



**TEACHER'S GUIDE**  
**Pathfinder and Adventurer**  
**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**

<b>Pathfinder</b>	
The Scoop on Poop .....	700
Plastic .....	720
What's New?.....	720
<b>Adventurer</b>	
The Scoop on Poop .....	830
Plastic .....	830
What's New?.....	850

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



Looking for a fun way to test your student's recall? Each story in this issue of Explorer has an accompanying Kahoot! quiz.

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.

**Fourth Grade Standard Supported**

• **CCSS Reading Informational Text:** Determine the main idea of a text and explain how it is supported by key details; summarize the text. (4–2)

**Fifth Grade Standard Supported**

• **CCSS Reading Informational Text:** Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text. (5–2)

**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 the article “What’s New?”

**Say:** *A title can often tell us what an article is about, or at the very least it can give us a hint of what the article is about. Let’s look at the title of this article: “What’s New?” Now let’s quickly flip through it. Turn and talk about what you think this article might be about.*

Read the title and have kids flip through the pages. Give kids time to turn and talk and then share out with the class. Remind them that these are only their first thoughts about the article. They’ll need to read on and do more thinking to know for sure what the article is about.

**Say:** *When good readers read nonfiction, they synthesize the many facts and details to sort out the most essential information; to pare it down to come up with the bigger picture, or the big ideas. We sometimes call this “getting the gist.” Taking a few minutes before reading to look at the title and flip through the pages starts us thinking about what the gist of the article might be. It’s kind of a “warm-up” before reading.*

**Say:** *When we read to get the gist, we need to add our own thinking. While we are synthesizing and taking in new information as we read, we might be changing what we thought a few pages back. To synthesize, we combine our thinking with the information we read to come up with the big ideas.*

**MODEL (10 minutes)**

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

**Say:** *When we flipped through the article, did you notice how it was divided into sections, and some of those sections had subheads? That’s pretty common in nonfiction, isn’t it? On page 18 there are three main sections—one at the top, one with the subhead “Where’s Waldo?” and one with the subhead “Wait, What Is That?” I also notice there is a small feature of information at the bottom left.*

**Say:** *I have a two-column chart. The first column is labeled “Gist.” That’s where I’m going to write the big ideas of the section I’m reading. The second column is labeled “Thinking.” I’m going to write down my thinking in that column.*

**Say:** *I’m going to read aloud each section. Watch and listen as I show you how I’m going to think through things and synthesize the information and add my own thinking.*

Read aloud page 18. Then write down the big ideas in the “Gist” column of your chart and your thinking in the “Thinking” column. You might want to create this chart on the board so all can see. Be sure to “think aloud” so students can understand how you are sorting through and processing the information.

**Gist:** Looking for new species takes observation and patience.

**Thinking:** This seems to be an example of how scientists found one new species. Seems like it takes careful observation and a lot of patience (and probably a lot of luck, too). I think that’s really the gist of this section.

**Gist:** There is so much biodiversity on Earth. Many species have been identified, but there are many more yet to be discovered, studied, and classified.

**Thinking:** When I synthesize the information in this section, I don't have to include all the details. I just need to figure out the most important idea.

**Gist:** There is a specific process to identify and name a new species.

**Thinking:** I never thought about how important it would be to follow a process to be sure a species is actually new. That makes sense to me. I think that's the most central idea in this section.

**Say:** *Reading to get the gist takes some thinking and rereading to determine what information is the most important. Turn and talk about what you noticed me doing to get the gist of these sections.*

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 try this next section together. You've now got your Think Sheets with your own two-column charts to write on. I'll read this section aloud, and then you can turn and talk about what you think the gist is. Remember that you might need to reread as you talk through and synthesize the details to come up with what you think is the most important information.*

Read aloud page 19. Then kids can turn and talk.

