flowers is that bees pollinate flowers when they visit. As a class, conduct research to learn more about pollination.

Extend Your Thinking About Insects

Inform students that honeybees are the only insects in the world that make a food people eat—honey! But in some places, people eat insects for food. As a class, conduct research to find one insect people eat for food. Work together to write a recipe that would entice everyone's friends to eat that insect for lunch!

EVALUATE

Have students record their answers to the assessment questions in their science notebooks or on a separate sheet of paper.

- *What do bees make to build their hive?* (beeswax)
- *Why do bees visit flowers?* (to get pollen and nectar)
- *How does a bee help a flower when it visits?* (Bees transfer pollen from one flower to another.)

If you wish, have students complete the **Comprehension Check** to assess their knowledge of concepts mentioned in the article. You may also wish to examine the optional **Interactive Whiteboard** lesson that accompanies this article.

VOCABULARY ASSESSMENT: Into the Hive

Record each vocabulary word and its definition.

Word	Definition

Write three sentences to tell how different words are connected.

1. _____

2. _____

3. _____

LANGUAGE ARTS ASSESSMENT: Into the Hive

Record one key fact you learned from each type of text feature in the article.

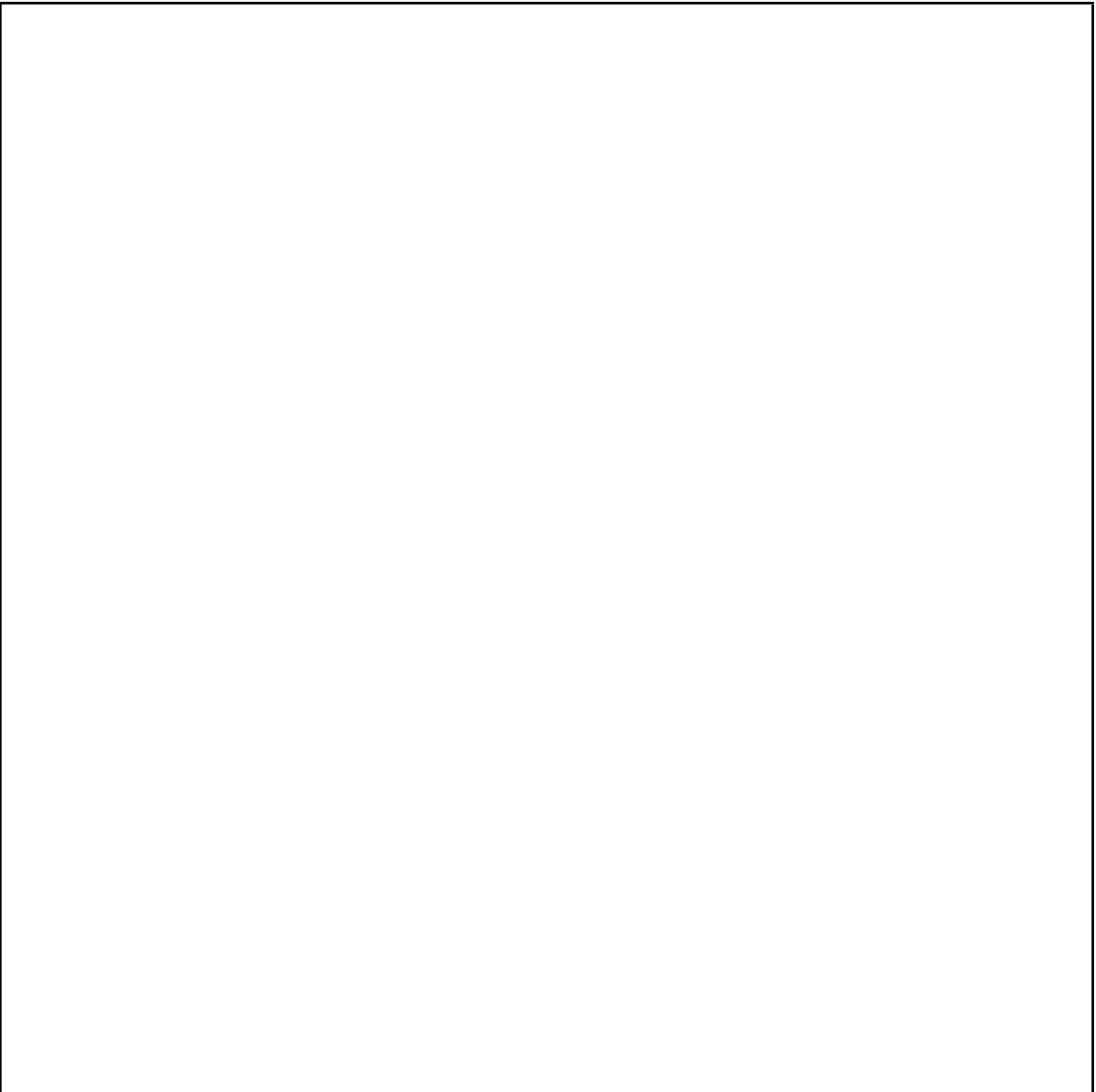
Text Feature	Fact
headline	
subhead	
photo	
caption	
bold print	
glossary	

