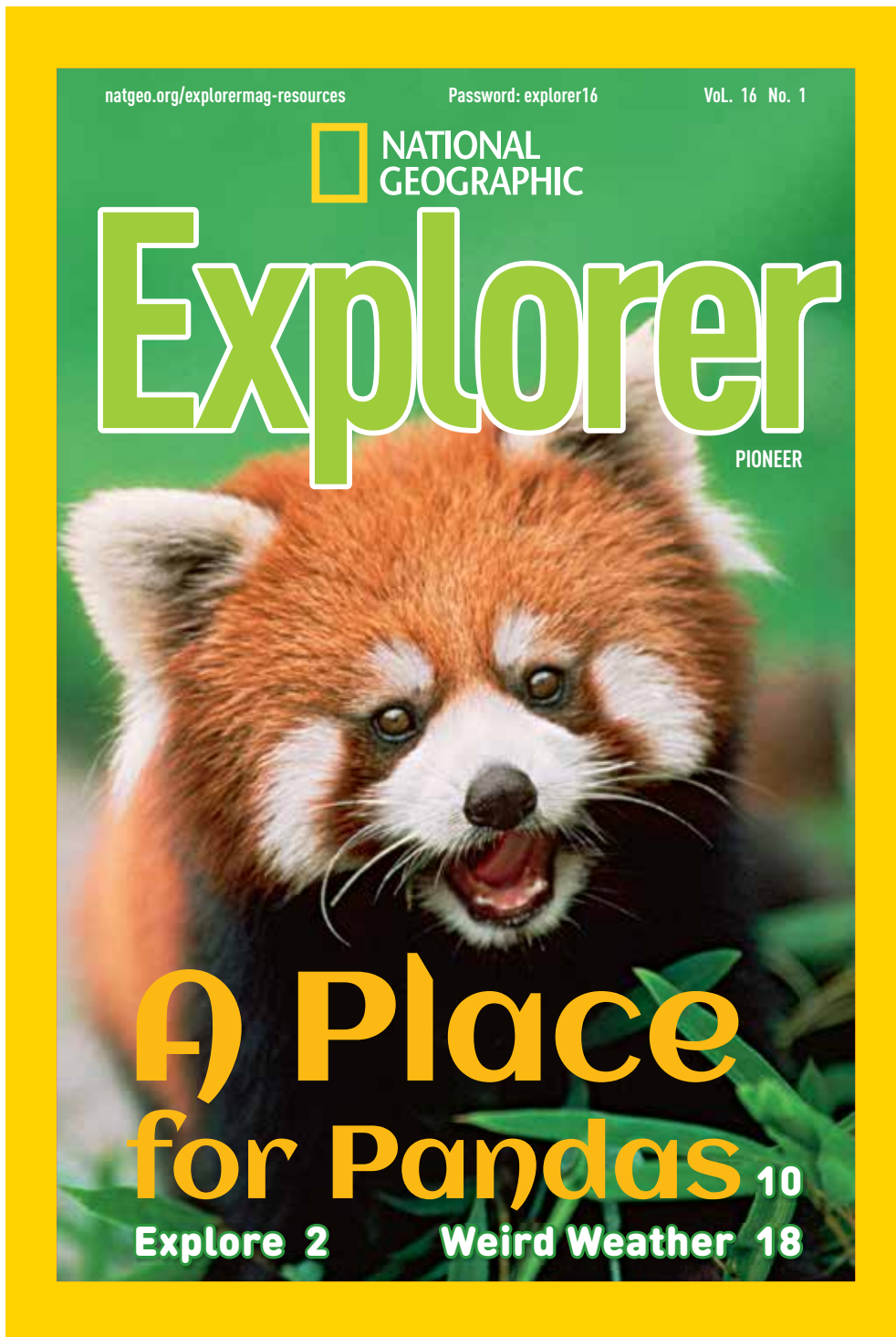


TEACHER'S GUIDE

Pioneer

September 2016



In This Guide

This guide contains language arts and science lessons for articles in the September 2016 issue of EXPLORER PIONEER.

Explorer Magazine

EXPLORER classroom magazines are specifically written for each grade, 2-5. Through great storytelling and stunning photographs, the EXPLORER magazines develop literacy skills and teach standards-based science content.

