



TEACHER'S GUIDE
Pioneer and Trailblazer
Vol. 18 No. 7

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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

Pioneer	
The Scoop on Poop	490
Plastic	540
What's New?.....	500
Trailblazer	
The Scoop on Poop	600
Plastic	700
What's New?.....	660

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

For additional resources to extend your students' learning, visit EXPLORER's website:
NATGEO.ORG/EXPLORERMAG-RESOURCES

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

National Geographic kids are:

CURIOS about how the world works, seeking out new and challenging experiences throughout their lives.

RESPONSIBLE, with concern for the welfare of other people, cultural resources, and the natural world. NG kids are respectful, considering multiple perspectives, and honoring others regardless of differences.

EMPOWERED to make a difference. NG kids act on curiosity, respect, and responsibility. They are adventurous and persist in the face of challenges.



Skills

National Geographic kids can:

OBSERVE and document the world around them and make sense of those observations.

COMMUNICATE experiences and ideas effectively through language and media. They are storytellers!

COLLABORATE with others to achieve goals.

SOLVE PROBLEMS by generating, evaluating, and implementing solutions after identifying alternatives, weighing trade-offs, and making well-reasoned decisions.



Knowledge

National Geographic kids understand:

THE HUMAN JOURNEY is all about where we have been, where we live now (and why), and where we are going.

OUR CHANGING PLANET encompasses all that coexists on our planet—interconnected through systems that generate and nurture each other.

WILDLIFE AND WILD PLACES inhabit our planet—from the butterflies in our backyards to the lions in Africa.

Second Grade Standard Supported

• **CCSS Reading Informational Text:** Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text. (2–2)

Third Grade Standard Supported

• **CCSS Reading Informational Text:** Determine the main idea of a text; recount the key details and explain how they support the main idea. (3–7).

What You'll Need

- “What’s New?”
(*Explorer*, pages 16–23)
- Think Sheet (Teacher’s Guide, page 6)
- Clipboards and pencils

CONNECT & ENGAGE (5 minutes)

Kids are in a group on the floor in front of you. Sit on a low chair and hold up pages 16–17 in the magazine.

Say: *Titles can often tell us what an article is about. If a title doesn’t tell us exactly what the article is about, it can at least give us clues. We can use other information like photos and illustrations to help, too. Let’s look at this title—“What’s New?” Let’s also look at the pictures and the text on these pages. Turn and talk about what you think this article might be about.*

Read the title of the article and the text on page 17. Give kids time to turn and talk and then share out with the class.

Say: *A title can help us begin to figure out what the big idea of an article is. You can think about it this way: Many writers try to synthesize, or combine, a lot of information to create a title that gives readers a clue to what they will be reading. And they have to do this in just a few words. That’s not an easy task, is it?*

Say: *It’s our job as readers to use the title as a clue, and then as we read, synthesize the variety of facts and details to arrive at the big idea.*

MODEL (10 minutes)

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

Say: *Nonfiction articles like the one we are reading are packed with information. When we encounter lots of information in our reading, we need to slow down, read closely, and pay attention to the details. These are the bits and pieces that can help us synthesize and discover the big idea.*

Say: *Watch and listen as I show you how I do this. I’m going to write down the details.*

Say: *Next, I’ll look again at all of the details and think about how they fit together. I’m not forgetting that we said the title can often tell or be a clue to the big idea, so I’m going to keep that in mind, too.*

Read aloud page 18. Then write down on sticky notes or on the board what the details are. Be sure to “think aloud” so students can understand how you are sorting through and processing the information. The details are a little different in *Pioneer* and *Trailblazer* (see below). You can write down the details exactly as they are written in the article or paraphrase them a bit, as shown below.

Pioneer Details

- Scientists in a rainforest look up into the trees and spot a new species of monkey called the snub-nosed monkey.
- There are many different living things on Earth, but not all are known by people.
- New living things are discovered over time and are collected and studied by scientists.
- Scientists put living things into classifications.
- There is a process for finding and naming new species: they have to be found, studied, and compared to other living things.
- Scientists write a report to describe what they think is a new living thing, and then experts review it. If they agree it’s a new living thing, then it is labeled a new species.