Name _____

Date _____

CONTENT ASSESSMENT: Into the Hive

Draw a picture of a honeybee visiting a flower. Tell how this helps the bee. Tell how it helps the plant.



How It Helps the Bee

How It Helps the Plant

COMPREHENSION CHECK: Into the Hive

Read each question. Fill in the circle next to the correct answer or write your response on the lines.

- 1. Which bees take care of the hive?
A queen bee
B worker bees
C both

- 2. What do honeybees get from flowers?
A pollen and nectar
B flowers and fruit
C honey and beeswax

- 3. What do honeybees move from flower to flower?
A nectar
B pollen
C honey

- 4. What can plants do because honeybees visit?
A grow
B make pollen
C make seeds

5. Tell how honeybees make beeswax to build a hive.

Magnificent Magnets

LANGUAGE ARTS

Objectives

- Students will create sketches to understand the meaning of unfamiliar words.
- Students will ask and answer questions about magnets.
- Students will explain concepts based on information in the text.

Resources

- Vocabulary Assessment Master (page 14)
- Language Arts Assessment Master (page 15)

Summary

- The article “Magnificent Magnets” invites students to discover how magnets work and how they are used in the world.

BUILD VOCABULARY AND CONCEPTS

- **attract**
- **magnet**
- **magnetic field**
- **repel**

Display the vocabulary words on a word wall or on the whiteboard. Point out to students that when they read they will encounter words they don't know. Remind them that using context clues such as the sentences before and after an unknown word and photographs on the page can help them figure out what the unfamiliar word means.

Invite a volunteer to read the definition of *attract* in the Wordwise feature on page 15 of the article. Examine this word in context. Then give each student a copy of the **Vocabulary Assessment Master**. Instruct students to write the word's definition and create a detailed sketch showing what it means. Inform students that their drawings won't all be the same. The point is for students to draw the word in a way that helps them remember what it means. Examine the other words in this same way.

READ

Let students know that the purpose of this article is to discover how magnets work and how they are used in the world.

Explain to students that good readers ask questions before, during, and after they read. They ask questions, in particular, when they encounter something they don't understand or something they want to learn more about. Usually, they can find the answer in the text.

Display pages 10-11 of the projectable magazine. Model how to ask and answer questions. **Say:** *When I look at these pages, I see two big red and silver objects in the photo. But something strange is going on. All of the silver objects seem to be pulled toward the larger objects. Why?* Point out the headline and read it aloud. **Say:** *This explains a lot. The two larger objects must be magnets. I know that magnets can pick some things up. That must be happening here.* Point out the subhead and read it aloud. **Say:** *I've used magnets before, but I don't know how they made my life better. And how could a magnet make an animal's life better? To find answers to those questions, I'll have to read the article.*

Give each student a copy of the **Language Arts Assessment Master**. Explain to student how they can use the worksheet to record questions and answers before, during, and after they read the article.

As a class, brainstorm a list of questions about magnets. Instruct students to record the questions in the appropriate section of their worksheets. Then have students read the article on their own. As they do, instruct them to record additional questions and any answers they find in the text. If students still have questions about magnets after reading the article, instruct them to record those questions, too.

Magnificent Magnets

LANGUAGE ARTS

TURN AND TALK

Have students turn and talk to discuss what they learned about how magnets work. **Ask:** *What is a magnet?* (a material that has a magnetic force) *What does that mean?* (A magnet can attract or repel objects.) *What is the biggest magnet shown in the photos in this article?* (Earth)

- **Ask and Answer Questions** Remind students that asking and answering questions is a strategy to help them understand what they read. **Say:** *Even the best readers come across words or ideas they don't understand. Asking questions is the first step toward figuring those things out. If you ask questions, you know which answers to search for as you read and re-read the text.* Have students share and compare their **Language Arts Assessment Masters** with a partner. Do they have the same questions? Did they find the same answers? If not, encourage them to identify where in the text they found the answer and make any corrections necessary.