The EXPLORER magazines strive to offer a variety of reading experiences for students with different ability levels in the same class. Thus, all articles have been measured using the Lexile® Framework for Reading. Some articles will be easier to read than others, but all articles in EXPLORER PIONEER will be within the 250-550L range.

EXPLORER is part of NATIONAL GEOGRAPHIC EXPLORER'S Education program. For more resources, visit the "For Teachers" tab on EXPLORER'S website, natgeo.org/explorermag-resources.

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- Magazines
- Classroom Posters
- Projectable Magazine
- Interactive Whiteboard Lesson
- Teacher's Guide
- App (additional subscription required)

LANGUAGE ARTS 310L

Objectives

- Students will use definitions and illustrations to understand unfamiliar words.
- Students will identify the author's purpose for writing the text.

Resources

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

Summary

- The article "Explore" introduces students to a variety of experienced explorers who observe the world in different ways.

BUILD VOCABULARY AND CONCEPTS

- **explorer**
- **fossil**
- **observe**

Display the Wordwise feature on page 11 of the projectable magazine. Invite volunteers to read aloud the words and their definitions. As a class, scan the article to find examples that illustrate what each word means.

Give each student a copy of the **Vocabulary Assessment Master**. Have students record the words and their definitions. Then have them draw a picture of a scientist exploring his or her surroundings. Instruct students to include labels that identify one example for each vocabulary word.

READ

Display pages 10-11 of the projectable magazine. Allow students to see the headline and photo, but cover the text. Ask students what they think this article is about and why the writer wrote it. Encourage them to describe what they expect to read.

Then uncover the text. Invite a volunteer to read it aloud. Compare the text to students' expectations for the article. **Say:** *People write for different reasons. Sometimes they want to inform, or teach readers about a new topic. Sometimes they want to persuade by expressing an opinion. And sometimes they just want to entertain readers with a good story.*

Give each student a copy of the **Language Arts Assessment Master**. Have students read the article on their own. As they do, challenge them to find evidence that identifies the author's purpose for writing the article. Instruct students to record those reasons on their worksheets.

Explore

LANGUAGE ARTS

TURN AND TALK

Have students turn and talk to discuss what they learned about the three vocabulary words. Encourage them to compare their drawings in small groups. What type of background did they include? Did they have appropriate examples for each word in each setting? Discuss reasons why any type of setting would be appropriate for investigating these three vocabulary words.

- **Recognizing the Author's Purpose** Invite volunteers to reveal if they thought the writer wrote this article to inform, entertain, or persuade. Encourage them to use the information on their **Language Arts Assessment Masters** to support their ideas. Then guide the class to recognize that the writer's intent was to inform. **Say:** *In this article, the writer isn't trying to convince you that one type of place is better than another. And he isn't telling a story about people's adventures in each place. Sure, each section is interesting, but there are no characters and there is no plot to follow. Instead, the writer uses four different settings to open readers' eyes and make them observe their surroundings. The writer even included definitions and examples to make the purpose of the article clear.* Invite students to share what they learned about what exploring and observation.

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 an explorer?*
- *What might you see if exploring in the ocean?*
- *What surprised you about what you read?*

SCIENCE

Objectives

- Students will understand what it is like to explore in different environments.
- Students will meet a variety of explorers and learn about what they observe.

Resources

- Content Assessment Master (page 8)
- "Meet Some Explorers" poster (Teacher's Edition)
- Comprehension Check (page 9)

Science Background

Throughout its rich history, the National Geographic Society has been dedicated to exploring and protecting the planet. In order to promote scientific breakthroughs and discovery, National Geographic supports a group of people who are either leaders in their fields or newcomers that are studying the world in new and exciting ways. In this article, students meet four of these people, who are known collectively as National Geographic Explorers.

Alizé Carrère studies innovative ways that people adapt to changing environments. She finds fieldwork to be "one of the most exciting, challenging, and rewarding experiences I have ever known."

Stephen Sillett is a forest scientist. He climbs giant trees to study the incredible biodiversity that flourishes in the canopy.

Oceanographer Sylvia Earle has been called a "living legend" and a "hero for the planet." Earle has led more than 100 underwater expeditions in an effort to protect the ocean. Her special focus is on developing marine protected areas, which she calls "hope spots."

