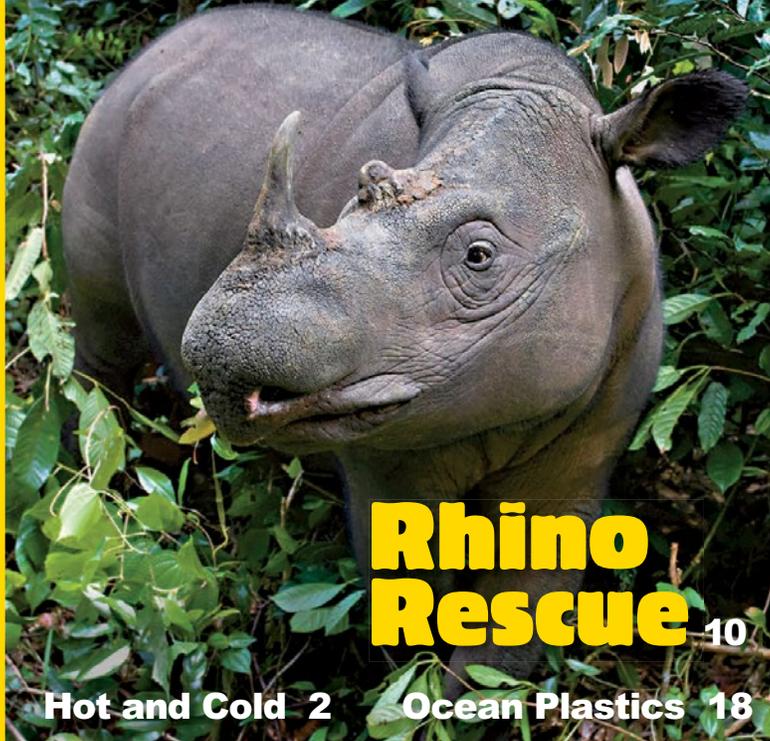




Explorer



Rhino Rescue 10

Hot and Cold 2 Ocean Plastics 18

TEACHER'S GUIDE Pioneer and Trailblazer Vol. 19 No. 1

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Educational consultant **Stephanie Harvey** has helped shape the instructional vision for this Teacher's Guide. Her goal is to ensure you have the tools you need to enhance student understanding and engagement with nonfiction text.

Lexile® Framework Levels

Pathfinder

Warm Up, Cool Down.....	480
Rhino Rescue	530
The Problem of Plastics	500

Adventurer

Warm Up, Cool Down.....	590
Rhino Rescue	710
The Problem of Plastics	620

Standards Supported

- Common Core State Standards (CCSS)
- Next Generation Science Standards (NGSS)
- C3 Framework for Social Studies State Standards (C3)

See each lesson for the specific standard covered.

Log in at ExplorerMag.org
to access additional resources including:

- Interactive Digital Magazine with videos and activities
- Projectable PDF for one-to-one instruction

National Geographic Learning Framework

INTRODUCTION

BACKGROUND

Since 1888, the National Geographic Society has funded scientists and explorers and shared their findings with the world. To support educators who use our resources, we have created a Learning Framework, which lays out what we believe students should learn from their experiences with the Society.

PURPOSE

The Learning Framework was designed to convey the Society's core beliefs and values. It is built around a set of attitudes, skills, and knowledge that embody the explorer mindset.

To determine the learning outcomes within the Learning Framework, we dug deep into national standards in key subject areas. We also sought advice from subject matter and child development experts, along with the combined expertise of NG instructional designers, researchers, and content developers. To learn more, go to: <https://www.nationalgeographic.org/education/learningframework/>.

IMPLEMENTATION

Each article in this magazine has a knowledge-based link to the Learning Framework.

MINDSET OF AN EXPLORER: KEY FOCUS AREAS

Attitudes



CURIOSITY An explorer remains curious about how the world works throughout his or her life. An explorer is adventurous, seeking out new and challenging experiences.

RESPONSIBILITY An explorer has concern for the welfare of other people, cultural resources, and the natural world. An explorer is respectful, considers multiple perspectives, and honors others regardless of differences.

EMPOWERMENT An explorer acts on curiosity, respect, responsibility, and adventurousness and persists in the face of challenges.

Skills



OBSERVATION An explorer notices and documents the world around her or him and is able to make sense of those observations.