- **Explain Concepts** After reading the article, **say:** *One way to see if you understand information is to try to tell someone else about the topic. If you can't explain the concept, you might need to read the article again.* Have students turn and talk to explain to a partner how magnets work. Prompt discussion with questions such as: *What is a magnetic pole?* (the area of a magnet where the force is strongest) *What do two opposite poles do?* (attract one another) *What do two of the same poles do?* (repel one another)

WRITE AND ASSESS

You may want students to write about what they learned to assess understanding. Encourage students to reflect upon what they read and how it affected their ideas about the topic.

- *What is a magnetic field?*
- *Why are some magnets stronger than others?*
- *What surprised you about what you read?*

Magnificent Magnets

SCIENCE

Objectives

- Students will understand how magnets work.
- Students will understand what a magnetic field is and how Earth's magnetic field formed.

Resources

- Content Assessment Master (page 16)
- "Earth's Magnetic Field" poster (Teacher's Edition)
- Comprehension Check (page 17)

Science Background

A magnet is a material that has a magnetic force. Although that force is invisible, it is powerful. It allows magnets to pull other objects toward them or to push the objects away.

Magnets get this power from the spinning motion of electrons. Electrons circle the nucleus, or core, of the atoms that make up matter. When electrons spin, they create electricity. This occurs in all types of matter. But in most materials, equal numbers of electrons spin in opposite directions, canceling out the magnetism.

In some materials—like iron, cobalt, and nickel—most of the electrons spin in the same direction. If a material like this enters the magnetic field of another object, such as Earth, that object obtains its own magnetic force.

Every magnet has two poles, north and south. Opposite poles are attracted to each other. They are pulled together. The same poles repel, or push apart.

An electromagnet is a type of magnet created when a material becomes magnetic after an electric current is passed through a wire coiled around it. Magnets like these need electricity to create a magnetic field. When the electric current is turned off, they can no longer attract or repel other objects.

ENGAGE

Tap Prior Knowledge

Display a mixture of plastic and metal paper clips on a desk. Invite a student to hold a magnet over the objects. Give students a moment to observe as the metal the paper clips move toward the magnet but the plastic ones don't. Challenge students to explain what just happened.

EXPLORE

Preview the Lesson

Display pages 10-11 of the projectable edition. Read aloud the headline and subhead. **Ask:** *What is this article about?* (magnets) *What does the subhead claim?* (that magnets make life better for people and animals) Brainstorm ideas about how this might be possible.

Set a Purpose and Read

Have students read the article in order to understand how magnets work, what a magnetic field is, and how Earth's magnetic field formed.

EXPLAIN

Understanding How Magnets Work

Display pages 10-11 of the projectable magazine. Instruct students to look at the magnets and the other objects on the screen. Point out that the items in this photo all seem to be moving toward the magnets. But the magnets aren't doing anything. They're just sitting there. **Ask:** *How is this possible?* Invite volunteers to share their ideas. **Say:** *Magnets have an invisible force. They can push and pull some objects away without touching them.* Review the *Worwise* vocabulary words *repel* and *attract*. Display page 12 of the projectable magazine. Challenge students to explain what is happening here. (The magnet is attracting the metal balls.)

Magnificent Magnets

SCIENCE

EXPLAIN

(continued)

Understanding Magnetic Fields

Display the "**Earth's Magnetic Field**" poster.

Discuss how Earth's magnetic field is formed. Then display the photo of *Aurora Australis* on page 14 of the projectable magazine. Discuss how Earth's magnetic field causes this to happen. (At Earth's north or south pole, Earth's magnetic field interacts with sunlight. This creates bands of colorful light.) Give each student a copy of the **Content Assessment Master**. Instruct students to draw a picture of these bands of light. Tell them to write a short explanation telling how this happens.

ELABORATE

Find Out More

Display pages 14-15 of the projectable magazine. Inform students that the article explained how people use magnets to operate doorbells, dishwashers, and trains. But it only showed a picture of an electronic device. As a class, to conduct research to learn how electronic devices use magnets. Invite them to share what they learned with the class.

