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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

**Scout**
Some articles with characteristics of emergent text will be easier for students to read. You may find that other articles are better suited for teacher read-alouds.

**Voyager**
Look in a Rainforest .........................320L
Where Food Grows .........................170L
A Rare Rhino .............................. 390L

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

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

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

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

MINDSET OF AN EXPLORER: KEY FOCUS AREAS

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

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

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

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

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

COLLABORATION An explorer works effectively with others to achieve goals.

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

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

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

WILDLIFE AND WILD PLACES An explorer reveals, celebrates, and helps to protect the amazing and diverse creatures we share our world with.
LANGUAGE ARTS Navigate Nonfiction: Notice Title, Text, Photos, and Labels to Get Information

Kindergarten Standard Supported
• CCSS Reading Informational Text: With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts). (K-7)

First Grade Standard Supported
• CCSS Reading Informational Text: Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text. (1-5)
• CCSS Reading Informational Text: Use the illustrations and details in a text to describe its key ideas. (1-7)

What You Will Need
• “Where Food Grows” (Young Explorer, pages 10–15)
• Think Sheet (Teacher’s Guide, page 6)
• Clipboards
• 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 10–11 in the magazine.

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

Take a look at this colorful article about food. This article, as well as all of the articles in this magazine, is nonfiction. Flip through the pages and turn and talk about what you think you know about nonfiction?

Kids turn and talk.

Anyone have any ideas?

Kids share out. They might mention that it’s true or real and not made up. Check their responses and restate those that are accurate, as well as add any nonfiction characteristics you think are important.

MODEL (10 minutes)

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

TEACHER TIP: While this segment of the lesson is about the teacher modeling for students, be careful not to go on and on. This has to be interactive. Kids should be turning and talking a lot.

We are going to read this article called “Where Food Grows” (Point to the title) Nonfiction articles like this have titles. “Where Food Grows” is the title of this article. The title tells us what the article is mostly about. I can tell that this article is about food, and, in particular, the places where food grows. Titles are important because they give us the big ideas of the article.

Hold up the two-column Think Sheet. Hand out Think Sheets and have kids attach them to their clipboards. Kids can write or draw on their Think Sheets as you figure out, as a class, the features found in this article and their purposes.

Titles are a feature of nonfiction. That means nonfiction almost always has a title. I am going to write title on our Think Sheet in the feature column and jot down the title “Where Food Grows.” Then I’m going to write to tell what the article is mostly about in the second column. That is the purpose of the title. We said the title tells us the article will be mostly about the places where food grows.

Now take a look at the photo of many different kinds of food on pages 10–11. Photos in nonfiction usually help us better understand the text by giving us more information that we can see. I’ll read the text aloud, and then let’s talk about how the text and the photo work together to help us better understand.
Read the text on page 11 aloud.

The text says that some foods come from plants. How do you think the photo helps us understand that?

Kids share out. They should mention that the photo shows lots of different foods that come from plants. Help kids identify the different foods and have them share what they know about these foods and the plants they come from.

Good thinking, everyone! I’m going to write photos in the feature column of the Think Sheet, and for the purpose column, I’ll write to help us better understand the text.

The text on this page also asked this question: Where do these foods grow? We’ll have to keep reading to find out.

GUIDE (10 minutes)

Before we continue reading, let’s talk a little more about nonfiction. You can read nonfiction in many different ways. You can read the title and the text. You can look at the photos. And you can do that in any order you choose. So now that we have read the title and looked at the photos and text on a couple of pages, let’s look at the next couple of pages. Text is the words that tell the story. That type of text is usually in complete sentences. There can also be another type of text in nonfiction. We see this type of text on page 12. This type of text is a feature in nonfiction called labels. Labels identify, or name, pictures or parts of pictures.

Read the text at the top of the page: Where do these fruits grow? Then read the labels and point to the photos of the fruits they identify.

Turn to each other and talk about the labels. How do the labels help us as we are reading nonfiction?

Kids share out and should answer that labels help us identify, or name, things that are pictured in the article.

That’s right. Now let’s add that information about labels to our Think Sheets.

It’s time to continue reading to find out where apples, blueberries, and pineapples grow. Remember to use both the text and the photos to better understand.

Read page 13 aloud. Then have kids turn and talk about how the photos help them understand where these fruits grow.
COLLABORATE (25 minutes)

We’ve found out that we get information from the title, text, photos, and labels. Now it’s your turn. As I read pages 14 and 15, notice the ways we get information, including text, photos, and labels.

Read pages 14–15. Have kids partner up to turn and talk about the pages, paying attention to the ways to get information, as well as the content itself. They should talk about how the text, photos, and labels help them understand what vegetables the article is focusing on and where they grow.

SHARE THE LEARNING (10 minutes)

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

TEACHER TIP: The sharing phase is done in a circle, so that the focus is on one another rather than the teacher. During the instruction phase, kids are gathered in front of the teacher, so that the focus is on the instruction.

Have kids share out some of the features of nonfiction, their purpose, and the information they got from them. Kids share out using the respectful sharing protocol.