COMMUNICATION An explorer is a storyteller, communicating experiences and ideas effectively through language and media. An explorer has literacy skills, interpreting and creating new understanding from spoken language, writing, and a wide variety of visual and audio media.

COLLABORATION An explorer works effectively with others to achieve goals.

PROBLEM SOLVING An explorer is able to generate, evaluate, and implement solutions to problems. An explorer is a capable decisionmaker—able to identify alternatives and weigh trade-offs to make a well-reasoned decision.

Knowledge



THE HUMAN JOURNEY An explorer understands where we came from, how we live today, and where we may find ourselves tomorrow.

OUR CHANGING PLANET An explorer understands the amazing, intricate, and interconnected systems of the changing planet we live on.

WILDLIFE AND WILD PLACES An explorer reveals, celebrates, and helps to protect the amazing and diverse creatures we share our world with.

Standards Supported

Second Grade Standard Supported

• **CCSS Reading Informational Text:** Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently. (2–5)

Third Grade Standard Supported

• **CCSS Reading Informational Text:** Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently. (3–5).

What You'll Need

- “Warm Up, Cool Down” (*Explorer*, pages 2–9)
- Think Sheet (Teacher’s Guide, page 6)

CONNECT & ENGAGE (20 minutes)

Kids are in a group on the floor in front of you. Sit on a low chair and hold up pages 2–3 in the magazine.

TEACHER TIP: The reason kids are grouped on the floor is that the focus needs to be on the teacher’s instruction. However, the whole point of “Connect and Engage” is to get kids fired up, and there will be plenty of interaction throughout this segment and the entire lesson.

Say: *This article, “Warm Up, Cool Down,” is nonfiction. Do you know what nonfiction is? Turn and talk with a partner about what you know about nonfiction.*

Kids turn and talk and share what they know about nonfiction. Make sure kids know that nonfiction is text that gives us true or real information. It includes facts. It is not made up or make believe.

Say: *Let’s thumb through this article before we start reading. For this lesson, we are going to focus on some of the features of nonfiction. As you browse through the article, what are a few things you notice that are different from a story that is made up? Turn and talk about what you notice.*

Kids turn and talk about the features of the article and then share out with the class. They should mention things such as photos with captions and labels, bold type in the text, and chunks of text under different headings.

MODEL (10 minutes)

Kids sit in a group on the floor, with you in a low chair in front of them.

TEACHER TIP: This segment of the lesson is about the teacher modeling for students. This has to be interactive. Kids should be turning and talking a lot.

Say: *As we talked about, this article is nonfiction, and a lot of nonfiction includes features that can guide our learning. Nonfiction features are things that we saw while browsing through this article. Features like headings, bold text, photos, captions, and labels can help us better understand what we are reading.*

Say: *I am going to read through a bit of this article and show you my thinking. I’m also going to write down my thinking on this two-column chart. Let’s look first at pages 2–3. I’m going to read what’s on the pages.*

Read aloud the title on pages 2–3 and the text on page 3.

Say: *Well, I’m starting to get some information from the title, text, and photos on these pages. The title is letting me know that the article has something to do with warming up and cooling down. Since the photos are showing many different kinds of animals, that is giving me a clue that this article is about animals. The bold word ectotherms in the text is letting me know this is an important term that I’m sure we’ll learn more about as we read on. I’m going to write this down on my chart. I’ll put “title” in the “FEATURE” column and “tells about the article” in the “PURPOSE” column. Under “FEATURE” I’m also going to add “photos” and “bold type.” What is the purpose of these features? Turn and talk about that.*

Kids turn and talk.

Say: *The photos give us information we can see, and bold type lets us know important words. I'm going to write this information in the "PURPOSE" column.*

Say: *There are so many features in this article. Let's look at a few more. Turn to pages 4–5. See that red text? Those are called subheads. What do you think their purpose is? Turn and talk about that.*

Kids turn and talk and a few share out.

Say: *Great! Those subheads give us an idea of what each of these sections of text will tell us. What other features do you see on these pages?*

Kids share what they think are features.

Say: *Yep! More photos and another bold word. We also have a caption by the lizard photo and another boxed feature that gives us information about the meaning and origin of the words ectotherm and endotherm.*

Say: *Okay, now I need to get the new features and purposes written down on my chart. Help me remember all of them, and I'll write them down.*

GUIDE (10 minutes)

Hand out Think Sheets and have kids attach them to their clipboards. Kids remain in a group in front of you on the floor.