Trailblazer Details

- Scientists in a rainforest look up into the treetops looking for a mysterious monkey. They finally spot a new species called the snub-nosed monkey.
- There are many living things on this planet that go unnoticed by humans, sometimes for centuries.
- Some of these new species live in far-off places, and others are closer by.

- Many species of living things are collected and studied and put into classifications.
- There is a process for identifying and naming new species: a specimen has to be captured and collected, studied, and experts must make sure it doesn't belong to a known species. To do this, scientists compare the DNA of the specimen to that of similar species.
- Scientists write a report and experts review it. If they agree, the subject becomes a new species.

Say: *Wow! There is a lot more to finding a new species than I realized. I want to think about these details and the title again. The title is "What's New?" Now I know for sure we are talking about new species. The details on these pages helped me figure that out. From these details I also learned that there is a process that has to be followed to determine if a species is new or not. I'm going to keep this in mind as we continue to read and synthesize the details to come up with the big idea of this article.*

Say: *Turn and talk about what you noticed me doing as I was reading and thinking about the details and the big idea.*

Let students turn and talk and then share out.

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: *Let's keep reading. I'll read some more text aloud, and you can read along, too. Write down the details you hear on the Think Sheet squares.*

Read aloud page 19. Kids should note on their Think Sheet squares a few more details.

Pioneer Details

- Every species has a two-part scientific name that is written in Latin.
- Every species also has a common name that is easier for people to use and remember.
- One example is the sorting hat spider that looks like the sorting hat from the Harry Potter series. Its scientific name is *Eriovixia gryffindori*.

- Another example is a new fly species. Its common name is Beyoncé fly, and its scientific name is *Scaptia beyoncae*.

Trailblazer Details

- The sorting hat spider (*Eriovixia gryffindori*) looks like the sorting hat from the Harry Potter series.
- The Beyoncé fly (*Scaptia beyoncae*) has a golden backside.
- Every known species has an official two-part scientific name. This system has been around since the 1700s and was designed so people from different parts of the world could share information about specific species.
- The first part of the scientific name is called the genus, named for a small group of related organisms. The second part identifies the species and is called the specific epithet.
- Every species also has a common name that is easier for people to use and remember.
- An example is three species of fungus beetles: *Gelae baen* ("jelly bean"), *Gelae balae* ("jelly belly"), and *Gelae donut* ("jelly doughnut"). The genus *Gelae* shows they are related.

Say: *Okay, what details did we have on this page? Do they support what we've been thinking might be the big idea? How could we state the big idea, based on the details we've seen so far? Turn and talk about that, and then you can share out.*

Encourage kids to think about how to synthesize the details and come up with a few different ways of stating the big idea. Some suggestions kids might have include the following:

- There are many different species on Earth, and new ones are always being discovered, studied, and named.
- There is a specific process for identifying and naming each new species that is discovered.

Let kids know that as they read more and find out more information through details, they can continue to refine their thinking about what the big idea is.

COLLABORATE (25 Minutes)

Say: *Now it's your turn. Find a partner and read the rest of the article together. Write down the details on your Think Sheet squares, and keep talking about how they fit with the other details in the article. With more details, you might have some different thoughts about what the big idea is. Continue to synthesize these details and refine your thinking about the big idea.*

Say: *While you are working together, I'm going to walk around the room to see if you need any help or have any questions.*

Kids read, write down details, and talk about them and the big idea. Move around the room, conferring with partners. The rest of the article includes more examples of new species and also why and how new species are being discovered. Work with kids to come up with a big idea that encompasses the different aspects of the article.

