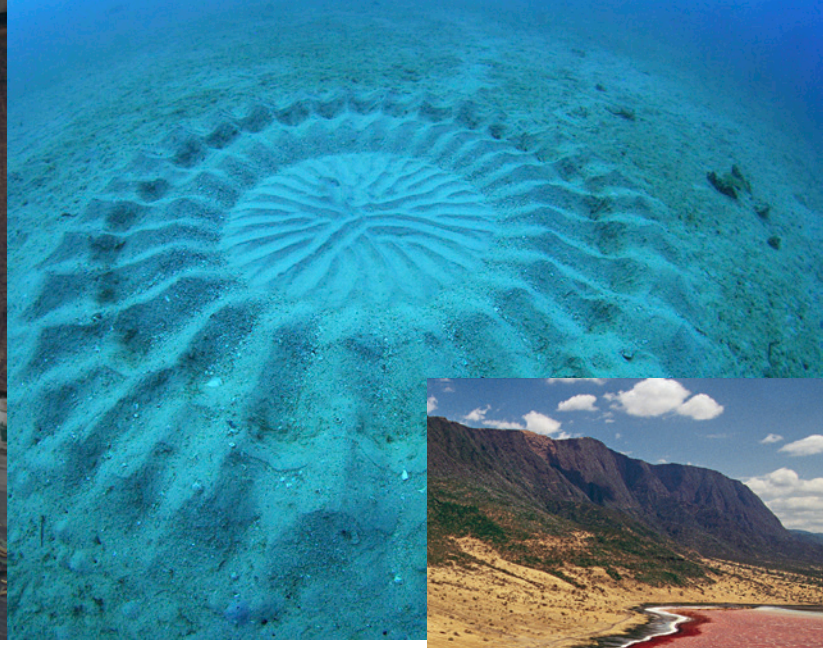
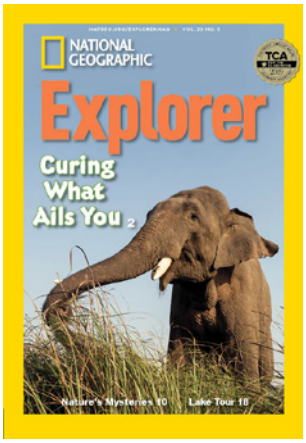


TEACHER'S GUIDE

PATHFINDER AND ADVENTURER | VOL. 20 NO. 5

IN THIS GUIDE:



LEXILE® FRAMEWORK LEVELS

PATHFINDER

Curing What Ails You 800L

Nature's Mysteries 660L

Lake Tour 650L

ADVENTURER

Curing What Ails You 950L

Nature's Mysteries 680L

Lake Tour 730L

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.

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.

NATIONAL GEOGRAPHIC

Visit **EXPLORERMAG.ORG** to access digital issues of Explorer magazine in **English** and **Spanish**. Engage students with digital read-alouds, videos, and interactive activities.

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 (A)

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 (S)

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 decision maker—able to identify alternatives and weigh trade-offs to make a well-reasoned decision.

KNOWLEDGE (K)

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.

NATIONAL GEOGRAPHIC Explorer

Fourth Grade Standard Supported

- **CCSS Reading Informational Text:** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. (4-1)

Fifth Grade Standard Supported

- **CCSS Reading Informational Text:** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-1)

What You Will Need

- "Curing What Ails You" (*Explorer*)
- Think Sheet (Teacher's Guide, pages 6–7)
- Pencils

CONNECT & ENGAGE (5 minutes)

Display the first page of "Curing What Ails You."

Say: Take a look at these pages. What do you notice? Turn to each other and talk.

Kids turn and talk about what they notice on the pages.

Say: The title of this article is "Curing What Ails You." Turn and talk about what you think the title means.

Kids turn and talk about what the title might mean. Some may have an idea; others may not.

Say: I am assuming this title means that the article has something to do with cures for illnesses or aches and pains. I'm curious about the picture of the elephant, though. I'm inferring that elephants have something to do with these cures, but what? That's a question I have. I'm anxious to find this out. It's like a mystery story! Let's read the text on the page.

Read the text aloud.

Say: Okay, so now we know a little bit more. We can infer from the text that elephants must be able to teach us something about medicinal plants. That's fascinating! Can you infer anything else from the photos or the text? Turn and talk about that.

Let a few kids share their thoughts and make sure they know that medicinal plants are plants that can be used as medicines.