Say: *We had a good start with identifying features and purposes, but there are more in this article, and it's your turn to start writing down on your Think Sheet the features and their purposes.*

Turn to pages 6–7.

Say: *First, turn and talk about some of the features on these pages that we already saw and talked about on the previous pages.*

Kids should notice the subheads, photos, and captions.

Say: *Did you notice any new features?*

Kids share what they think are new features.

Say: *Did you notice the words on a few of the photos, such as "hand" and "lizard"? Those are called labels. Labels are a new feature. What is their purpose?*

Kids should note that labels identify, or name, what is in a photo.

Say: *Something else that is new on these pages is a different kind of photo. This kind of photo is taken with a special camera that shows how much heat an object gives off. There is another feature at the top of a few of those photos. It's a small bar diagram that tells which colors are hotter and which are colder. You are not likely to find this particular feature very often, but for this article it really helps us understand what the photos are showing us and the text is telling us. How cool (and hot) is that?*

Say: *Turn and talk about these new features with the person next to you, and be sure to record the features and purposes on your Think Sheet.*

COLLABORATE (25 minutes)

Say: *Now it's time for you to work with a partner. Go through pages 8–9 and note all of the nonfiction features you find. See if you can name what they are and their purposes. Use your Think Sheet to help you remember. If you run across something new, try to figure out what to call the feature and what its purpose is. Jot down anything new you find on your Think Sheet.*

Say: *If you finish early, look through the other articles in the magazine to find familiar and new nonfiction features.*

Partners work together. Move around the room, conferring with partners. Kids should notice "Wordwise" as a new feature. It is a glossary that gives definitions of the bold words in the article.

SHARE THE LEARNING (10 minutes)

Kids join a sharing circle with you and share out, using respectful language.

TEACHER TIP: The sharing phase is done in a circle, so that the focus is on one another rather than the teacher.

Say: *Okay, flip through the article and consult your Think Sheet and choose a feature and purpose you would like to share. I am going to invite [student name] to share new learning. We are going to share using respectful language. So when I ask: "[student name] would you like to share your new learning?" You need to say: "Yes thank you." Then you can share your learning. After you share, ask if anyone has any comments or questions. Then you can invite someone else to share. To do that, you need to call on the person by name and use the same language we just practiced. When we use polite, respectful sharing language, everyone pays closer attention to the important information being shared. Also, everyone likes to be listened to when they share out, so remember to pay attention to the person who is sharing.*

Kids share out and invite others to share, always using the respectful sharing language that was modeled. There should be time for about 3 or 4 kids to share out with the whole group. Once they are finished, have everyone turn and share with the person next to them, so that all have a chance to be heard.

Say: *You learned so much today about nonfiction features. Turn and talk about how they can help us when we read nonfiction.*

Several kids share out.

Say: *Awesome job, everyone! Don't be surprised if you start seeing these features in all of the nonfiction you read. As you read more nonfiction, you'll start to find that these features will guide you in learning and understanding.*

THINK SHEET

Write the nonfiction features and their purpose.

FEATURE	PURPOSE

LESSON FRAME Notice and Use Nonfiction Features to Guide Learning

What You'll Need

- Nonfiction text
- Think Sheet template
- Clipboards and pencils

This frame is a kind of template of the lesson we just worked on. It has the instructional moves and language of the lesson, but the specific content has been removed. This way you can use the Lesson Frame for the other articles in the issue or for any nonfiction text you might be teaching.

MODEL (10 minutes)

Kids sit in a group on the floor, with you in a low chair in front of them.

Say: *As we talked about, this article is nonfiction, and a lot of nonfiction includes features that can guide our learning. Nonfiction features are things that we saw while browsing through this article. Features like headings, bold text, photos, captions, and labels can help us better understand what we are reading.*

Say: *I am going to read through a bit of this article and show you my thinking. I'm also going to write down my thinking on this two-column chart. Let's look first at pages _____. I'm going to read what's on the pages.*

Read aloud the title on page _____ and the text on page(s) _____.