Paleontologist Paul Sereno has excavated dinosaur fossils all over the world. His work has resulted in the most complete picture yet of how the dinosaur era began 225 million years ago.

ENGAGE

Tap Prior Knowledge

Have each student take out a piece of paper. Then give the class a few seconds to look around the room. Tell students they now have one minute write down everything they can see. Invite students to share their lists. Identify two or three objects that were included on the most lists. Discuss reasons why those objects were so easy to observe.

EXPLORE

Preview the Lesson

Display pages 2-3 of the projectable magazine. Invite a volunteer to read aloud the headline and text. **Say:** *According to the headline, this article is about exploring. But what does that mean? How do you explore?* Invite volunteers to share their ideas. Then display the Wordwise feature on page 11. Review the definition of the word *explorer*. **Say:** *An explorer is someone who looks at things to learn more about them. So when you explore, you look and learn. But you have to look carefully, and you have to look all around. Otherwise, you might miss something important!* Tell students that they'll learn more about exploring as they read the article.

Set a Purpose and Read

Have students read the article in order to understand what it's like to explore in different environments. Students will also meet a variety of explorers and learn about what they observe.

EXPLAIN

Understanding Exploring

Instruct students to examine the article's images in their student magazines. **Say:** *This article has four photos. The photos show four people. It might not look like it, but each of these people is doing the same thing: exploring!* Display pages 2-3 of the projectable magazine. Encourage students to describe the environment they see. Discuss how the woman explores in this environment. View and review the other three photos in this same way. Compare and contrast how people explore in each place.

Explore

SCIENCE

EXPLAIN

(continued)

Meet the Explorers

Display the "**Meet Some Explorers**" poster. Guide students to recognize that the four explorers shown here are the same people featured in the article. Invite volunteers to read aloud the text related to each explorer. Then give each student a copy of the **Content Assessment Master**. Assign each student a partner. Have pairs review the poster and the article for information about each person. Instruct students to explain how each person explores the world. Have them describe what each person sees.

ELABORATE

Find Out More

Inform students that the four people featured in the article are National Geographic Explorers. People selected for this honor are leaders in their fields of study. And their work has a dynamic impact on people's understanding of the world. Divide the class into small groups. Assign each group one of the explorers. Instruct groups to conduct research to learn more about the explorer and his or her career. Challenge groups to explain how the explorer's work has helped others gain a better understanding of the world around them.

Extend Your Thinking About Exploration

Point out to students that this article featured people who explore in a forest, in the ocean, and beneath sand and rocks in the desert. But there are other places to explore. As a class, make a list of other places people can explore. Discuss what you might observe if you went there.

EVALUATE

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

- *What is a fossil?* (the trace of a plant or animal that lived long ago)
- *Where did the explorer in the article find a fossil?* (underground)
- *Why does Sylvia Earle study the ocean?* (She works to protect the ocean.)