**Say:** *Okay, what are some of the ideas you had that you think we should include in the gist column? Would it be something like this? Every known species has an official two-part scientific name. The first part is the genus, named for a small group of related organisms. The second part is the specific epithet and identifies the species. How could we pare this down?*

Work with kids to see if they can come up with a more succinct way to write the gist in their own words.

**Say:** *Now take some time to write that down in the Gist column of your chart. If you think you have a better idea, jot that down instead. Then also jot down your thoughts in the Thinking column.*

**COLLABORATE (25 Minutes)**

**Say:** *Now it's your turn. Find a partner and read the rest of the article together. Read each section and talk to each other to decide on the gist. You may not agree at first, so that's why talking about your thinking is important. Once you've agreed on the gist, write it on your Think Sheet, and don't forget to write down your thinking, too.*

**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, talk, and write the gist for each section and their thinking on their Think Sheets. 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. Once kids have come up with the gist for each section, you might also want to work with them to come up with the big idea, or gist, of the whole article. To do this, have them synthesize the gist information they've written on their Think Sheets.

**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 to get the gist. 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 information to get the gist takes some clever thinking. Great work today, everyone!*

Name \_\_\_\_\_

Date \_\_\_\_\_

**THINK SHEET**

Use this chart to write about things you learned.

<b>Gist</b>	<b>Thinking</b>

## LESSON FRAME Synthesize Information: Read to Get the Gist

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 &amp; ENGAGE (5 minutes)

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

**Say:** *A title can often tell us what an article is about, or at the very least it can give us a hint of what the article is about. Let's look at the title of this article: \_\_\_\_\_. Now let's quickly flip through it. Turn and talk about what you think this article might be about.*

Read the title and have kids flip through the pages. Give kids time to turn and talk and then share out with the class. Remind them that these are only their first thoughts about the article. They'll need to read on and do more thinking to know for sure what the article is about.

**Say:** *When good readers read nonfiction, they synthesize the many facts and details to sort out the most essential information; to pare it down to come up with the bigger picture, or the big ideas. We sometimes call this "getting the gist." Taking a few minutes before reading to look at the title and flip through the pages starts us thinking about what the gist of the article might be. It's kind of a "warm-up" before reading.*

**Say:** *When we read to get the gist, we need to add our own thinking. While we are synthesizing and taking in new information as we read, we might be changing what we thought a few pages back. To synthesize, we combine our thinking with the information we read to come up with the big ideas.*

## What You'll Need

- Nonfiction text
- Think Sheet template
- Clipboards and pencils

## MODEL (10 minutes)

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

**Say:** *When we flipped through the article, did you notice how it was divided into sections, and some of those sections had subheads? That's pretty common in nonfiction, isn't it?*

**Say:** *I have a two-column chart. The first column is labeled "Gist." That's where I'm going to write the big ideas of the section I'm reading. The second column is labeled "Thinking." I'm going to write down my thinking in that column.*

**Say:** *I'm going to read aloud. Watch and listen as I show you how I'm going to think through things and synthesize the information and add my own thinking.*

Read aloud page \_\_\_\_\_. Then write down the big ideas in the "Gist" column of your chart and your thinking in the "Thinking" column. You might want to create this chart on the board so all can see. Be sure to "think aloud" so students can understand how you are sorting through and processing the information.

**Say:** *Reading to get the gist takes some thinking and rereading to determine what information is the most important. Turn and talk about what you noticed me doing to get the gist.*

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 try this next part together. You've now got your Think Sheets with your own two-column charts to write on. I'll read aloud, and then you can turn and talk about what you think the gist is. Remember that you might need to reread as you talk through and synthesize the details to come up with what you think is the most important information.*

**LESSON FRAME** Synthesize Information: Read to Get the Gist

Read aloud page \_\_\_\_\_. Then kids can turn and talk.

**Say:** *Okay, what are some of the ideas you had that you think we should include in the gist column? Would it be something like this: \_\_\_\_\_? How could we pare this down?*

Work with kids to see if they can come up with a more succinct way to write the gist in their own words.