MODEL (10 minutes)

Display the next page of "Curing What Ails You."

Say: This article by Alex Greene, who is an ethnobotanist and National Geographic Explorer, is nonfiction, which includes true information.

Say: Nonfiction writers write nonfiction to give us information, to teach us something. Nonfiction readers read to learn new information. One of the most important nonfiction reading strategies is to ask questions as you read. Sometimes we have questions when we read. If we stop to talk about our questions and read on to see if we find the answers, it can help us understand what we are reading and learning.

Say: I am going to read through a bit of this article and show you my thinking. When I have a question about something, I'm going to write it on a sticky note. Let me show you how this works for me.

Read aloud the first two paragraphs on the page.

Say: These first two paragraphs let me know a lot of new information. I learn that mahouts are elephant caretakers and that they and Alex Greene are at TECC, the Thai Elephant Conservation Center. The mahouts are unloading a truck with vines that will be used to make a medicine for the elephants. I have a question about that. I'm going to write it down: What kind of medicine will be made from the vines? I also learn more about the author and the work he does and what brought him to the elephant conservation center. I'm going to keep reading now.

Read on.

Say: As I read on, I'm not really seeing the answer to my question yet, but I am getting more information about the elephants and the elephant hospital at TECC. I learn that at TECC they use both plant-based and biomedicine when caring for the elephants. The author also tells us how much elephants like sweet foods, but they happily eat the bitter, medicinal vines. Why? That's a question in the text and one that I have, too. I'm going to write it down.**Say:** In the next part of the text, I learn about the people called the Karen who live and work with the elephants. This history about the role elephants played in nearly all aspects of life in this part of the world is fascinating and explains the strong and lasting relationship between the elephants and the people who care for them.

Say: I haven't found the answers to my questions yet, but if I do as I read on, I'm going to put an "A" for "Answer" on my sticky note where I wrote my question.

Say: I know that sometimes questions are answered in the text, but sometimes they are not.

Say: Before we move on, though, let's look at the photos and the captions. I think it's so interesting how elephants use their trunks to grab and lift the grasses to their mouths. I also like seeing the photo of the author working in the field. Turn and talk with a partner to share any thoughts or questions you have.

Give kids time to turn and talk about any thoughts or questions they may have.

GUIDE (10 minutes)

Make sure kids have access to their own Think Sheets. Display the next section of "Curing What Ails You."

Say: What did you see me do as I was reading? Turn and talk about what you noticed me doing.

Kids talk and share out things such as "I noticed you asked questions as you were reading." " I noticed you write questions on sticky notes." "I noticed you talked about what you were learning." "I noticed you said you would write an "A" for "Answer" on the sticky note when your question was answered in the text."

Say: Good thinking. I am going to read on. I'm thinking that this next part should give us some information about the work the author did while he was working with the Karen and the elephants, and I'm sure we'll have some new questions, too. What do you think?

Say: Now it's your turn. As I read on, when you have a question, jot it down on your Think Sheet.

Say: Use those squares like I used my sticky notes.

Read aloud the first section, "Research Begins."

Say: Well, it looks like we are getting an idea of what kind of research the author was doing with the plants. He was trying to document and understand which plants were being used to treat sick elephants and for which health issues. He needed the help of the Karen communities and the mahout to find and collect samples of the plants, dry them, identify them, and keep them in a kind of plant specimen library called an herbarium.

Say: One question I have is how long did all of this take? It seems like a lot of hard work. If you have other questions, write them down on your Think Sheet.

Read the next section, "Analyzing Data."

Say: Well, I got the answer to my question, so I'm going to write an "A" for "Answer" next to my question about how long this process took. The text says the Karen and the author worked together for several months to find 34 plants used for more than 40 different treatments. We also found out that the most common use was as a tonic that keeps the elephants healthy and increases energy and helps with digestion.

Say: There is so much more amazing information here. If you have a question about anything, write it down on your Think Sheet.

Say: Okay, now turn and talk, sharing what you learned and any questions you had.

Kids turn and talk.

Say: Who would like to share their new learning and any questions they had?

Several kids share out.

Say: Great stuff! And remember, if your question was answered, you can write an "A," so you know the text has answered this question.

Say: Now, let's take some time to look at, read, and talk about the photos, captions, map, and diagrams.

Give kids time to really look at and study these.

Turn and talk about these features and any new thoughts or questions you have.