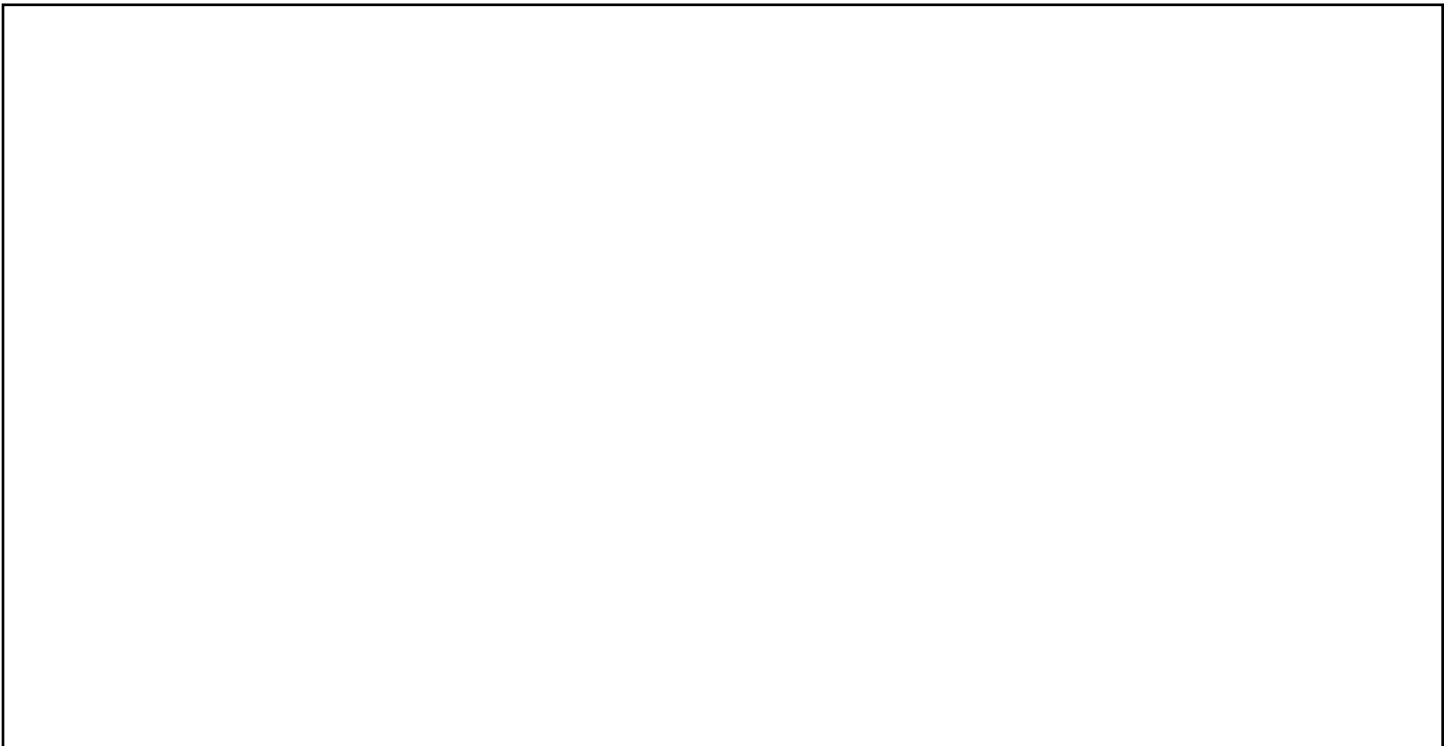
If you wish, have students complete the **Comprehension Check** to assess their knowledge of concepts mentioned in the article.

VOCABULARY ASSESSMENT: Explore

Record each vocabulary word and its definition.

Word	Definition

Draw a picture of a scientist exploring his or her surroundings.
Label one example for each vocabulary word.



LANGUAGE ARTS ASSESSMENT: Explore

Complete each sentence to explain why you think the writer wrote this article.

I think the writer wrote this article to _____ readers.
(inform/persuade/entertain)

The first reason I think this is that _____
_____ .

The second reason I think this is that _____
_____ .

The main reason I think this is that _____
_____ .

These reasons explain why I think the writer wrote this article to
_____ readers.
(inform/persuade/entertain)

CONTENT ASSESSMENT: Explore

Explain how these people explore the world. Describe what they see.

Alizé Carrère

Stephen Sillett

Sylvia Earle

Paul Sereno

COMPREHENSION CHECK: Explore

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

1. Why do explorers observe things?
 Ⓐ to trace them
 Ⓑ to build them
 Ⓒ to study them

2. What might you see if you explored high in the trees?
 Ⓐ a dolphin
 Ⓑ a spider
 Ⓒ a fossil

3. Where could you go to see a lemur?
 Ⓐ an ocean
 Ⓑ a desert
 Ⓒ a forest

4. What did Paul Sereno find when he dug underground?
 Ⓐ a plant
 Ⓑ an animal
 Ⓒ a fossil

5. Pick an explorer from the article. What does the person study? What does the person see?

A Place for Pandas

LANGUAGE ARTS 530L

Objectives

- Students will use context clues to understand the meaning of unfamiliar words.
- Students will ask and answer questions about the article.
- 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 “A Place for Pandas ” introduces students to red pandas, and an animal found in mountain forests in Asia. It explains that red pandas need air, water, food, and shelter to live.

BUILD VOCABULARY AND CONCEPTS

- **habitat**
- **predator**

Display the vocabulary words on a word wall or on the whiteboard. Tell students that when they read they will come across words they don't know. Explain that context clues can help them understand what these words mean. Context clues include items such as the sentences before and after an unknown word and photographs on the page.