**Say:** *Now take some time to write that down in the Gist column of your chart. If you think you have a better idea, jot that down instead. Then also jot down your thoughts in the Thinking column.*

**COLLABORATE (25 Minutes)**

**Say:** *Now it's your turn. Find a partner and read the rest of the article together. Read and talk to each other to decide on the gist for each part. You may not agree at first, so that's why talking about your thinking is important. Once you've agreed on the gist, write it on your Think Sheet, and don't forget to write down your thinking, too.*

**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, talk, and write the gist for each part and their thinking on their Think Sheets. Move around the room, conferring with partners. Once kids have come up with the gist for each part, you might also want to work with them to come up with the big idea, or gist, of the whole article. To do this, have them synthesize the gist information they've written on their Think Sheets.

**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 to get the gist. 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 information to get the gist takes some clever thinking. Great work today, everyone!*

### Standards Supported

- **NGSS LS1.A: Structure and Function:** Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)
- **NGSS LS2.B: Cycles of Matter and Energy Transfer in Ecosystems:** Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste (gas, liquid, or soli) back into the environment. (5-LS2-1)

### 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.



Click here for the Kahoot! quiz:

[https://play.kahoot.it/#/k/](https://play.kahoot.it/#/k/1e72d50c-fd1c-4327-98bd-24bee08541d7)

[1e72d50c-fd1c-4327-98bd-24bee08541d7](https://play.kahoot.it/#/k/1e72d50c-fd1c-4327-98bd-24bee08541d7)

### 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 many different ways. **Ask:** *What are some of the things animals do with their poop?* (They spread seeds, create sandy beaches, make weapons, mark territory, scare other animals away, and use it make make homes.) Have students turn and talk as they identify animals that use poop in each way. Challenge them to describe how animals accomplish each task. Encourage students to discuss how these actions help the animals survive.

### ELABORATE

Instruct students to take another look at the article's photos. Point out the labels in the orange boxes, which identify something the animal in each photo uses poop to do. Divide the class into small groups. Instruct groups to conduct research to find more animals that use poop in each way. Challenge them to also find animals that use poop in ways that were not discussed in the article. 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**

Name five animals from the article. Describe how each animal deals with its waste. Explain why they do these things.

Name	Describe	Explain

### Standards Supported

- **NGSS ETS1.A: Defining and Delimiting Engineering Problems:** Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1)
- **NGSS ESS3.C: Human Impacts on Earth Systems:** Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)

### 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.



Click here for the Kahoot! quiz:

[https://play.kahoot.it/#/k/](https://play.kahoot.it/#/k/db4ddfe4-d1b5-426b-a078-2c21934c0d5a)

[db4ddfe4-d1b5-426b-a078-2c21934c0d5a](https://play.kahoot.it/#/k/db4ddfe4-d1b5-426b-a078-2c21934c0d5a)

### 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, repeat some of the article's statistics to help students grasp the scope of the plastic problem. **Say:** *In the past 70 years, people have made 9.2 billion tons of plastic. Of that, 6.9 billion tons have become waste and 6.3 billion tons were never recycled. And each year, between 5.3 and 14 million tons of plastic end up in the ocean.* **Ask:** *How does it get there?* (People litter on land or in rivers and it's blown or washed into the sea.) Have students discuss how plastic harms animals once it gets into the ocean. (Some animals are strangled by plastic. Others die after they eat it.) Then have them identify ways people are trying to help. Encourage students to discuss the merits of each solution.

### ELABORATE

Divide the class into pairs. Have partners 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 pairs create a poster, video, or brochure that will encourage others to help solve the plastic problem.

### 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**

Use this organizer to assess your knowledge about plastic.

How did plastic get to be such a problem in the ocean?

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What are three ways plastic pollution is affecting the ocean?

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What are three things people are doing to help?