Extend Your Thinking About Magnets

Remind students that in some parts of the world people use magnets to move trains. These trains can travel at speeds of up to 500 kilometers per hour! Discuss the pros and cons of using a train that could travel that fast.

EVALUATE

Have students record their answers to the assessment questions in their science notebooks or on a separate sheet of paper.

- *How did early explorers use magnets?* (They used lodestone, a natural magnet, as a compass.)
- *Where can see the Aurora Australis?* (near Earth's South Pole)
- *What does magnetism help loggerhead sea turtles do?* (follow their migration route)

If you wish, have students complete the **Comprehension Check** to assess their knowledge of concepts mentioned in the article.

VOCABULARY ASSESSMENT: Magnificent Magnets

Record the definition of each vocabulary word. Draw a picture to help you remember what each word means.

Word	Definition	Sketch
attract		
magnet		
magnetic field		
repel		

Name _____

Date _____

LANGUAGE ARTS ASSESSMENT: Magnificent Magnets

Record questions you have about magnets before, during, and after reading the article.
Search for answers in the text.

	Questions	Answers
Before		
During		
After		

Name _____

Date _____

CONTENT ASSESSMENT: Magnificent Magnets

Draw a picture of the lights created by Earth's magnetic field. Explain why these lights appear.

Draw

Explain

COMPREHENSION CHECK: Magnificent Magnets

Read each question. Fill in the circle next to the correct answer or write your response on the lines.

1. What happens if a magnet attracts objects?
A The objects are pulled toward the magnet.
B The objects are push away from the magnet.
C The objects don't move.

2. What happens if a magnet repels objects?
A The objects are pulled toward the magnet.
B The objects are push away from the magnet.
C The objects don't move.

3. What is a magnetic field?
A a natural magnet in the ground
B the area of magnetic force around a magnet
C a field that that some animals go to

4. Why does Earth's magnetic field extend into space?
A It is round.
B It is magnetic.
C It is strong.

5. Tell why bands of light sometimes appear at Earth's poles.

LANGUAGE ARTS

Objectives

- Students will predict definitions and then write sentences to better understand unfamiliar words.
- Students will ask questions about the Okavango Delta and find answers in the text.
- Students will explain concepts based on information in the article.

Resources

- Vocabulary Assessment Master (page 22)
- Language Arts Assessment Master (page 23)

Summary

- In the article “Okavango Adventure,” National Geographic Explorer Steve Boyes introduces readers to animals that live on the Okavango Delta in Botswana, Africa.

BUILD VOCABULARY AND CONCEPTS

- **delta**
- **channel**
- **wetland**

Give each student a copy of the **Vocabulary Assessment Master**. Point out to students that they may have heard some or all of these words before.

Divide the class into pairs. Using what they already know as a base, instruct pairs to write a definition for each word. Then have them write a sentence for each word, based on the definitions they wrote.

Display the Wordwise feature on page 23 of the projectable magazine. Review the definitions as a class. Have students add these definitions to their worksheets. Instruct pairs to write new sentences, using each word as it is defined in the article.

Invite volunteers to read aloud the before and after sentences they wrote for each word. As a class, examine how new knowledge expanded students' understanding of each word.

READ

Let students know that the purpose of this article is to introduce them to Africa's Okavango Delta. As they read, they will learn why the ecosystem here is important to African wildlife. They will also learn about human activities that can harm the delta.

Tell students that the best way to learn more about a subject is to ask themselves questions as they read the article. **Say:** *Good readers always do this. It helps them learn more about the topic. And asking questions isn't as hard as you might think. Many questions begin with the same six question words: Who? What? Where? When? Why? and How?*

Display pages 16-17 of the projectable magazine. Read aloud the headline and text. Model how to ask and answer questions. **Say:** *When I look at this page, the first thing I notice is the image. Where is that boat going? What is it doing? The writer says this article is about an adventure. What sort of adventure? And the text says this place is dangerous. Why? What is hiding in the water?* Encourage students to introduce new questions of their own.

Give each student a copy of the **Language Arts Assessment Master**. Have students read the article on their own. As they do, instruct them to write at least one question related to the article that begins with each question word. Challenge them to find the answers to their questions in the text. Instruct students to record the answers on their worksheets.

LANGUAGE ARTS

TURN AND TALK

Have students turn and talk to discuss what they learned about the Okavango Delta. **Ask:** *Where is the Okavango Delta? (Botswana, Africa) Why is the Okavango Delta special? (Most deltas form where a river empties into the ocean. This delta is in the middle of a desert.)* Encourage students to share other interesting facts they learned about the Okavango Delta.