Say: *Well, I'm starting to get some information from the title, text, and photos on these pages. The title is letting me know that the article has something to do with _____. Since the photo(s) are showing _____, that is giving me a clue that this article is about _____. I'm going to write this down on my chart. I'll put "title" in the "FEATURE" column and "tells about the article" in the "PURPOSE" column. Under "FEATURE" I'm also going to add "photos." What is the purpose of photos? Turn and talk about that.*

Say: *That's it! The photos give us information we can see. I'm going to write this information in the "PURPOSE" column.*

Say: *There are other features in this article. Let's look at a few more. Turn to pages _____. Turn and talk about other features you see.*

Kids turn and talk and a few share out.

Say: *Okay, now I need to get the new features and purposes written down on my chart. Help me remember all of them, and I'll write them down.*

CONNECT & ENGAGE (20 minutes)

Kids are in a group on the floor in front of you. Sit on a low chair and hold up the article.

Say: *This article _____ is nonfiction. Do you know what nonfiction is? Turn and talk with a partner about what you know about nonfiction.*

Kids turn and talk and share what they know about nonfiction. Make sure kids know that nonfiction is text that gives us true or real information. It includes facts. It is not made up or make believe.

Say: *Let's thumb through this article before we start reading. For this lesson, we are going to focus on some of the features of nonfiction. As you browse through the article, what are a few things you notice that are different from a story that is made up? Turn and talk about what you notice.*

Kids turn and talk about the features of the article and share out with the class. They should mention things such as photos with captions and labels, bold type in the text, and chunks of text under different headings.

LESSON FRAME Notice and Use Nonfiction Features to Guide Learning**GUIDE (10 minutes)**

Hand out Think Sheets and have kids attach them to their clipboards. Kids remain in a group in front of you on the floor.

Say: *We had a good start with identifying features and purposes, but there are more in this article, and it's your turn to start writing down on your Think Sheet the features and their purposes.*

Turn to pages _____.

Say: *First, turn and talk about some of the features on these pages that we already saw and talked about on the previous pages.*

Kids turn and talk with a partner.

Say: *What new features did you notice?*

Kids share out.

Say: *Now be sure to record these features and purposes on your Think Sheet.*

COLLABORATE (25 Minutes)

Say: *Now it's time for you to work with a partner. Go through pages ____ and note all of the nonfiction features you find. See if you can name what they are and their purposes. Use your Think Sheet to help you remember. If you run across something new, try to figure out what to call the feature and what its purpose is. Jot down anything new you find on your Think Sheet.*

Say: *If you finish early, look through the other articles in the magazine to find familiar as well as new nonfiction features.*

Partners work together. Move around the room, conferring with partners.

SHARE THE LEARNING (10 minutes)

Kids join a sharing circle with you and share out, using respectful language.

Say: *Okay, flip through the article and consult your Think Sheet and choose a feature and purpose you would like to share. I am going to invite [student name] to share new learning. We are going to share using respectful language. So when I ask: "[student name] would you like to share your new learning?" You need to say: "Yes thank you." Then you can share your learning. After you share, ask if anyone has any comments or questions. Then you can invite someone else to share. To do that, you need to call on the person by name and use the same language we just practiced. When we use polite, respectful sharing language, everyone pays closer attention to the important information being shared. Also, everyone likes to be listened to when they share out, so remember to pay attention to the person who is sharing.*

Kids share out and invite others to share, always using the respectful sharing language that was modeled. There should be time for about 3 or 4 kids to share out with the whole group. Once they are finished, have everyone turn and share with the person next to them, so that all have a chance to be heard.

Say: *You learned so much today about nonfiction features. Turn and talk about how they can help us when we read nonfiction.*

Several kids share out.

Say: *Awesome job, everyone! Don't be surprised if you start seeing these features in all of the nonfiction you read. As you read more nonfiction, you'll start to find that these features will guide you in learning and understanding.*

Warm Up, Cool Down

SCIENCE

Standards Supported

- **NGSS LS4.D: Biodiversity and Humans:** There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)
- **NGSS LS3.B: Variation of Traits:** Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)

Resources

- Projectable PDF or interactive digital magazine
- Endotherm or Ectotherm poster (Teacher's edition)
- Test the Science: Ectotherms poster (Teacher's edition)
- Content Assessment Master (page 10)
- Article Test (page 15)

Science Background

Most animals need to maintain their body temperature within a fairly narrow range. How they do this depends on the type of animal it is.