COLLABORATE (25 minutes)

Say: Now, it's time for you to read the rest of the article with a partner.

Say: Remember to jot down any questions you have on your Think Sheet. Questioning is the strategy that keeps us reading. Our curiosity drives us to find answers. If you find the answer to a question, mark your Think Sheet with an "A" for "Answer" next to the question.

Partners read and practice the "ask questions as you read" strategy. Move around the room, conferring with partners.

SHARE THE LEARNING (10 minutes)

Say: Okay, now let's share any questions you had, answers you found, or any new learning you gained. Choose a Think Sheet square with a question you would like to share. I am going to invite someone to start. Then, when finished sharing, that person can pick another person to share. Remember to always use respectful sharing language—calling on people by name, saying "thank you," and paying close attention when others are sharing.

Kids share out and invite others to share, always using the respectful sharing language that was modeled.

Say: Remember that when you read nonfiction, it is important to ask questions as you read, jotting them down and noting when you find an answer. Nonfiction is all about reading to learn and actively thinking about the text and asking questions when we have them. Great Job today, readers!

Name _____ Date _____

THINK SHEET

Use these note squares to write questions you have as you read.
When you find an answer, write "A" next to the question.

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Nombre _____ Fecha _____

HOJA DE PENSAR

Mientras lees, anota en estos recuadros las preguntas que tengas. Cuando encuentres una respuesta, escribe "R" junto a la pregunta.

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This frame is a template of the language arts lesson. 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.

What You Will Need
- Nonfiction text
- Think Sheet template
- Pencils

CONNECT & ENGAGE (5 minutes)

Display the first page(s) of the article.

Say: Take a look at these pages. What do you notice? Turn to each other and talk.

Kids turn and talk about what they notice on the pages.

Say: The title of this article is "_____." Turn and talk about what you think the title means.

Kids turn and talk about what the title might mean. Some may have an idea; others may not.

Say: I think this title has something to do with _____. I am inferring this because _____. I'm curious about _____. That's a question I have. I'm anxious to find this out. Let's read the text on page ____.

Read the text aloud and then have kids turn and talk about the title and the text.

Let a few kids share their thoughts with the class.

MODEL (10 minutes)

Display the next page(s) of the article.

Say: This article about _____ is nonfiction, which, as you know, includes real, true information. Nonfiction writers write nonfiction to give us information, to teach us something. Nonfiction readers read to learn new information. One of the most important nonfiction reading strategies is to ask questions as you read. Sometimes we have questions when we read. If we stop to talk about our questions and read on to see if we find the answers, it can help us understand what we are reading and learning.

Say: I am going to read through a bit of this article and show you my thinking. When I have a question about something, I'm going to write it on a sticky note.

Say: Let me show you how this works for me.

Read aloud a few paragraphs on page ____.

Say: These paragraphs let me know that _____. I have a question about that. I'm going to write it down: _____? But I'm going to keep reading to see if there is more information.

Read on.

Say: There it is—the answer to my question. It says _____. I'm going to put an "A" for "Answer" on my sticky note where I wrote my question.

Mark the sticky note with an "A."

Say: I'm going to mark my note with an "A," so I know my question is answered in the text. But remember that sometimes questions are answered, and sometimes they are not.

Say: Now, I wonder about _____. I'll write the question "_____?" on another sticky note.

Give kids time to turn and talk to understand the process. Talk about any questions they may have. Remind them that all of their questions may not be answered. However, they will learn lots of new information in the process and may have some interesting things to research on their own because of their questions.

GUIDE (10 minutes)

Make sure kids have access to their own Think Sheets. Display the next page(s) of the article.

Say: What did you see me do as I was reading? Turn and talk about what you noticed me doing.

Kids talk and share out things such as "I noticed you asked questions as you were reading." " I noticed you write questions on sticky notes." "I noticed you wrote an "A" for "Answer" on the sticky note when your question was answered in the text."

Say: Good thinking. I am going to read on. I'm thinking that this next part should give us some information about _____, and I'm sure we'll have some new questions, too. What do you think?

Say: Now, it's your turn. As I read page ____, when you have a question, jot it down on a Think Sheet square. Use those squares like I used my sticky notes.

Read aloud page ____.

Say: Well, it looks like we have an answer. I'm going to put an "A" on my sticky note. If you have other questions, write them down on your Think Sheet squares.

Say: Okay, now turn and talk, sharing what you learned and any questions you had.

Kids turn and talk.