Give each student a copy of the **Vocabulary Assessment Master**. Instruct students to record each vocabulary word. Then have students scan the article to locate each bold word within the text.

As a class, find text and photo clues from the article that are related to each vocabulary word. Instruct students to record the clues. Then instruct each student to record his or her own idea about what each word means.

Invite volunteers to read aloud the definitions in the Wordwise feature on page 19. Have students share the definitions they wrote. As a class, compare each example to the definitions in the glossary.

READ

Let students know that the purpose of this article is to introduce them to red pandas, a type of animal that lives in mountain forests in Asia. As they read about the red panda, they will learn what these animals need to survive in their habitat.

Tell students that the best way to learn more about red pandas 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 12-13 of the projectable magazine. Model how to ask and answer questions. **Say:** *When I look at this page, the first thing I notice is the image. What kind of animal is this? How big is it? Why is it sitting in a tree?* 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.

A Place for Pandas

LANGUAGE ARTS

TURN AND TALK

Have students turn and talk to discuss what they learned about how red pandas. **Ask:** *Where do red pandas live?* (mountain forests in Asia) *How big are they?* (about the size of a house cat) *What is their fur like?* (thick and red)

- **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 why red pandas stay in the treetops. Prompt discussion with questions.

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 does a red panda look like?*
- *What is it like where red pandas live?*
- *What surprised you about what you read?*

A Place for Pandas

SCIENCE

Objectives

- Students will recognize key characteristics of red pandas.
- Students will identify other animals that share the red panda's habitat.

Resources

- Content Assessment Master (page 16)
- "Red Pandas" poster (Teacher's Edition)
- Comprehension Check (page 17)
- "A Place for Pandas" Interactive Whiteboard (optional)

Science Background

Red pandas are mammals that live in high-altitude forest habitats of Nepal, northern Myanmar (Burma), and central China. They are small animals. A red panda's head and body measure just 50 to 65 centimeters. But their long, bushy tails can add another 30 to 50 centimeters to their length.

In the past, red pandas have been classified as relatives of both giant pandas and raccoons. Red pandas share a habitat with giant pandas. And like the giant panda, they eat bamboo and have an extended wrist bone that functions somewhat like a thumb. The main similarity to raccoons is the ringed tail. Red pandas are currently classified in their own unique family.

Life for a red panda takes place mostly in the treetops. Here, they can stay safe from predators. Unfortunately, many trees in the red panda's habitat have been cut for logging and the spread of agriculture. Because of this, red pandas are on the Endangered Species List.

ENGAGE

Tap Prior Knowledge

Give each student a piece of plain white paper. Tell students that they will be reading an article about red pandas. Instruct students to draw a picture showing what they think this animal looks like. Then display the magazine's cover. As a class, compare the animal in the cover photo to students' drawings.

EXPLORE

Preview the Lesson

Display pages 12-13 of the projectable magazine. Give students a moment to examine the photo. Then read aloud the headline and deck. **Ask:** *Based on the information here, what kind of animal is this and what kind of place does it live?* (red panda; mountain habitat) As a class, make a list of things you can learn about red pandas just by looking at the photo.

Set a Purpose and Read

Have students read the article in order to recognize key characteristics of red pandas and identify other animals that share the red panda's habitat.

EXPLAIN

Recognizing Characteristics

Display the "Red Pandas" poster. Review the information on the poster as a class. Guide students to recognize that the facts noted on the poster identify key characteristics of red pandas. Divide the class into five groups. Assign each group one section of the article. Instruct groups members to read their section together. Challenge them to identify one more key characteristic about red pandas that was mentioned in their section but wasn't on the poster. Invite groups to share their findings with the class.

SCIENCE

EXPLAIN

(continued)

Recognizing Other Animals

Display the Wordwise feature on page 19 of the projectable magazine. Read aloud the definition for *habitat*. Review with the class what a habitat is. As a class, discuss what the red panda's habitat is like. Encourage students to scan the article for ideas if needed. **Say:** *A habitat is where an animal lives. Red pandas live in these mountain forests. The article identified two other animals that live here, too: giant pandas and snow leopards.* Give each student a copy of the **Content Assessment Master**. Instruct students to draw a picture of each a giant panda and a snow leopard. Then have them write captions telling how each animal is connected to red pandas.