Endotherms create their own heat through chemical reactions that take place as their bodies quickly process food. Mammals are endotherms. Many mammals have a hair, fur, or even layers of blubber to help their bodies retain the heat they produce.

Ectotherms, on the other hand, get their heat from the environment. Some, like lizards, absorb heat from the sun during the day. As the temperature rises, they hide underground or in shelters to keep from getting too hot. Others, such as bees, huddle together in large groups to make and retain heat.

Although ectotherms are often described as "cold-blooded," that term is misleading. As the animal warms up, its blood does, too.

ENGAGE

Encourage students to flip through the article and turn and talk with a partner to discuss what they see. Invite students to ask questions or share what they already know about how animals and what they need to live.

EXPLORE

Display the projectable PDF or the interactive digital magazine. Invite students to identify animals in the photos and read the headline and deck. Have students brainstorm a list of things these animals have in common. Challenge them to identify a characteristic that could help what an ectotherm is.

EXPLAIN

After reading, encourage students to share what they learned about the words *ectotherm* and *endotherm*. **Ask:** *What is the difference between these two types of animals?* (Ectotherms cannot produce enough heat inside their bodies to maintain a steady, warm temperature. Endotherms can.) Have students turn and talk as they review the article for examples of each type of animal and how they make heat. (Ectotherms soak up heat from their environment, such as heat from the sun. Endotherms get energy to make their own heat from the food they eat.) Challenge TRAILBLAZER readers to explain the importance of metabolism. (The faster an animal's metabolism is, the more energy it has for making heat.) Point out to the class that both ectotherms and endotherms must still find ways to avoid getting too hot or too cold. Encourage students to find examples of this in the article.

ELABORATE

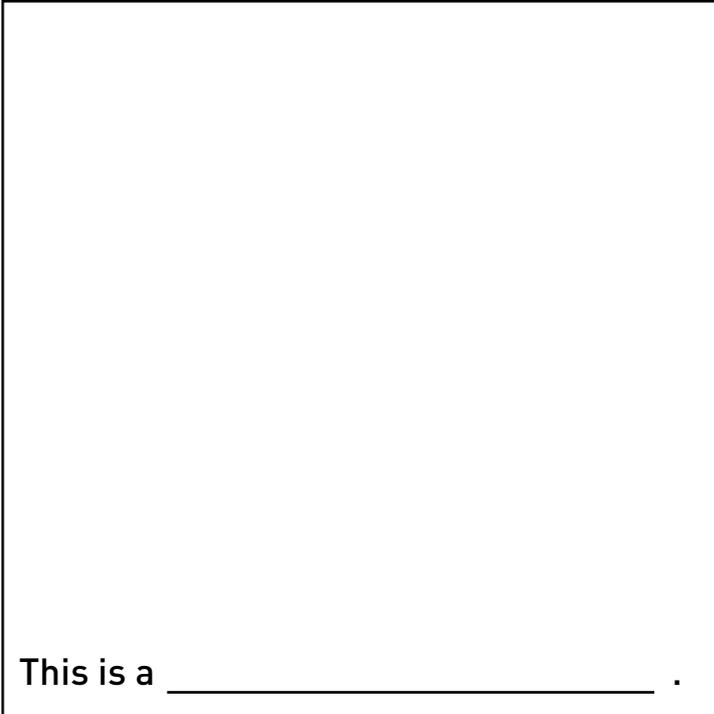
Display the **Endotherm or Ectotherm poster**. Encourage students to compare and contrast these two types of animals. Then display the **Test the Science: Ectotherms poster**. Provide supplies and have students conduct the experiment with a partner. Rejoin as a class to analyze the results.