Say: Who would like to share their new learning and any questions they had?

Several kids share out.

Say: Great stuff! And remember, if your question was answered, you can write an "A," so you know the text has answered this question.

COLLABORATE (25 Minutes)

Say: *Now, it's time for you to read the rest of the article with a partner.*

Say: Remember to jot down any questions you have on your Think Sheet squares. Questioning is the strategy that keeps us reading.

Say: Our curiosity drives us to find answers. If you find the answer to a question, mark your Think Sheet square with an "A" for "Answer" next to the question.

Partners read and practice the "ask questions as you read" strategy. Move around the room, conferring with partners.

SHARE THE LEARNING (10 minutes)

Say: Okay, now it's time to share any questions you had, answers you found, and any new learning. Choose a Think Sheet square with a question you would like to share. I am going to invite someone to start. Then, when finished sharing, that person can pick another person to share. Remember to always use respectful sharing language—calling on people by name, saying "thank you," and paying close attention when others are sharing.

Kids share out and invite others to share, always using the respectful sharing language that was modeled.

Say: Remember that when you read nonfiction, it is important to ask questions as you read, jotting them down and noting when you find an answer. Nonfiction is all about reading to learn and actively thinking about the text and asking questions when we have them. Great Job today, readers!

CURING WHAT AILS YOU

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 LS2.A: Interdependent Relationships in Ecosystems:** Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

What You Will Need

- Interactive Digital Magazine
- Content Assessment (English and Spanish) (pages 11-12)
- Article Test (English and Spanish) (pages 19-20)

SCIENCE BACKGROUND

The Thai Elephant Conservation Center, (TECC) established in 1993, is Thailand's only state-owned elephant sanctuary. Caretakers at the center, known as mahouts, treat sick or injured elephants. Scientists and specialists conduct research to find better ways to look after elephants.

Alex Greene is an ethnobotanist, or a scientist who studies how communities traditionally use plants. Greene went to TECC in northern Thailand to understand how caretakers used traditional herbal remedies to care for captive wild Asian elephants. Through his studies, he discovered that many plants were used to treat the same illnesses in elephants and people.

Click here for the Kahoot! quiz: https://play.kahoot.it/#/k/a47fdae0-df35-4dd7-b531-6aa20840f767

ENGAGE

Encourage students to review the article and turn and talk with a partner to discuss what they see. Invite students to ask questions or share what they know about elephants.

EXPLORE

Display the **"Curing What Ails You" article** with the interactive digital magazine. As a class, brainstorm ideas about what elephants can teach people about medicinal plants.

EXPLAIN

After reading, invite students to share what they learned about elephants and medicinal plants. **Ask:** *Why did Alex Greene want to study plants at the Thai Elephant Conservation Center (TECC)?* (The mahouts were using a combination of herbal medicine and traditional medicine to treat elephants. This combination isn't very common.) *How did he collect information about the plants?* (He interviewed the elephant caretakers and collected plant specimens in the forest.) In small groups, have students discuss what he learned about the plants and how they are used to keep the elephants healthy. Encourage students to also discuss the surprising connection Greene made between medicines for elephants and those used to treat people.

ELABORATE

Remind students elephants seek out these plants on their own in the forest. Over time, people have learned from elephants how to use the plants as medicine. Encourage students to identify other things people have learned from animals. Challenge them to describe ways people have applied that knowledge to improve their everyday lives.

EVALUATE

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

Name _____ Date _____

CONTENT ASSESSMENT: CURING WHAT AILS YOU

Describe how Alex Greene observes and records information about elephants in the field. Summarize what he has discovered.

Observe	Record	Discover

What do you think is Alex Greene's biggest discovery about elephants and medicinal plants? Why?

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Nombre _____ Fecha _____

EVALUACIÓN DE CONTENIDO: SABIDURÍA ANIMAL

Describe cómo Alex Greene observa y registra información sobre los elefantes.

Resume qué ha descubierto.

Observar	Registrar	Descubrir

¿Cuál crees que es el mayor descubrimiento de Alex Greene sobre los elefantes y las plantas medicinales? ¿Por qué? _____

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NATURE'S MYSTERIES

SCIENCE

Standards Supported

- **NGSS ESS2.E: Biogeology:** Living things affect the physical characteristics of their regions. (4-ESS2-1)
- **NGSS Science and Engineering Practices: Engaging in Argument from Evidence:** Support an argument with evidence, data, or a model. (5-ESS1-1)

What You Will Need

- Interactive Digital Magazine
- Content Assessment (English and Spanish) (pages 14-15)
- Article Test (English and Spanish) (pages 21-22)

SCIENCE BACKGROUND

Nature is full of mysteries that scientists are eager to solve. To do that, they must form a hypothesis, search for clues, and conduct investigations. It is not uncommon for scientists to reach different conclusions about what caused a phenomenon to occur.