ELABORATE

Find Out More

Ask students to think about all of the animals that live in your area. Can they name five? How about 10? Point out to the class that the article only mentioned giant pandas and snow leopards, but many different animals live in a red panda's habitat, too. Divide the class into small groups. Instruct groups to conduct research to create a list of other animals that live here. Invite groups to share their lists with the class.

Extend Your Thinking About Red Pandas

Inform the class that red pandas are an endangered species. The main reason they are on this list is because people keep cutting down trees for logging or agriculture. As a class, discuss reasons why red pandas need trees to survive.

EVALUATE

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

- *In what type of habitat does a red panda live?* (mountain forests)
- *Why do they spend so much time up in trees?* (They hide from predators in trees.)
- *How is a red panda like a giant panda?* (They live in the same forests and they both eat bamboo.)

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.

Name _____

Date _____

VOCABULARY ASSESSMENT: A Place for Pandas

Record information from the article about each vocabulary word.

Word		
Text Clues		
Photo Clues		
What I Think the Word Means		
Definition		

LANGUAGE ARTS ASSESSMENT: A Place for Pandas

Ask and answer questions about red pandas that begin with each question word.

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

Name _____

Date _____

CONTENT ASSESSMENT: A Place for Pandas

Draw pictures of a giant panda and a snow leopard. Write caption telling how each animal is connected to red pandas.

Captions	Pictures

COMPREHENSION CHECK: A Place for Pandas

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

1. Where do red pandas live?
Ⓐ Africa
Ⓑ Asia
Ⓒ Australia

2. What kind of habitat do they live in?
Ⓐ mountain forests
Ⓑ tropical gardens
Ⓒ desert plains

3. Which predator also lives in this habitat?
Ⓐ snow leopard
Ⓑ giant panda
Ⓒ red fox

4. Where do red pandas go to keep away from these predators?
Ⓐ on the ground
Ⓑ under rocks
Ⓒ in the treetops

5. Write about two ways red pandas are like giant pandas.

Objectives

- Students will create sketches to understand the meaning of unfamiliar words.
- Students will identify details that help them explain what happened and why during strange weather events.

Resources

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

Summary

- The article “Weird Weather” introduces students to four types of mysterious weather and explains what happened and why.

BUILD VOCABULARY AND CONCEPTS

- **fog**
- **tornado**
- **waterspout**

Display the vocabulary words on a word wall or on the whiteboard. Point out to students that when they read they will come across 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 *fog* in the Wordwise feature on page 23 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 will help them remember its definition. Examine the other words in this same way.

READ

Inform students that in this article they will read about five types of weather that they may never have heard of before. While each example is strange, there is a logical explanation for what happened.

Display pages 20-21 of the projectable magazine. Instruct students to examine the photo. Invite a volunteer to read aloud the headline and subhead.

Ask: *Which type of weird weather does the photo show? (firenado) Discuss reasons why this name is appropriate. Brainstorm ideas about how this type of weather might have occurred.*

Explain to students that often when they read it is helpful to make connections in the text. **Say:** *One important connection that you should always try to make is to find the link between what happened and why. It's difficult to understand a topic if you can't put these two pieces of information together.*

Give each student a copy of the **Language Arts Assessment Master**. Have students read the article with a partner. As students read, instruct them to write a description of what happened and why in each instance. Encourage partners to work together to include as many details as possible.

LANGUAGE ARTS

TURN AND TALK

• **Interpret Visual Information** Explain to students that reading definitions tells people what words mean. But sometimes readers have to "see" words to really understand them. Point out that this is exactly what they did when they drew sketches of the vocabulary words in the article. They drew the words in a way that had meaning to them. Instruct students to turn and share the sketches they created on their **Vocabulary Assessment Masters** with a partner. Encourage them to explain how their drawings reflect the meaning of each word.

• **Describing Weather Events** After reading the article, remind students that making connections can help them understand what they've just read. One type of connection is the relationship between what happened and why. Combine pairs and have students to turn and talk to share their **Language Arts Assessment Masters** in small groups. Instruct students to compare their results. Did they describe things the same way. If not, do all of their descriptions make sense? And do their answers make a clear connection between what happened and why? If students' answers vary, encourage them to review the article to see where the connection went astray.

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 firenado?*
- *What is a snow roller?*
- *What surprised you about what you read?*

Weird Weather

SCIENCE

Objectives

- Students will explain why certain weather patterns are considered to be strange.
- Students will write definitions that summarize what happens during weird weather events.