EVALUATE

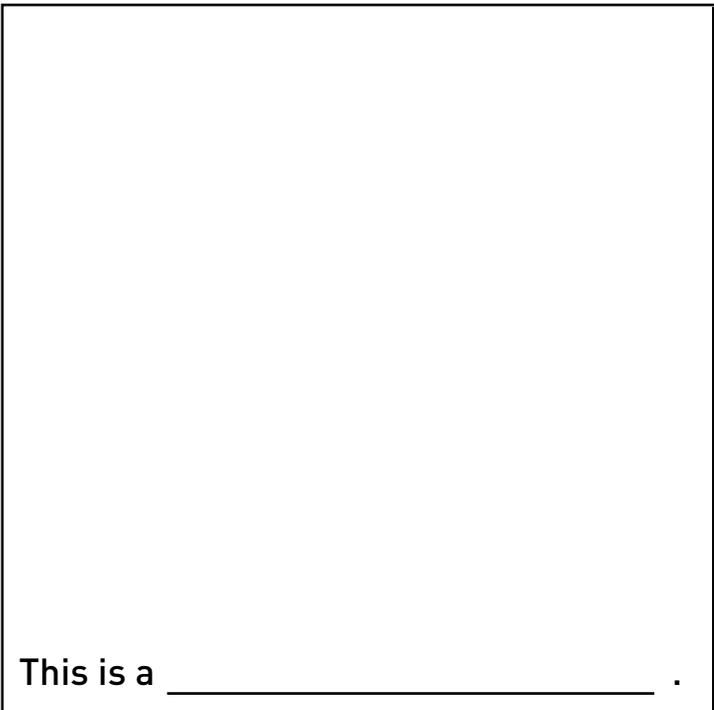
Have students complete the Content Assessment for this lesson. Encourage them to share and compare their results in small groups.

CONTENT ASSESSMENT: Warm Up, Cool Down

Draw a picture of an ectotherm. Identify the animal. Then answer the questions.

 <p>This is a _____ .</p>	<p>1. What is an ectotherm?</p> <hr/> <hr/> <hr/>
	<p>2. What is one thing this animal does to keep a steady body temperature?</p> <hr/> <hr/> <hr/>

Draw a picture of an endotherm. Name the animal. Then answer the questions.

 <p>This is a _____ .</p>	<p>1. What is an endotherm?</p> <hr/> <hr/> <hr/>
	<p>2. What is one thing this animal does to keep a steady body temperature?</p> <hr/> <hr/> <hr/>

Rhino Rescue

SCIENCE

Standards Supported

- **NGSS ETS1.A: Defining and Delimiting Engineering Problems:** Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)
- **NGSS LS4.D: Biodiversity and Humans:** Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

Resources

- Projectable PDF or interactive digital magazine
- Content Assessment Master (page 12)
- Article Test (page 16)

Science Background

In the past 20 years, the number of Sumatran rhinos has dropped by more than 70 percent. With fewer than 80 left, it is the most endangered rhino species on Earth.

Sumatran rhinos, which can live 35 to 40 years, are the smallest rhino species. They are also the only rhinos with two horns. In the wild, they live in dense tropical forests in Indonesia. Unfortunately, due to the threat of poaching, it's no longer safe for them to live in this habitat.

Instead, conservationists have been capturing the rhinos and bringing them to sanctuaries across Indonesia. By giving them protection and helping the rhinos breed, they hope to bring this species back from the edge of extinction.

ENGAGE

Encourage students to flip through the article and turn and talk with a partner to discuss what they see. Invite students to ask questions or share what they already know about rhinos.

EXPLORE

Display the projectable PDF or the interactive digital magazine. Invite students to examine the photo, headline, and deck. Brainstorm ideas about why time is running out to save this rhino species from extinction.

EXPLAIN

After reading, remind students that the Sumatran rhino species is in trouble. **Ask:** *What proof do we have that the species is in danger of becoming extinct?* (There are only 80 left in the wild.) Encourage TRAILBLAZER readers to explain how this happened. (Poachers hunted them for their horns.) Then point out that people are now trying to protect Sumatran rhinos. Have students turn and talk as they discuss what people are doing and how this could help save the species. (They are capturing rhinos and putting them in sanctuaries where they will be safe and can have babies.) Invite students to share what they learned about Sumatran rhinos. Encourage them to brainstorm a list of other ways people can help save the rhinos.

ELABORATE

Display the "A Safe Place/In Captivity" feature to introduce students to the rhinos that live at the Sumatran Rhino Sanctuary. Then display the "Rhino Recovery" feature. Have students find each place on the map where Sumatran rhinos are kept. Point out how far apart they are. Encourage students to study the map. Then invite them to ask and answer questions about how people help Sumatran rhinos based on the information presented in the two features.

EVALUATE

Have students complete the Content Assessment for this lesson. Encourage them to share and compare their results in small groups.

CONTENT ASSESSMENT: Rhino Rescue

Answer each question about Sumatran rhinos.