SHARE THE LEARNING (10 minutes)

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

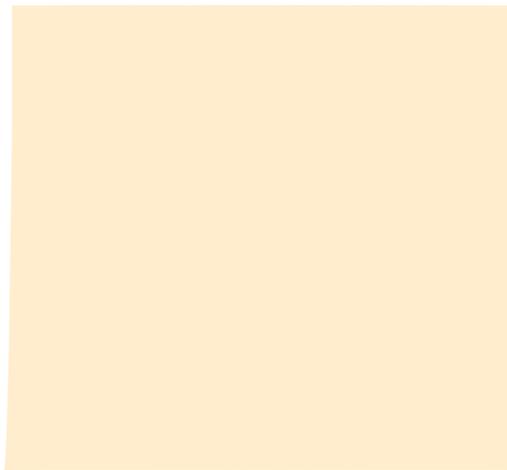
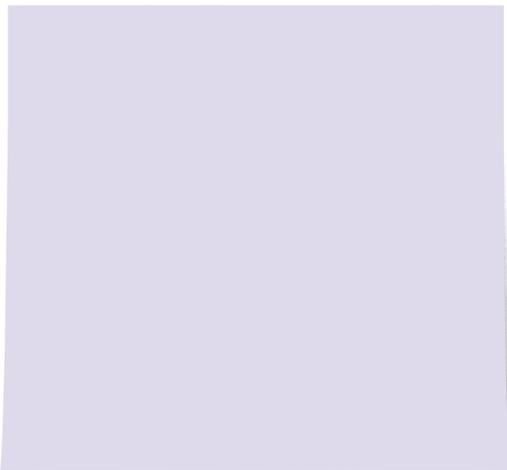
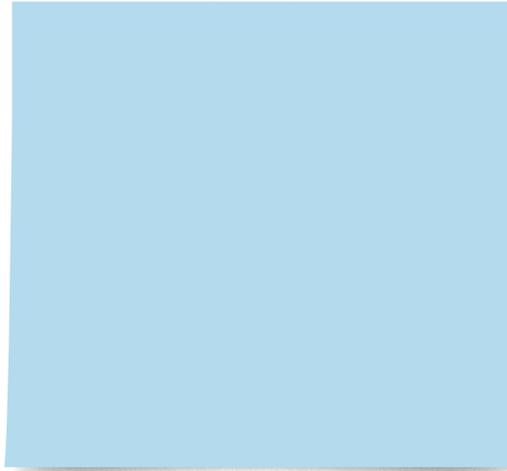
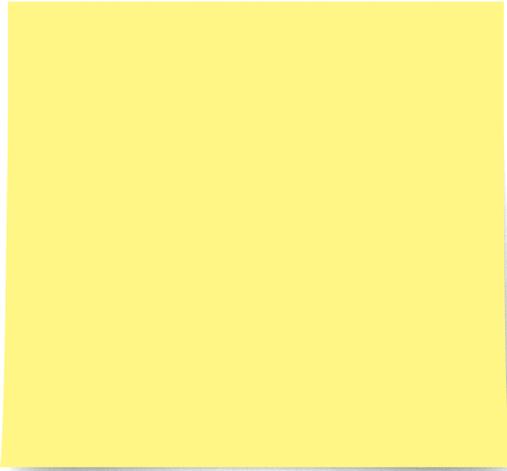
Say: *I am going to invite [student name] to share any interesting details or surprising information you learned that helped you synthesize the big idea. We are going to share using respectful language. So when I ask: "[student name] would you like to share some interesting details or surprising information?" you need to say: "Yes thank you." Then you can share. After you've done that, 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 information being shared.*

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: *Synthesizing the details to see how they all relate to one another to come up with the big idea takes some clever thinking. Great work today, everyone!*

THINK SHEET

Use these note squares to draw or write about things you learned.



Big idea: _____

LESSON FRAME Synthesize Information for the Big Idea

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.

CONNECT & ENGAGE (5 minutes)

Kids are in a group on the floor in front of you. Sit on a low chair and hold up page(s) _____.

Say: *Titles can often tell us what an article is about. If a title doesn't tell us exactly, it can at least give us clues. We can use other information like photos and illustrations to help, too. Let's look at this title: _____. Let's also look at the pictures and the text on these pages. Turn and talk about what you think this article might be about.*

Read the title of the article and the text on page(s) _____. Give kids time to turn and talk and then share out with the class.