One mystery that scientists have studied are strange circles of bare soil surrounded by grass in Africa's Namib Desert. After extensive research, biologists Norbert Juergens believes he has discovered the cause: sand termites.

One mystery scientists have solved without a doubt are circles that appeared on the seafloor off the coast of Japan. It turns out, these are underwater nests, created by male pufferfish.

Still unsolved is the mystery of "Racetrack Playa," a place in Death Valley where large rocks slide along the desert floor. There are several theories, but scientists have never been able to prove why this happens.

Click here for the Kahoot! quiz: https://play.kahoot.it/#/k/6ee4e515-0167-4a96-a38f-01f2e243a05a

ENGAGE

Encourage students to review the article and turn and talk with a partner to discuss what they see. Invite students to ask questions or share what they know about mysterious things that happen in nature.

EXPLORE

Display the **"Nature's Mysteries" article** with the interactive digital magazine. As a class, brainstorm ideas about how a stone would be able to move on its own.

EXPLAIN

After reading, display the photo showing circles in the sand with the interactive digital magazine. **Ask:** *What would you think if you saw thousands of circles like these in a desert?* Invite students to share their ideas. **Ask:** *What does biologist Norbert Juergens think caused these circles?* (sand termites). *What clues did he find that led him to that conclusion?* (He studied 1,200 circles and the environment around them. He discovered wet sand, grass roots, and sand termites in each one.) Encourage students to explain to a partner how those clues led Juergens to suspect sand termites. Have partners explore the other mysteries introduced in the article in this same way. Challenge them to identify clues that led scientists to each logical conclusion.

ELABORATE

After reading, point out to the class that there are lots of things in nature that people don't understand. As a class, identify a natural mystery in the area where you live. Encourage students to share stories they've heard that explain the mystery. Discuss how you could conduct a scientific study to learn its true cause.

EVALUATE

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

Name _____ Date _____

CONTENT ASSESSMENT: NATURE'S MYSTERIES

Draw one of nature's mysteries described in the article. Explain what it is, what people thought it was, and how scientists solved the mystery.

Draw
What it is
What people thought it was
How scientists solved the mystery

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Nombre _____ Fecha _____

EVALUACIÓN DE CONTENIDO: MISTERIOS DE LA NATURALEZA

Dibuja uno de los misterios de la naturaleza que se describen en el artículo. Explica en qué consiste el misterio, cómo lo explicaba la gente y cómo lo resolvieron los científicos.

Dibuja
¿En qué consiste?
¿Cómo lo explicaba la gente?
¿Cómo lo resolvieron los científicos?

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LAKE TOUR

SCIENCE

Standards Supported

- **NGSS ESS2.A: Earth Materials and Systems:** Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1)
- **NGSS ESS2.C: The Roles of Water in Earth's Surface Processes:** Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)

What You Will Need

- Interactive Digital Magazine
- Content Assessment (English and Spanish) (pages 17-18)
- Article Test (English and Spanish) (pages 23-24)

SCIENCE BACKGROUND

A lake is a body of water surrounded by land. There are millions of lakes on Earth. Lakes are found on every continent and in every type of environment.

Lakes come in all shapes and sizes. And they can have staggering depths. Lake Baikal in Russia is more than 1,000 meters (almost a mile) deep. It is the deepest lake on Earth.

Lakes form in different ways. Some were formed by glaciers. Others were formed by the movement of tectonic plates. Some even lie at the top of collapsed volcanic cones.

Lakes also have different characteristics. Some contain freshwater. The water in others is salty. Some are filled with cool water. The water in others is boiling.

Kahoot! Click here for the Kahoot! quiz: https://play.kahoot.it/#/k/e13ffbe9-48bf-4ba7-a768-2e0dd136cc00

ENGAGE

Encourage students to review the article and turn and talk with a partner to discuss what they see. Invite students to ask questions or share what they know about lakes.

EXPLORE

Display the **"Lake Tour" article** with the interactive digital magazine. As a class, share ideas about characteristics that might make a lake seem peculiar.