<p>How do you know the Sumatran rhino is endangered?</p>	
<p>What solution are scientists trying to save the rhinos?</p>	
<p>What proves that the solution is working?</p>	

Write three other facts you learned about Sumatran rhinos.

1.	
2.	
3.	

The Problem of Plastics

SCIENCE

Standards Supported

- **NGSS ETS1.A: Defining and Delimiting Engineering Problems:** Before beginning to design a solution, it is important to clearly understand the problem. (K-2 ETS1-1)
- **NGSS LS4.D: Biodiversity and Humans:** Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

Resources

- Projectable PDF or interactive digital magazine
- Content Assessment Master (page 14)
- Article Test (page 17)

Science Background

It's not uncommon to see bits of plastic—or huge chunks—floating on the water or littering land along coastlines. As unsettling as that pollution may be for humans out to enjoy a day at the beach, it can be deadly for the birds and other animals that live there.

Each day, about 8 million pieces of plastic pollution find their way into Earth's oceans. Once there, the bits and pieces can take centuries to decompose. The plastic kills marine mammals, turtles, fish, and birds who mistake floating bags for food, get caught in plastic netting, or ingest tiny microplastics as they feed on other marine animals.

That's why marine biologist and National Geographic Explorer Justine Ammendolia spends so much time collecting trash and creating "plastics profiles" of beaches. Through her research, she hopes to find solutions to this ever-growing problem that plagues Earth.

ENGAGE

Encourage students to flip through the article and turn and talk with a partner to discuss what they see. Invite students to ask questions or share what they already know about plastic pollution.

EXPLORE

Display the projectable PDF or the interactive digital magazine. Instruct students to read the headline. The point out that all three pictures show birds. As a class, brainstorm ideas about why an article about plastic would show pictures of birds.

EXPLAIN

After reading, remind students that Justine Ammendolia is a marine biologist who studies what birds eat. **Ask:** *Why does she study plastic, too?* (She learned that parent birds were feeding plastic to their chicks.) Have students turn and talk as they discuss why this is a problem and how it was created by people. **Ask:** *What does Ammendolia mean when she says she's a garbage detective?* (She studies plastic trash to find out what it is and where it came from.) **Ask:** *How can knowing this help solve the problem?* (When you know the source, you can plan how to solve the problem.) Have students turn and talk to discuss their own experiences with plastic pollution and brainstorm ideas about how they can help solve this ever-growing problem.

ELABORATE

Point out the "Meet Justine Ammendolia!" feature on the back of this month's *Explorer* magazine. Join the live YouTube event on September 26, 2019, to meet Ammendolia and hear about her work. If you miss the livestream event, tune in later to introduce students to this important issue.

EVALUATE

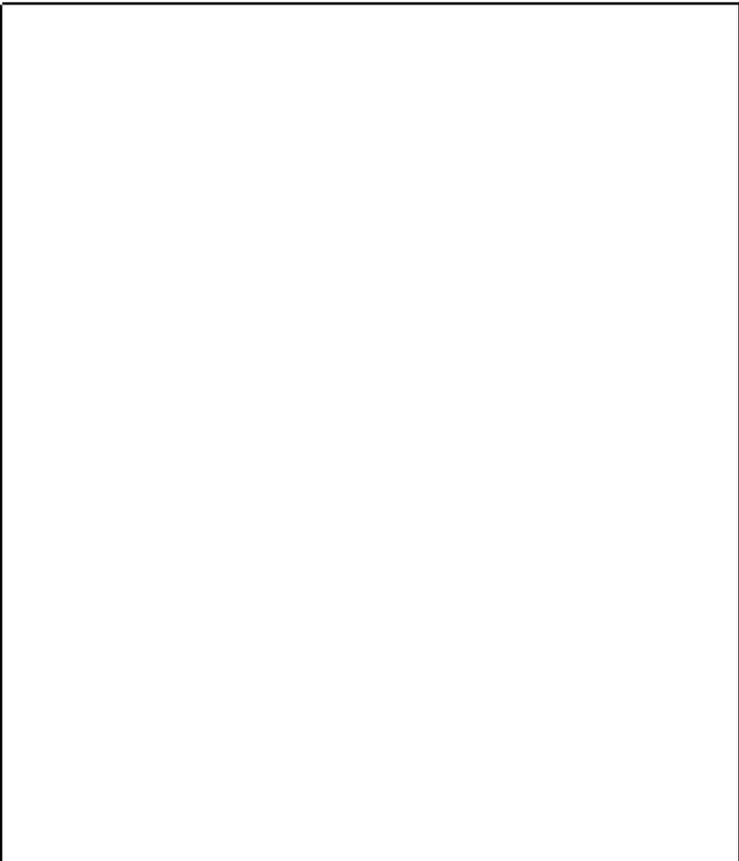
Have students complete the Content Assessment for this lesson. Encourage them to share and compare their results in small groups.