Say: *A title can help us begin to figure out what the big idea of an article is. You can think about it this way: Many writers try to synthesize, or combine, a lot of information to create a title that gives readers a clue to what they will be reading. And they have to do this in just a few words. That's not an easy task, is it?*

Say: *It's our job as readers to use the title as a clue, and then as we read, synthesize the variety of facts and details to arrive at the big idea.*

MODEL (10 minutes)

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

Say: *Nonfiction articles like the one we are reading are packed with information. When we encounter lots of information in our reading, we need to slow down, read closely, and pay attention to the details. These are the bits and pieces that can help us synthesize and discover the big idea.*

What You'll Need

- Nonfiction text
- Think Sheet template
- Clipboards and pencils

Say: *Watch and listen as I show you how I do this. I'm going to write down the details. Next, I'll look again at all of the details and think about how they fit together. I'm not forgetting that we said the title can often tell or be a clue to the big idea, so I'm going to keep that in mind, too.*

Read aloud page(s) _____. Then write down on sticky notes or on the board what the details are. Be sure to "think aloud" so students can understand how you are sorting through and processing the information. You can write down the details exactly as they are written in the article or paraphrase them a bit.

Say: *Wow! There are a lot more details than I realized. I want to think about these details and the title again. The title is _____. Now I know for sure that _____. The details on these pages helped me figure that out. From these details I also learned _____. I'm going to keep this in mind as we continue to read and synthesize the details to come up with the big idea of this article.*

Say: *Turn and talk about what you noticed me doing as I was reading and thinking about the details and the big idea.*

Let students turn and talk and then share out.

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: *Let's keep reading. I'll read some more text aloud, and you can read along, too. Write down the details you hear on the Think Sheet squares.*

Read aloud page(s) _____. Kids should note on their Think Sheet squares a few more details.

LESSON FRAME Synthesize Information for the Big Idea

Say: *Okay, what details did we have here? Do they support what we've been thinking might be the big idea? How could we state the big idea, based on the details we've seen so far? Turn and talk about that, and then you can share out.*

Encourage kids to think about how to synthesize the details and come up with a few different ways of stating the big idea. Let kids know that as they read more and find out more information through details, they can continue to refine their thinking about what the big idea is.

COLLABORATE (25 Minutes)

Say: *Now it's your turn. Find a partner and read the rest of the article together. Write down the details on your Think Sheet squares, and keep talking about how they fit with the other details in the article. With more details, you might have some different thoughts about what the big idea is. Continue to synthesize these details and refine your thinking about the big idea.*

Say: *While you are working together, I'm going to walk around the room to see if you need any help or have any questions.*

Kids read, write down details, and talk about them and the big idea. Move around the room, conferring with partners. Work with kids to come up with a big idea that encompasses the different aspects of the article.

SHARE THE LEARNING (10 minutes)

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

Say: *I am going to invite [student name] to share any interesting details or surprising information you learned that helped you synthesize the big idea. We are going to share using respectful language. So when I ask: "[student name] would you like to share some interesting details or surprising information?" you need to say: "Yes thank you." Then you can share. After you've done that, 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 information being shared.*

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: *Synthesizing the details to see how they all relate to one another to come up with the big idea takes some clever thinking. Great work today, everyone!*

The Scoop on Poop

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 Science and Engineering Practices: Constructing Explanations and Designing Solutions:** Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2)

Resources

- Content Assessment Master (page 10)
- Article Test (page 17)

Science Background

Poop, also known as feces or a number of other names, is the material that is left over after food has been digested. Nearly every animal poops. It's how their bodies get rid of solid waste. But all not poop is the same.

First of all, animals poop in different shapes. It can be round, cube-shaped, or even spiral. Animals also poop in different amounts. Sloths poop once a week. Elephants can produce up to 136 kilograms (300 pounds) of poop a day.

Animals use their poop in different ways, too. Some use it to build homes. Others use it to hide from enemies, send messages, attract mates, or cool off. Some even eat their own poop or feed it to their young.