EXPLAIN

After reading, encourage students to think about what they learned from the article. Challenge the class to write a definition for the word lake. (Possible response: a large body of water surrounded by land.)Discuss how lakes are different from other bodies of water, such as rivers, oceans, and streams. **Say:** *Because lakes are surrounded by land, they are often filled by rain or melting snow. But, that's not always the case.* In small groups, have students discuss the different lakes introduced in the article. Encourage them to identify the unique characteristics of each.

ELABORATE

Point out to students that each of the lakes they read about in the article is weird for a reason. For example, Spotted Lake looks spotted because its water evaporates, leaving the minerals behind. Boiling lake is so hot because it sits on top of a fumarole, which is heated by magma underneath. As a class, brainstorm a list of other reasons—natural or man-made—that a lake could be peculiar. Have students share their theories about how each cause might affect the water in a lake.

EVALUATE

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

Name _____ Date _____

CONTENT ASSESSMENT: LAKE TOUR

Make a checkmark to show if you think each sentence is true or false.
Use information from the article to explain your answers.

Description	True	False	Explain
1. The spots on Spotted Lake were caused by chemicals.			
2. Flamingos are one of the few animals that can survive in Lake Natron, Tanzania.			
3. Many unique animals live in Lake Baikal, Russia.			
4. There are no lakes on islands.			
5. Boiling Lake, Dominica is a great place to swim.			
6. It is possible for a lake to disappear in a few hours.			

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Nombre _____ Fecha _____

EVALUACIÓN DE CONTENIDO: LAGOS SIN IGUAL

Marca si cada enunciado es verdadero o falso.
Utiliza la información del artículo para explicar tus respuestas.

Descripción	Verdadero	Falso	Explica
1. Los lunares del lago Spotted están formados por la contaminación.			
2. El flamenco es uno de los pocos animales que sobreviven en el lago Natrón, en Tanzania.			
3. En el lago Baikal, en Rusia, hay muchas especies animales únicas en el mundo.			
4. En las islas no hay lagos.			
5. El lago Boiling, en Dominica, es ideal para nadar.			
6. Un lago puede desaparecer en unas pocas horas.			

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Name _____ Date _____

ARTICLE TEST: CURING WHAT AILS YOU

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

1. What kind of scientist is Alex Greene?

Ⓐ ethnobotanist

Ⓑ archaeologist

Ⓒ chemist

2. What did Alex Greene want to learn?

Ⓐ why elephants eat certain plants

Ⓑ how people use plants for elephant medicine

Ⓒ how people use elephants in Thailand

3. What did he discover?

Ⓐ Elephants only eat sweet plants.

Ⓑ Elephants and people use many of the same plants for medicine.

Ⓒ Elephants could not survive if people did not help them.

4. Which plant part was most often used for elephant medicine?

Ⓐ seeds

Ⓑ fruits

Ⓒ bark

5. What connection did Alex Greene discover between elephants and people?

_____

_____

_____

_____

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Nombre _____ Fecha _____

PRUEBA DEL ARTÍCULO: SABIDURÍA ANIMAL

Lee cada pregunta. Llena el círculo de cada opción correcta y responde a la última pregunta en los espacios en blanco.

1. ¿Qué tipo de científico es Alex Greene?

Ⓐ un etnobotánico

Ⓑ un arqueólogo

Ⓒ un químico

2. ¿Qué quería aprender Alex Greene?

Ⓐ por qué los elefantes comen ciertas plantas

Ⓑ cómo las personas usan plantas como medicina de elefantes

Ⓒ para qué usan los tailandeses los elefantes

3. ¿Qué descubrió Alex Greene?

Ⓐ Los elefantes solo comen plantas dulces.

Ⓑ A veces, los elefantes y las personas se curan con las mismas plantas.

Ⓒ Los elefantes no pueden sobrevivir sin la ayuda de la gente.

4. ¿Qué parte de planta es más usada como medicina para elefantes?

Ⓐ las semillas

Ⓑ los frutos

Ⓒ la corteza

5. ¿Qué conexiones descubrió Alex Greene entre los elefantes y las personas?