- **Ask and Answer Questions** Remind students that asking and answering questions is a strategy that will help them understand what they read. **Say:** *Even the best readers come across words and ideas they don't understand. Asking questions shows you which answers you need to search for as you reread the text.* Have students share and compare their **Language Arts Assessment Masters** with a partner. Did they have the same questions? Did they find the same answers? If not, encourage partners to compare where in the text they each found the answer to reevaluate the results.

- **Explain Concepts** After reading the article, **say:** *One way to see if you understand information is to try to tell someone else about the topic. If you can't explain the concept, you might need to read the article again.* Have students turn and talk to explain to a partner what a delta is and how it forms.

WRITE AND ASSESS

You may want students to write about what they learned to assess understanding. Encourage students to reflect upon what they read and how it affected their ideas about the topic.

- *What is a delta?*
- *What is it like on the Okavango Delta?*
- *What surprised you about what you read?*

Okavango Adventure

SCIENCE

Objectives

- Students will understand that many different animals live on the Okavango Delta.
- Students will recognize how human activities can change the delta.

Resources

- Content Assessment Master (page 24)
- Comprehension Check (page 25)

Science Background

Located in the northwest corner of Botswana, the Okavango Delta spreads out across 15,000 square kilometers. It is the largest freshwater ecosystem in the world.

Africa's Okavango Delta is unique. Most deltas form where rivers flow into the ocean. This delta exists where the Okavango River empties into the Kalahari Desert.

The Okavango Delta is home to some of the world's most endangered large animal species. This includes cheetahs, white rhinoceroses, black rhinoceroses, African wild dogs, and lions. Other large animals include giraffes, antelopes, Nile crocodiles, warthogs, and the plains zebra. About 400 species of birds and 71 species of fish live here, too.

Life on the delta is ruled by the weather. The wet season typically begins in March and peaks in July. Many large animals leave the delta during this time to make their homes in the lush grasslands that surround the delta.

In 2014, the United Nations named the Okavango Delta as its 1,000th World Heritage Site.

ENGAGE

Tap Prior Knowledge

Encourage students to think of nature shows about Africa that they've seen on television. Invite volunteers to describe what the places they saw looked like. Brainstorm a list of animals that lived there. Discuss what it would be like to explore a place like this in real life.

EXPLORE

Preview the Lesson

Instruct students to scan the article's photographs in their student magazines. Invite volunteers to describe what it's like on the Okavango Delta. Inform students that this delta is located in the middle of a desert in Africa. Brainstorm reasons why the writer would call it a wilderness.

Set a Purpose and Read

Have students read the article in order to understand that many different animals live on the Okavango Delta and how human activities can change the delta.

EXPLAIN

Recognizing Okavango Delta Animals

Display the Wordwise feature on page 23 of the projectable magazine. Read aloud the definition for *delta*. Review with the class what a delta is. Display the photo on pages 20-21 to show students what a delta is like. Have them examine the rest of the article's photos. **Ask:** *What two animals do you see?* (lion and hippo) Tell students that many other animals live here, too. They all get what they need to survive. As a class, review the article to identify two other delta animals. (elephant and fish) Brainstorm a list of other animals that might live here. Then give each student a copy of the **Content Assessment Master**. Instruct students to draw picture elephants and fish on the Okavango Delta. Tell them to write captions for each of their pictures.

Okavango Adventure

SCIENCE

EXPLAIN

(continued)

Recognizing the Impact of Humans

Display page 23 of the projectable magazine. Zoom in on the photo of the writer. Explain to the class that Steve Boyes is a National Geographic Explorer. He studies animals living on the Okavango Delta. He wants to learn about the animals and make sure that they are safe. Review the article with the class. Invite students to relate some of the things Boyes has learned about the animals. Then display page 22 of the projectable magazine. Zoom in on the section "Saving the Okavango." Read the last paragraph aloud. Tell students that people often do things that harm places like the Okavango Delta. For example, they pollute rivers and they cut down trees. Discuss how doing things like this would hurt the Okavango Delta. Then discuss reason why it is good that the Okavango Delta is protected.

ELABORATE

Find Out More

Remind students that the article included photographs of lions and hippos. It also said that elephants and fish live on the Okavango Delta. But many more animals live here. As a class, conduct research and make a list of other animals that live on the Okavango Delta.