Resources

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

Science Background

Weather is the state of the atmosphere, or the layer of air that surrounds Earth, at a specific time and place. Unlike climate, which is long-term, weather is temporary. It can shift quickly as the atmospheric conditions change.

There are six main parts of weather: temperature, atmospheric pressure, wind, humidity, precipitation, and cloudiness. These factors can combine to deliver everything from calm, sunny days to severe storms such as hurricanes or tornadoes.

Every once in a while, something strange enters the mix and weird weather is observed. For example, the sand, dirt, and leaves in a tornado can burst into flames creating a firenado. Or wet snow can blow just right over a large, open field to create large, hollow balls of snow called snow rollers. Or, if a tornado happens to become a waterspout as it passes over a pond filled with frogs, those frogs can come raining down on the people below.

As strange as these examples may be, there's always a logical explanation. Sometimes, it just takes a bit of investigation to figure things out!

ENGAGE

Tap Prior Knowledge

Instruct students to imagine that they're walking down the street and it starts to rain. But along with raindrops, frogs were coming down from the sky! How would they react? Invite volunteers to share their thoughts. Encourage students to imagine other types of weird weather. Brainstorm ideas about how to best respond to each situation.

EXPLORE

Preview the Lesson

Instruct students to turn to pages 20-21 of their student magazines. Invite a volunteer to read aloud the headline and deck. Poll the class to see how many students think the odd events can be explained. Discuss reasons why people might be a bit scared when weird types of weather take place.

Set a Purpose and Read

Have students read the article in order to recognize that unique conditions can result in weird weather events and to write definitions that summarize what happens during the weather events mentioned in the article.

EXPLAIN

Explaining Strange Weather Patterns

Display page 23 of the projectable magazine. Invite a volunteer to describe the weather occurring in the photo. Poll the class to see how many students think this fog bank is strange. **Say:** *We see fog all the time. Usually, when we're in the midst of fog we can't see what's above it. If you look at this photo, you can see bright blue skies above the fog. That makes the fog bank look like a big, dangerous wave that's about to crash onto the shore. That's not only strange. It would be really scary to see!* Review the remaining types of weather in the article. Challenge students to explain why the weather in each example is weird.

SCIENCE

EXPLAIN

(continued)

Summarizing Weird Weather Events

Display the Wordwise feature on page 23 of the projectable magazine. Point out to the class that each of these definitions tells about a type of weather. Give each student a copy of the **Content Assessment Master**. Divide the class into small groups. Challenge groups to write a definition for each type of weird weather mentioned in the article. Have students create their own unique illustrations to accompany their definitions.

ELABORATE

Find Out More

Inform students that the article identified five different types of weird weather. As a class, conduct research to find more examples. Challenge students to explain what happened and why in each situation.

Extend Your Thinking About Weird Weather

Remind students that the article described the fog bank as a scary optical illusion. Discuss what an optical illusion is. Point out that weather can create many different types of optical illusions. For example, a rainbow isn't really a band of colors in the sky. It's an optical illusion created when sunlight shines through droplets of water in the atmosphere. Challenge students to identify other weather-related optical illusions they've seen.

EVALUATE

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

- *What is a waterspout?* (a rotating column of wind that starts over a body of water)
- *What caused red rain to fall in India?* (A type of tiny algae was in the air.)
- *Which type of weird weather can look like a giant wave?* (a fog bank)

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

VOCABULARY ASSESSMENT: Weird Weather

Record the definition of each vocabulary word.

Create a sketch to help you remember what each word means.

Word	Definition	Sketch
fog		
tornado		
waterspout		

LANGUAGE ARTS ASSESSMENT: Weird Weather

Record details that describe what happened and why during each weird weather event.

	What happened?	Why?
Firenado		
Fog Bank		
Snow Roller		
Raining Frogs		
Red Rain		

CONTENT ASSESSMENT: Weird Weather

Write a definition for each type of weird weather mentioned in the article.
Draw a picture to show what each one looks like.