Name _____

Date _____

CONTENT ASSESSMENT: The Problem of Plastics

Draw a picture of plastic garbage you've seen. Tell what it is and where you saw it. Explain why plastic pollution is a problem for birds. Tell how Justine Ammendolia is trying to solve this problem.



Problem

Solution

What: _____

Where: _____

ARTICLE TEST: Warm Up, Cool Down

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

1. Which of these animals is an ectotherm?
Ⓐ fish
Ⓑ fox
Ⓒ kangaroo

2. Which of these animals makes its own heat?
Ⓐ snake
Ⓑ mouse
Ⓒ lizard

3. What helps an elephant cool down?
Ⓐ It pants.
Ⓑ It licks its legs.
Ⓒ It fans its ears.

4. Which of these statements is true?
Ⓐ All animals sweat.
Ⓑ All reptiles are ectotherms.
Ⓒ All endotherms have fur.

5. How does shivering help keep some animals warm?

ARTICLE TEST: Rhino Rescue

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

1. Where do Sumatran rhinos live?
Ⓐ Africa
Ⓑ Indonesia
Ⓒ Australia

2. Why are scientists rescuing them?
Ⓐ They are endangered.
Ⓑ They are extinct.
Ⓒ They are a species.

3. Where are the rhinos safe?
Ⓐ in the wild
Ⓑ in sanctuaries
Ⓒ in pits

4. How many of the Sumatran rhinos alive today were born in the wild?
Ⓐ all
Ⓑ some
Ⓒ none

5. What is the plan for wild rhinos after they are rescued?

ARTICLE TEST: The Problem of Plastics

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

1. What does Justine Ammendolia study about birds?
Ⓐ why they fly
Ⓑ how they grow
Ⓒ what they eat

2. What does she collect to study this?
Ⓐ bird nests
Ⓑ bird eggs
Ⓒ bird poop

3. What are microplastics?
Ⓐ tiny pieces of plastic
Ⓑ huge pieces of plastic
Ⓒ colorful pieces of plastic

4. Why does Ammendolia collect plastic on the beach?
Ⓐ She learned that birds use plastic to make their nests.
Ⓑ She learned that birds feed plastic to their chicks.
Ⓒ She learned that eating plastic is good for birds.

5. Explain how you can help Ammendolia with her studies.

Pioneer and Trailblazer

ANSWER KEY

Warm Up, Cool Down

Assess Content, page 10

Drawings will vary but should depict one ectotherm and one endotherm featured in the article.

Definitions should come from the Wordwise feature on p. 9 of the article.

Answers will vary depending on which animals students drew. Information in student's responses should come from the article.

Article Test, page 15

1. A; 2. B; 3. C; 4. B; 5. Possible response: Shivering creates heat that warms the body.

Rhino Rescue

Assess Content, page 12

1. Experts think there are only 80 Sumatran rhinos left in the wild.
2. Scientists are capturing Sumatran rhinos and placing them in sanctuaries.
3. Possible response: Baby rhinos are being born in the sanctuaries.

Facts will vary but should all come from the article.

Article Test, page 16

1. B; 2. A; 3. B; 4. B; 5. Possible response: After the rhinos are rescued they are taken to a safe place to live and have babies. When the babies are old enough, they will be released into the wild.

The Problem of Plastics

Assess Content, page 14

Drawings will vary.

Problem: Students should note that birds are harmed when they eat the plastic, and adult birds have been feeding plastic to their babies.

Solution: Justine Ammendolia is collecting plastic on beaches to figure out where it came from. Once she knows this, she can figure out how to keep the plastic from becoming garbage on the beach.

Article Test, page 17

1. C; 2. C; 3. A; 4. B; 5. Possible response: Anyone can collect plastic on a beach and share their data on the same app she uses. More data helps her understand the problem better so she can work toward a solution.