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## SCIENCE

### Standards Supported

- **NGSS Science and Engineering Practices: Engaging in Argument from Evidence:** Construct an argument with evidence, data, and/or a model. (4-LS1-1)
- **NGSS Science and Engineering Practices: Engaging in Argument from Evidence:** Support an argument with evidence, data, or a model. (5-LS1-1)

### 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.



Click here for the Kahoot! quiz:

[https://play.kahoot.it/#/k/](https://play.kahoot.it/#/k/f8c68fa1-4b56-4f31-a434-fb281f75714a)

[f8c68fa1-4b56-4f31-a434-fb281f75714a](https://play.kahoot.it/#/k/f8c68fa1-4b56-4f31-a434-fb281f75714a)

### 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 a list of traits or behaviors 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 recognize their similarities) *Why do they give animals scientific names?* (so people from different parts of the world can share information about a specific 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 physical or behavioral traits of animals in the article that led scientists to believe 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 pairs. Instruct partners 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?**

Summarize the process scientists use to prove an organism belongs to a new species.

Brainstorm ideas for a newly discovered animal. Draw a picture. Describe the animal's traits and behaviors. Then explain why it is unique and belongs to a new species.

<b>Draw</b>	<b>Explain</b>
<b>Describe</b>	

## SOCIAL STUDIES

### Standard Supported

- **C3: History: Change, Continuity, and Context:** Generate questions about individuals and groups who have shaped significant historical changes and continuities. (D2.His.3.3-5)

### 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

Asking questions is the first step in acquiring historical knowledge. But to fully understand history, students must know which questions to ask, how to evaluate the answers, and how to use those answers to create accurate arguments about the past. Historical thinking is a process that takes time to develop. Recognizing that, each month *Explorer* magazine will introduce students to a different ancient 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**. Point out the Himalayas on the large map. Discuss reasons why ancient Indian civilizations, like many others, didn't spread beyond this mountain chain.

### EXPLAIN

Invite students to examine the **Ancient India poster**. Instruct students to examine the area highlighted in the circles. **Ask:** *Why did the geography in and around this area make it a good place for people to settle and develop one of the world's first civilizations?* (The Himalayas to the north protected the area from invaders. Rivers provided an excellent source for trade and commerce.) Have students turn and talk as they review the information about key figures from ancient India and the caste system that segregated ancient Indian society. Then display and review the **Life in Ancient India poster**. Have students discuss the significant roles religion and art played in the lives of ancient Indians.

### ELABORATE

Display the **Life in Ancient India poster**. Remind students that India is the birthplace of three of the world's major religions: Hinduism, Jainism, and Buddhism. Instruct students write a list of questions they have about each religion. Encourage them to conduct research to find the answers. Invite students 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.

**CONTENT ASSESSMENT: Ancient India Posters**

Make a checkmark to show if you think each sentence is true or false.

Use information from the posters to explain your answers.

Sentence	True	False	Explanation
1. One of the world's first civilizations developed around the Ganges River.			
2. Ancient India stretched across nearly the entire subcontinent of Africa.			
3. The caste system was a way to segregate people in ancient Indian society.			
4. Vishnu is one of the most important gods in Hinduism.			
5. Buddhists believe that all living things have souls and no living thing should be harmed.			
6. Ancient Indians worshipped in churches and mosques.			

**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 digested food creates white sand beaches?  
Ⓐ seeds  
Ⓑ corals  
Ⓒ rocks
2. Where does the tambaqui plant seeds with when it poops?  
Ⓐ Atlantic Ocean  
Ⓑ Lake Erie  
Ⓒ Amazon River
3. How do naked mole rats show they're a member of the clan?  
Ⓐ They spray their poop.  
Ⓑ They spread their poop.  
Ⓒ They roll in their poop.
4. What do dung beetles and koalas have in common?  
Ⓐ Their use their stinky poop to keep other animals away.  
Ⓑ They feed poop to their babies.  
Ⓒ They poop on their legs to keep cool.
5. What are four things scientists can learn from studying an animal's poop?