Scientists can learn a lot about animals from studying their poop. Poop reveals what an animal has been eating. It holds clues about the animal's health. It can even tell you what kind of animal it came from and when the animal left it. Poop is an important scientific tool.

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 animal poop.

EXPLORE

Display pages 2-3 of the projectable magazine. Invite students to examine the photos, headline, and text. Brainstorm ideas about why grown-ups don't like to talk about poop and kids giggle when it's mentioned—even though poop is a necessary part of being alive.

EXPLAIN

After reading, remind students that nearly all animals poop. That's how their bodies get rid of solid waste. But once it's out of their bodies, animals use poop in different ways. **Ask:** *What are some of the things animals do with their poop?* (spread seeds, create sandy beaches, make weapons, mark territory, scare other animals away, and use it to make homes) Have students turn and talk as they identify animals that use poop each way. Challenge them to describe how animals accomplish each task. Encourage students to summarize why poop is an important tool that helps animals survive.

ELABORATE

Instruct students to take another look at the article's photos. Point out that some animals live on land. Others live in water. And each one uses poop in a different way. Divide the class into small groups. Instruct groups to conduct research to find more land and water animals that use their poop in different ways. Invite groups to share what they learned with the class.

EVALUATE

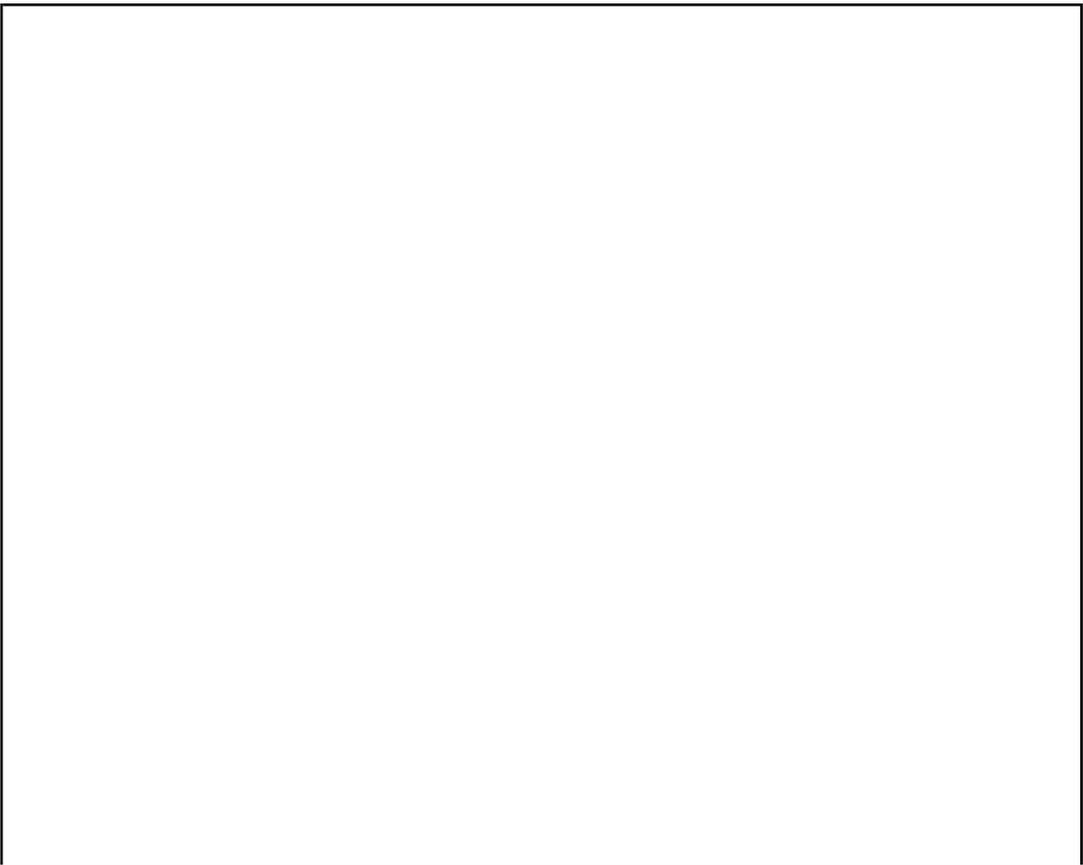
Have students complete the **Content Assessment** for this lesson. Encourage them to share and compare their results in small groups.