Extend Your Thinking About Hippos

Remind students that the writer went to great lengths to avoid a herd of hippos in the article. The caption on page 23 calls them the "guardians of the river." Invite students to share what they know about hippos. Brainstorm reasons why they might have been given this title.

EVALUATE

Have students record their answers to the assessment questions in their science notebooks or on a separate sheet of paper.

- *What is a wetland?* (land consisting of marshes or swamps)
- *What is a channel?* (a length of water that joins two larger areas of water)
- *Why would the Okavango Delta be a good place for hippos to live?* (Hippos live in water. There is a lot of water here.)

If you wish, have students complete the **Comprehension Check** to assess their knowledge of concepts mentioned in the article.

Name _____

Date _____

VOCABULARY ASSESSMENT : Okavango Adventure

Use this organizer to study each vocabulary word in the article.

Word			
Predicted Definition			
Sentence			
Definition from the Article			
Sentence			

LANGUAGE ARTS ASSESSMENT: Okavango Adventure

Write one question about the article that begins with each question word.

Find the answer in the text.

Question Word	My Question	My Answer
Who?		
What?		
Where?		
When?		
Why?		
How?		

Name _____

Date _____

CONTENT ASSESSMENT: Okavango Adventure

Draw pictures of elephants and fish on the Okavango Delta. Write a caption for each picture.

Captions	Pictures

COMPREHENSION CHECK: Okavango Adventure

Read each question. Fill in the circle next to the correct answer or write your response on the lines.

- 1. Where is the Okavango Delta?
A Africa
B Asia
C Australia

- 2. What is the land like in the Okavango Delta?
A desert
B jungle
C wetland

- 3. Which Okavango Delta animals are called the guardian of the river?
A lions
B hippos
C elephants

- 4. Where do lions live in the Okavango Delta?
A in a channel
B on land
C in the river

5. How is the Okavango Delta different from other deltas?

ANSWER KEY

Into the Hive

Assess Vocabulary, page 6

Students should record the words and definitions from the Wordwise feature on page 9.

beeswax: a wax made by bees

hive: a bee's home

nectar: a sweet liquid made by flowers

pollen: tiny grains a plant makes to reproduce

pollinate: to transfer pollen from one flower to another

Sentences will vary depending on which vocabulary words students select.

Assess Language Arts, page 7

Students should record one fact from the article directly related to each text feature.

Assess Content, page 8

Students should draw a picture resembling the photo on page 9 of the article. They should note that bees get food—nectar and pollen—from flowers. When bees visit flowers, they pollinate flowers. That allows flowers to make seeds.

Comprehension Check, page 9

1. B; 2. A; 3. B; 4. C; 5: Groups of bees huddle together. It gets hot. Liquid wax oozes from their bodies. The wax hardens as it cools. The bees chew the hard wax to make it soft. They mold it into tiny hexagons.

Magnificent Magnets

Assess Vocabulary, page 14

Students should record the words and definitions from the Wordwise feature on page 15.

attract: to pull toward

magnet: a material that has a magnetic force

magnetic field: the area of magnetic force around a magnet

repel: to push away

Sketches will vary.

Assess Language Arts, page 15

Students' questions will vary, but all questions should relate to the article. All answers should come directly from the text.

Assess Content page, 16

Students should draw a picture resembling the photo on page 14 of the article. They should explain that Earth's magnetic field interacts with sunlight at the planet's north and south poles. This creates colorful bands of light.

Comprehension Check, page 17

1. A; 2. B; 3. B; 4. C; 5: Earth's magnetic field interacts with sunlight at the planet's north and south poles. This creates colorful bands of light.

Okavango Adventure

Assess Vocabulary, page 22

Students' predictions and the sentences they write will vary. They should record the words and definitions from the Wordwise feature on page 23.

delta: an area of land shaped like a fan and formed by deposits of sand and mud at the mouth of a river

channel: the length of water that joins two larger areas of water

wetland: land consisting of marshes or swamps

Assess Language Arts, page 23

Students should write at least one question that begins with each question word. All questions should relate to the text. Answers should also come from the text.

Assess Content, page 24

Students should draw picture of an elephant and fish in an environment resembling the Okavango Delta. They should write a caption for each picture based on information in the text.

Comprehension Check, page 25

1. A; 2. C; 3. B; 4. B; 5: Most deltas form where a river empties into the ocean. The Okavango Delta is located in the middle of a desert.