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**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 do sea turtles eat plastic bags?  
Ⓐ They taste good.  
Ⓑ They look like jellyfish.  
Ⓒ They are nutritious.
  
3. What kind of plastic can strangle an animal?  
Ⓐ microplastics  
Ⓑ discarded six-pack rings  
Ⓒ plastic pellets
  
4. Which of these plastic items is easiest to recycle?  
Ⓐ a shampoo bottle  
Ⓑ a credit card  
Ⓒ a compact disc
  
5. What are three things people can do to use less plastic?

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**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 is the formal name for a species called?  
Ⓐ the common name  
Ⓑ the scientific name  
Ⓒ the scientific epithet
  
2. About how many of the world's species do scientists think have been identified?  
Ⓐ a tenth  
Ⓑ a quarter  
Ⓒ half
  
3. What made scientists think the Moroccan flic-flac spider might be a new species?  
Ⓐ its size  
Ⓑ its coloring  
Ⓒ the way it moved
  
4. Which of these sentences is true?  
Ⓐ DNA rarely proves that an animal is a new species.  
Ⓑ Hundreds of millions of animals have been put into classifications.  
Ⓒ Many new species are hiding in plain sight.

5. Why are scientists discovering more new species now than in the past?

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**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. Where did people in ancient India first settle?  
Ⓐ the Indus Valley  
Ⓑ the Himalayas  
Ⓒ the Thar Desert
  
- 2. Which was another name for the Dalits in ancient India's caste system?  
Ⓐ the Brahmin  
Ⓑ the Untouchables  
Ⓒ the Shudra
  
- 3. What three religions began in India?  
Ⓐ Christianity, Islam, Buddhism  
Ⓑ Buddhism, Jainism, Hinduism  
Ⓒ Hinduism, Taoism, Confucianism
  
- 4. Why is Hinduism different from other major religions?  
Ⓐ It does not worship a central god.  
Ⓑ Followers believe in nirvana, or personal enlightenment.  
Ⓒ There is no single founder.

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

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## ANSWER KEY

### The Scoop on Poop

#### Assess Content, page 10

Answers will vary depending on which animals students select. However, students should identify five animals, describe how each animal handles its waste, and explain why the animal does this.

#### Article Test, page 17

1. B; 2. C; 3. C; 4. B; 5: Possible responses include: what kind of animal left it and when; the animal's age, size, and gender; whether the animal ate meat or plants

### Plastic

#### Assess Content, page 12

**Possible response:** People produce a lot of plastic. Instead of recycling the plastic, they throw much of it away. The plastic doesn't break down, so eventually much of it is blown or washed into the sea.

**Possible responses:** Plastic is polluting the waters and beaches, strangling animals, being eaten by animals, and getting into the food chain.

**Possible responses:** People can collect trash, develop more biodegradable or recyclable products, help developing nations improve their waste removal systems, ban plastic bags, stop using plastic straws, convert to 100 percent reusable or recyclable packaging, and clean up the ocean.

#### Article Test, page 18

1. C; 2. B; 3. B; 4. A; 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

**Summarize:** Scientists capture and collect a specimen. Then they study it. Experts make sure it doesn't already belong to a known species. If it looks familiar, they compare its DNA to a similar species. If it doesn't match, they write a detailed report and submit it to a scientific journal. Experts review the information. If they agree, the animal officially becomes a new species.

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

#### Article Test, page 19

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

### Ancient India Posters

#### Assess Content, page 16

1. False: One of the world's first civilizations developed around the Indus River.
2. False: Ancient India stretched across nearly the entire subcontinent of Asia.
3. True: The caste system separated people into four castes as well as the Untouchables. A person born into a particular caste could never leave it.
4. True: Vishnu was one of the main gods of Hinduism. People created temples and sculptures to honor him.
5. False. Jains believed that all living things have souls and that no living thing should be harmed. Buddhists believed that nothing is fixed or permanent; actions have consequences; change is possible.
6. False: Ancient Indians worshipped in temples.

#### Poster Test, page 20

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