Name _____

Date _____

CONTENT ASSESSMENT: The Scoop on Poop

Draw and color one animal from the article. Identify the animal. Describe how it deals with its waste.
Explain why the animal does this.



Identify: _____

Describe: _____

Explain: _____

Standards Supported

- **NGSS ETS1.B: Developing Possible Solutions:** Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-2)
- **NGSS Science and Engineering Problems: Asking Questions and Defining Problems:** Define a simple design problem that can be solved through the development of a new or improved object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)

Resources

- Content Assessment Master (page 12)
- Article Test (page 18)

Science Background

Every day people use products made of plastic. And this is a problem because about 40 percent of all plastic is used once and thrown away. Much of that—about 18 billion pounds—finds its way to the ocean each year.

Once in the ocean, plastic stays for a long, long time. And it endangers the animals that live there. Animals get tangled in plastic bags and die. They also eat plastic, both before and after it has broken down. That plastic is then passed along through the food chain.

There are things people can do to help. We can recycle, reuse, and refuse to use single-use items. We can pick up litter. We can also rethink our lives to determine where it is possible to use less plastic.

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.

EXPLORE

Display pages 8-9 of the projectable magazine. Have students examine the photo. Poll the class to see how many students have used plastic items like the ones shown in the photo. Poll the class again to see how many students have seen plastic products like these on the side of the road or floating down a river. Brainstorm ideas about why this is a problem.

EXPLAIN

After reading, remind students that plastic was invented in the 1950s. **Ask:** *What are some ways that people use plastic today?* Invite students to share their responses. **Then ask:** *How did plastic get to be such a problem?* (Possible response: People litter and a lot of plastic has become waste. Some may never break down, so a lot of plastic washes into our oceans.) Have students turn and talk to identify ways plastic harms ocean animals. (They can die after they eat it.) Then have students identify solutions people are trying get rid of all the plastic. Encourage students to discuss the merits of each solution.

ELABORATE

Divide the class into small groups. Have groups review the sidebar on pages 14-15 of their student magazines. Instruct them to conduct research to identify more ways individuals can make a difference. Then have groups create a poster that will encourage other students to rethink how they use plastic so less plastic ends up in the ocean.

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: Plastic

Brainstorm ideas for a new tool or idea that will help people use less plastic.
Draw a picture of your invention.



What is your invention? _____

What does it do? _____

How will it help people use less plastic? _____

SCIENCE

Standards Supported

- **NGSS L4.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-LS41-1]
- **NGSS Crosscutting Concepts: Patterns:** Similarities and differences in patterns can be used to sort and classify natural phenomena. [3-LS3-1]

Resources

- Content Assessment Master (page 14)
- Article Test (page 19)

Science Background

Earth's species are disappearing at an alarming rate. Scientists estimate that up to 200 species of plants and animals become extinct each day. So how is it possible that in recent years scientists have also discovered a record number of new species?

Fueled by a desire to understand and recognize the biodiversity of Earth, more scientists are setting out to find new species. As they collect specimens, they venture to previously unexplored regions and use new, modern tools that help them study organisms in new ways.

Each year, about 18,000 new species are discovered. Some live in the deepest ocean trenches or highest rainforest canopies. But others are right under our noses. For example, scientists discovered a previously unknown single-celled protist living on a brain coral in a tropical aquarium in San Diego, California.

Deciding that an animal comes from a new species is no easy task. Scientists must study the animal's anatomy, behavior, and DNA. Then they report their findings. Only when other experts agree that the animal is unique can it be classified as a new species.

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 discovering new species.

EXPLORE

Display pages 16-17 of the projectable magazine. Invite students to examine the illustration, headline, and deck. Then have students brainstorm different features that might cause scientists to think they had discovered a new species for each animal outlined in the illustration.