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Name _____ Date _____

ARTICLE TEST: NATURE'S MYSTERIES

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

1. **What do scientists think caused mysterious circles in the Namib Desert?**
   - Ⓐ dragons
   - Ⓑ toxic plants
   - Ⓒ sand termites

2. **What mystery did people discover on the ocean floor near Japan?**
   - Ⓐ a new species of fish
   - Ⓑ giant circles in the sand
   - Ⓒ dead grasses

3. **What created this mystery on the ocean floor?**
   - Ⓐ male pufferfish
   - Ⓑ aliens
   - Ⓒ ocean currents

4. **What do scientists know is NOT causing rocks to move in Death Valley?**
   - Ⓐ ice and wind
   - Ⓑ bacteria and wind
   - Ⓒ gravity

5. **Which of the article's mysteries has been solved? Why are the others still unsolved?**

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Nombre _____ Fecha _____

PRUEBA DEL ARTÍCULO: MISTERIOS DE LA NATURALEZA

Lee cada pregunta. Llena el círculo de cada opción correcta y responde a la última pregunta en los espacios en blanco.

1. **¿Cuál creen los científicos que fue la causa de los misteriosos círculos en el desierto del Namib?**

   Ⓐ dragones

   Ⓑ plantas venenosas

   Ⓒ termitas

2. **¿Qué misterio se descubrió en el lecho marino cerca de Japón?**

   Ⓐ una nueva especie de pez

   Ⓑ grandes círculos en la arena

   Ⓒ hierba muerta

3. **¿Cuál fue la causa de este misterio en el lecho marino?**

   Ⓐ un pez globo macho

   Ⓑ extraterrestres

   Ⓒ las corrientes marinas

4. **¿Cuál de estas NO es una causa del movimiento de las rocas en el Valle de la Muerte?**

   Ⓐ el hielo y el viento

   Ⓑ las bacterias y el viento

   Ⓒ la gravedad

5. **¿Cuál de los misterios del artículo ha sido resuelto? ¿Por qué otros siguen sin resolverse?**

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Name _____ Date _____

ARTICLE TEST: LAKE TOUR

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

1. Which weird lake is it safe for people to swim in?

Ⓐ Lake Natron

Ⓑ Ongeim'l Tketau

Ⓒ Boiling Lake

2. What color is the water in a really deep meltwater lake?

Ⓐ light blue

Ⓑ medium blue

Ⓒ dark blue

3. What causes the water in Lake Natron to be red?

Ⓐ flamingos

Ⓑ salt

Ⓒ bacteria

4. Which extreme lake holds one-fifth of Earth's liquid freshwater?

Ⓐ Lake Baikal

Ⓑ North Lake

Ⓒ Spotted Lake

5. Compare and contrast two of the weird lakes from the article.

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Nombre _____ Fecha _____

PRUEBA DEL ARTÍCULO: LAGOS SIN IGUAL

Lee cada pregunta. Llena el círculo de cada opción correcta y responde a la última pregunta en los espacios en blanco.

1. ¿En qué extraño lago es seguro bañarse?

Ⓐ Lago Natrón

Ⓑ Lago Ongeim'l Tketau

Ⓒ Lago Boiling

2. ¿De qué color es el agua de un lago de deshielo muy profundo?

Ⓐ azul claro

Ⓑ azul turquesa

Ⓒ azul oscuro

3. ¿Qué hace que el agua del lago Natrón sea roja?

Ⓐ los flamencos

Ⓑ la sal

Ⓒ las bacterias

4. ¿Qué lago representa la quinta parte del agua dulce del planeta?

Ⓐ el lago Baikal

Ⓑ el lago North

Ⓒ el lago Spotted

5. Compara y contrasta dos de los lagos mencionados en el artículo.

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NATIONAL GEOGRAPHIC Explorer

ANSWER KEY

CURING WHAT AILS YOU

Content: pages 11-12

Observe: He observed plants in the forest, including which plants elephants ate and which plants mahouts used to treat elephants when they were sick.

Record: He recorded interviews with people. He collected, dried,and pressed samples of plants and deposited them in a local herbarium. He documented how the plants were used.

Discover: He discovered that many, but not all, of the plants were used to treat the same conditions in elephants as in people. He discovered that elephants sought out many of these plants on their own in the forest.

Question: Students may note the close link between human and elephant medicines. They should support their opinions with information from the article.

Article Test: page 19-20

1. A; 2. B; 3. B; 4. C; 5. Many of the plants are used to treat people in the same way they are used for the elephants.

NATURE'S MYSTERIES

Content: page 14-15

Students should draw a picture of one of the mysteries mentioned in the article and use information from the article to explain what it is, what people thought it was, and how scientists solved the mystery.