Word: _____	Drawing
Definition: _____	

Word: _____	Drawing
Definition: _____	

Word: _____	Drawing
Definition: _____	

Word: _____	Drawing
Definition: _____	

Word: _____	Drawing
Definition: _____	

COMPREHENSION CHECK: Weird Weather

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

1. What does a firenado look like?
Ⓐ a ball of fire
Ⓑ a tower of flame
Ⓒ a lit match

2. What do snow rollers look like?
Ⓐ tightly packed snowballs
Ⓑ large snowdrifts
Ⓒ large, hollow balls of snow

3. Where did the raining frogs that fell in England come from?
Ⓐ clouds in the sky
Ⓑ bodies of water on the ground
Ⓒ optical illusions on the beach

4. What kind of weather can form a waterspout?
Ⓐ a snowstorm
Ⓑ fog
Ⓒ a tornado

5. Pick one type of weird weather in the article. Describe what happened and why.

ANSWER KEY

Explore

Assess Vocabulary, page 6

Students should record the words and definitions from the Wordwise feature on page 11.

explorer: someone who looks at something in a careful way to learn more about it

fossil: the trace of a plant or animal that lived long ago

observe: to watch or look at something carefully

Pictures should include examples of each word. Students should label each example.

Assess Language Arts, page 7

Students should select one purpose and write it in the blank to complete the first sentence. They should identify three valid reasons for their choice. They should write the same purpose in the final sentence.

Assess Content, page 8

Possible responses include: (Alizé Carrère) Explain: She walks through forests and other places; Describe: She sees people, plants, and animals; (Stephen Sillett) Explain: He climbs trees; Describe: He sees plants and animals that live in the treetops; (Sylvia Earle) Explain: She dives deep in the ocean; Describe: She sees plants and animals that live in the ocean and on the ocean floor; (Paul Sereno) He digs in hot deserts; (Describe) He sees fossils of plants and animals that lived long ago.

Comprehension Check, page 9

1. C; 2. B; 3. C; 4. A; 5: Answers will vary depending on which explorer students select.

A Place for Pandas

Assess Vocabulary, page 14

Students should record the words and definitions from the Wordwise feature on page 19.

habitat: a place where an animal lives

predator: an animal that kills and eats other animals

Text clues, photo clues, and what students think each word means will vary. Evaluate each response for accuracy.

Assess Language Arts, page 15

Students should record one question that begins with each question word. Answers should come from the text.

Assess Content page, 16

Students should draw accurate pictures of a giant panda and a snow leopard. Possible captions include: Giant pandas live in the same forests as red pandas. Both animals eat bamboo; Snow leopards live in the same forests as red pandas. Snow leopards are predators. Red pandas hide from them!

Comprehension Check, page 17

1. B; 2. A; 3. A; 4: C; 5: Students should note that giant pandas and red pandas live in the same forests. Both animals also eat bamboo.

Weird Weather

Assess Vocabulary, page 22

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

fog: a cloud of water droplets floating above land or water

tornado: a violent, whirling wind

waterspout: a rotating column of wind that starts over a body of water

Sketches will vary. Evaluate each response for accuracy.

Assess Language Arts, page 23

Possible responses include: (firenado) What: A tower of flame moved across the land; Why: A tornado picked up sand, dirt, and leaves. The column caught on fire; (fog bank) What: A bank of fog looking like a giant wave approached the shore; Why: Warm, wet air moved out over a cold ocean; (snow roller) What: Large, hollow balls of snow formed; Why: Wind picked up wet snow and blew it along the ground; (raining frogs) What: Frogs rained down from the sky; Why: A small tornado became a waterspout over a body of water and sucked up the frogs. It lost its strength and the frogs rained down; (red rain) What: Red rain fell from the sky; Why: Tiny algae in the air mixed with rain, making the rain red.

ANSWER KEY

Weird Weather

(continued)

Assess Content, page 24

Possible definitions include: firenado: a tower of flame that forms when a tornado catches fire; fog bank: a cloud of water droplets that looks like a wave and forms when warm, wet air moves out over a cold ocean; snow roller: a large, hollow ball of snow; raining frogs: a strange event observed when a waterspout sucks up frogs from a body of water and then drops them to the ground; red rain: a type of weather observed when a certain type of algae is in the air and mixes with rain, turning the rain red

Drawings should reflect an understanding of details from the article.

Comprehension Check, page 25

1. B; 2. C; 3. B; 4. C; 5: Answers will vary depending on which type of weird weather students select.