EXPLAIN

After reading, review the vocabulary words in the Wordwise feature with students to ensure they understand each scientific term. **Ask:** *Why do scientists put animals into classifications?* (to sort them into groups with similar features) *Why do they give animals scientific names?* (Possible response: so people everywhere will know they're talking about the same species) Have students turn and talk as they discuss the process scientists go through to prove they have discovered a new species. Encourage them to identify similarities that helped scientists group each animal in the article and differences that proved each one was a new species.

ELABORATE

Point out to students that the animals featured in the article are just a few of the new species scientists have discovered in recent years. Divide the class into small groups. Instruct groups to conduct research to identify more new animal species scientists have discovered. Encourage them to find photos, write descriptions, and identify specific traits that proved each animal was a new species.

EVALUATE

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

CONTENT ASSESSMENT: What's New?

Explain how scientists prove they have discovered a new species.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Brainstorm ideas for a newly discovered animal. Draw a picture. Describe it. Then explain how you know the animal belongs to a new species.

Draw	Describe
	Explain

SOCIAL STUDIES

Standards Supported

- **C3: History: Change, Continuity, and Context:**
Compare life in the past to life today. (D2.His.2.K-2)
- **C3: History: Change, Continuity, and Context:**
Compare life in specific historical time periods to life today. (D2.His.2.3-5)

Resources

- Ancient India poster (Teacher's edition)
- Life in Ancient India poster (Teacher's edition)
- Content Assessment Master (page 16)
- Poster Test (page 20)

Social Studies Background

Making comparisons is the first step toward understanding how a place has changed over time. To fully appreciate these changes, students must be able to evaluate them from different perspectives: political, economic, social, cultural, etc. This process takes time to develop. Recognizing that, each month *Explorer* magazine will introduce students to a different culture. Use the accompanying lessons to guide students as they develop these skills.

ENGAGE

Encourage students to examine the map and turn and talk with a partner to discuss what they see. Invite students to ask questions or share what they already know about Ancient India.

EXPLORE

Display the **Ancient India poster**. Invite students to examine the two maps. **Ask:** *Where is India located?* (southern Asia) *How do you know?* (The pink square on the call-out map shows where it is.) Encourage students to identify countries, mountains, and bodies of water around India so they get a fuller understanding of its location.

EXPLAIN

Invite students to examine the **Ancient India poster**. Invite a volunteer to read aloud the text at the top of the poster. Then give students a moment to study the maps. **Ask:** *Where in ancient India would the Indus Valley civilization have been located?* (along the Indus River) *Why this would have been a good place for people to settle?* (Possible response: It was protected by mountains and deserts. The rivers provided food and a way to move and trade.) Have students turn and talk as they compare the maps. Then display and review the **Life in Ancient India poster**. Have students compare and contrast life in Ancient India to life in India today.

ELABORATE

Display the **Life in Ancient India poster**. As a class, review the poster to find ways religion has influenced different parts of India's culture. Have students conduct research to find more ways religion and culture are intertwined in India today.

EVALUATE

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

CONTENT ASSESSMENT: Ancient India Posters

Answer each question about India.

What landforms and bodies of water form India's borders?	
How does religion influence what people eat in India today?	
What was India's caste system?	

Write three other facts you learned about India.

1.	
2.	
3.	

ARTICLE TEST: The Scoop on Poop

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

1. What is poop?
Ⓐ solid waste that is passed from the body
Ⓑ a small living thing, which you can only see if you use a microscope
Ⓒ something that is needed for health and growth, like food

2. What is another word for bird poop?
Ⓐ frass
Ⓑ droppings
Ⓒ scat

3. Which animal creates sandy beaches when it poops?
Ⓐ tambaqui
Ⓑ parrotfish
Ⓒ Adélie penguin

4. Why do turkey vultures put poop on their feet?
Ⓐ to mark their territory
Ⓑ to keep clean
Ⓒ to cool down

5. Why do koalas mothers feed their baby poop?

ARTICLE TEST: Plastic

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

1. What does biodegrade mean?
Ⓐ to be reused
Ⓑ to be recycled
Ⓒ to break down

2. Why is there is so much plastic trash on Henderson Island?
Ⓐ People left the trash on the beaches.
Ⓑ Ocean currents carried it there.
Ⓒ There is a plastic factory on Henderson Island.