Article Test: page 21-22

1. C; 2. B; 3. A; 4. C; 5. Scientists have proven that the male pufferfish creates the giant circles in the sand near Japan. They need to do more studies to prove that sand termites create circles in the sand in the Namib Desert. And no one's ever see the rocks move in Death Valley. Until they do, they can't prove why it happens.

LAKE TOUR

Content: page 17-18

1. False: The spots on Spotted Lake are mineral deposits.

2. True: The lake is so hot and salty that the water is toxic. Most animals would die if they got in the water.

3. True: Lake Baikal is isolated and animals have had 25 million years to evolve. Many of the species here are found nowhere else on Earth.

4. False: The article mentioned three lakes found on islands—Ongeim'l Tketau on Eil Malk Island, Palau; Boiling Lake on Dominica; and North Lake, which is on the island of Greenland. There are many more.

5. False: Boiling Lake fills a fumarole. Its water is boiling hot, making it a terrible place to go for a swim.

6. True: When cracks develop in meltwater lakes located on ice sheets in Greenland, the lakes can completely drain in a few hours.

Article Test: page 23-24

1. B; 2. C; 3. C; 4. A; 5. Answers will vary depending on which lakes students select. Students should note, however, that both lakes are bodies of water surrounded by land.

PATHFINDER Y ADVENTURER

CLAVE DE RESPUESTAS

SABIDURÍA ANIMAL

Contenido: páginas 11 y 12
Observar: Alex Greene observó las plantas de la selva, incluidas las que comían los elefantes y las que los mahouts utilizaban para tratar a los elefantes enfermos.
Registrar: Alex Greene grabó sus entrevistas. Recolectó, secó y prensó muestras de plantas y las depositó en un herbario local. Documentó cómo se usaban esas plantas.
Descubrir: Descubrió que muchas plantas, pero no todas, eran utilizadas para tratar enfermedades tanto en personas como en elefantes. Descubrió que los elefantes buscaban por su cuenta muchas de estas plantas en la selva.
Pregunta: Los estudiantes pueden mencionar el estrecho vínculo entre personas y elefantes. Deben respaldar sus opiniones con información del artículo.

Prueba del artículo: páginas 19 y 20
1. A; 2. B; 3. B; 4. C; 5. Muchas de las plantas son usadas para tratar a las personas de la misma forma que a los elefantes.

MISTERIOS DE LA NATURALEZA

Contenido: páginas 14 y 15
Los estudiantes deben dibujar uno de los misterios mencionados en el artículo y utilizar la información para explicar en qué consiste el misterio, lo que la gente piensa de él y cómo los científicos lo han resuelto.

Prueba del artículo: páginas 21 y 22
1. C; 2. B; 3. A; 4. C; 5. Los científicos han demostrado que el pez globo macho es el autor de los círculos gigantes en la arena cerca de Japón. Tienen que seguir investigando para demostrar que las termitas crean los círculos de arena en el desierto del Namib. Nadie ha visto todavía moverse a las rocas en el Valle de la Muerte. Hasta que no las vean por sí mismos, no podrán demostrar lo que ocurre realmente.

LAGOS SIN IGUAL

Contenido: páginas 17 y 18
1. Falso: los lunares del lago Spotted son depósitos minerales.
2. Verdadero: el lago está tan caliente y salado que el agua es tóxica.
Muchos animales morirían si se metieran en estas aguas.
3. Verdadero: el lago Baikal está aislado y los animales que viven allí han tenido 25 millones de años para evolucionar. Muchas de sus especies no están en ningún otro lugar de la Tierra.
4. Falso: el artículo menciona tres lagos en islas: el Ongeim'l Tketau, en la isla de Eil Malik, Palau; el lago Boiling, en Dominica; y el lago North, en Groenlandia. Hay muchos más.
5. Falso: el lago Boiling está en una fumarola. Es un lugar terrible para bañarse, porque su agua está hirviendo.
6. Verdadero: los lagos de deshielo que hay sobre las placas de hielo de Groenlandia, pueden vaciarse en cuestión de horas por las grietas que se forman al moverse.

Prueba del artículo: páginas 23 y 24
1. B; 2. C; 3. C; 4. A; 5. Las respuestas variarán según el lago que elijan los estudiantes. Sin embargo, los estudiantes deben mencionar que ambos lagos son masas de agua rodeadas de tierra.