3. Why is plastic so harmful to ocean animals?
Ⓐ The plastic absorbs all the water around the animals.
Ⓑ The animals eat the plastic.
Ⓒ The plastic is recycled in the ocean.

4. What are microplastics?
Ⓐ shampoo bottles
Ⓑ plastic straws
Ⓒ tiny pieces of plastic

5. What are three things people can do to use less plastic?

ARTICLE TEST: What's New?

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

1. What happens to an area's biodiversity when a new species is discovered?

- Ⓐ it increases
- Ⓑ it decreases
- Ⓒ it stays the same

2. Which of these is a scientific name?

- Ⓐ *Eriovixia gryffindoria*
- Ⓑ sorting hat spider
- Ⓒ Beyoncé fly

3. Which of these newly discovered species was a fossil?

- Ⓐ hairy blue tarantula
- Ⓑ patch-nosed salamander
- Ⓒ Finney's bat

4. Why did a scientist think the Moroccan flic-flac spider was a new species?

- Ⓐ The way it built webs.
- Ⓑ The way it moved.
- Ⓒ The way it caught prey.

5. Why are scientists finding so many new species now?

POSTER TEST: Ancient India Posters

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

1. What continent is India part of?
Ⓐ Africa
Ⓑ Asia
Ⓒ Australia

2. Where in India did one of the world's oldest civilizations begin?
Ⓐ along the Indus River
Ⓑ in the Himalayas
Ⓒ on the Bay of Bengal

3. What traditional clothing do women in India wear today?
Ⓐ dhoti
Ⓑ saris
Ⓒ castes

4. Which religion do most people in India follow today?
Ⓐ Hinduism
Ⓑ Jainism
Ⓒ Buddhism

5. What are three things you learned about ancient India?

Pioneer and Trailblazer

ANSWER KEY

The Scoop on Poop

Assess Content, page 10

Students should select one animal featured in the article. They should accurately describe how the animal deals with its waste and give a detailed answer explaining why the animal does this.

Article Test, page 17

1. A; 2. B; 3. B; 4. C; 5: Microbes in an adult koala's stomach help it break down leaves. Baby koalas don't have these microbes. They get them when they eat their mother's poop.

Plastic

Assess Content, page 12

Answers will vary, but students should draw pictures of inventions related to solving the plastic problem, describe what they do, and explain how they will help people use less plastic.

Article Test, page 18

1. C; 2. B; 3. B; 4: C; 5: Possible responses include: Give up plastic bags; skip plastic straws; pass up plastic bottles; avoid plastic packaging; recycle what you can; and don't litter.

What's New?

Assess Content, page 14

1. Find a living thing. (Students reading the TRAILBLAZER edition should note that the animal is collected and captured.)
2. Study it.
3. Compare it to other living things. (Students reading the TRAILBLAZER edition should note that scientists compare the DNA.)
4. Write a report to describe it.
5. Have experts review the report.
6. If everyone agrees, it's named a new species.

New Species: Students should "create" an animal for their new species. They should draw their idea, describe it, and explain why it should be classified as a new species.

Article Test, page 19

1. A; 2. A; 3. C; 4: B; 5: Possible response: Scientists are looking in new places that people have never been before and they are using new tools like deep-sea cameras.

Ancient India Posters

Assess Content, page 16

Borders: north, Himalayas; east: Bay of Bengal; south, Indian Ocean; west: Arabian sea and Thar Desert

Diet: Most people in India today are Hindus. Hindus believe that cows are sacred so they won't eat them.

Caste system: The caste system was a way of separating people into different classes, or social groups.

Poster Test, page 20

1. B; 2. A; 3. B; 4: A; 5: Answers will vary but should come from the posters.