Okay, now it’s time to share about the features we learned and what we learned from them. I am going to invite [student name] to share. We are going to share using respectful language. So when I ask: “[student name] would you like to share your new learning?” You can say: “Yes thank you.” Then you can share your learning. After you share, you can invite someone else to share. To do that, you need to call on the person by name and use the same language we just practiced. When we use polite, respectful sharing language, everyone pays closer attention to the important information being shared.

Kids share out and invite others to share, always using the respectful sharing language that was modeled. There should be time for about three or four kids to share 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.

Learning about nonfiction features and their purposes will help us when we read other nonfiction articles, and we can be on the lookout for other features, too. Great job today, everyone!
Write the nonfiction features and their purpose.

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>PURPOSE</th>
</tr>
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<tbody>
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<td></td>
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</tr>
</tbody>
</table>
LESSON FRAME Navigate Nonfiction: Notice Title, Text, Photos, and Labels to Get Information

What You Will Need
• Nonfiction text  • Think Sheet template  • Clipboards  • Pencils

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.

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.

Take a look at this article about ______. This article, as well as all of the articles in this magazine, is nonfiction. Flip through the pages and turn and talk about what you think you know about nonfiction.

Kids turn and talk.

Anyone have any ideas?

Kids share out. They might mention that it’s true or real and not made up. Check their responses and restate those that are accurate, as well as add any nonfiction characteristics you think are important.

MODEL (10 minutes)
Kids sit in a group on the floor, with you in a low chair in front of them.

We are going to read this article called ______. (Point to the title) Nonfiction articles like this all have titles. ______ is the title of this article. The title tells us what the article is mostly about. So I can tell that this article is about ______. Titles are important because they give us the big ideas of the article.

Hold up the two-column Think Sheet. Hand out Think Sheets and have kids attach them to their clipboards. Kids can write or draw on their Think Sheets as you figure out, as a class, the features found in this article and their purposes.

Titles are a feature of nonfiction. That means nonfiction almost always has a title. So I am going to write title on our Think Sheet in the feature column and jot down the title ______. Then I’m going to write to tell what the article is mostly about in the second column. That is the purpose of the title.

Now take a look at the photo of ______ on page(s) _____. Photos in nonfiction usually help us better understand the text by giving us more information that we can see. I’ll read the text aloud, and then let’s talk about how the text and the photo(s) work together to help us better understand.

Read the text on page(s) ___ aloud.

The text says __________________. How do you think the photo(s) help us understand that?

Kids share out.

Good thinking, everyone! I’m going to write photos in the feature column of the Think Sheet, and for the purpose column, I’ll write to help us better understand the text.
GUIDE (10 minutes)

Before we continue reading, let’s talk a little more about nonfiction. You can read nonfiction in many different ways. You can read the title and the text. You can look at the photos. And you can do that in any order you choose. Now that we have read the title and looked at photos and the text on a couple of pages, let’s talk about another type of feature. Text is the words that tell the story. That type of text is usually in complete sentences. There can also be another type of text in nonfiction. This type of text is a feature in nonfiction called labels. Labels identify, or name, pictures or parts of pictures.

Find some examples of labels in the article.

Turn to each other and talk about the labels. How do the labels help us as we are reading nonfiction?

Kids share out and should answer that labels help us identify, or name, things that are pictured in the article.

That’s right. Now let’s add that information about labels to our Think Sheets.

Remember to use both the text and the photos, as well as labels, to better understand.

COLLABORATE (25 Minutes)

We’ve found out that we get information from the title, text, photos, and labels. Now it’s your turn. As I read page(s) _____, notice the ways we get information, including text, photos, and labels.

Read page(s) ____. Have kids partner up to turn and talk, paying attention to the ways to get information, as well as the content itself. They should talk about how the text, photos, and labels help them understand the article.

SHARE THE LEARNING (10 minutes)

Kids join a sharing circle with you and share out, using respectful language. Have kids share out some of the features of nonfiction, their purpose, and the information they got from them.

Okay, now it’s time to share about the features we learned and what we learned from them. I am going to invite [student name] to share. We are going to share using respectful language. So when I ask: “[student name] would you like to share your new learning?” You can say: “Yes thank you.” Then you can share your learning. After you share, you can invite someone else to share. To do that, you need to call on the person by name and use the same language we just practiced. When we use polite, respectful sharing language, everyone pays closer attention to the important information being shared.

Kids share out and invite others to share, always using the respectful sharing language that was modeled. There should be time for about three or four 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.

Learning about nonfiction features and their purposes will help us when we read other nonfiction articles, and we can be on the lookout for other features, too. Great job today, everyone!
Science Background

Tropical rainforests are hot, humid ecosystems found near the equator that get at least 200 centimeters (80 inches) of rain per year. These lush, green environments, which cover around 6 percent of Earth’s surface, are home to about half of all plant and animal species on the planet.

There are four layers in a rainforest: the forest floor, which is very dark; the understory, a layer of small plants and trees; the canopy, where most animals live; and the emergent layer, where only the tallest trees rise above the forest.

The Amazon in South America is the largest rainforest in the world. The rainforest in this article is located on the Indonesian island of Sumatra.

There are more than 25,000 species of flowering plants in Sumatra’s rainforests. This includes the giant corpse flower, named for the foul stench produced by its short-lived bloom. The islands are also home to many rare animal species, including the Sumatran tiger—the only surviving species of Indonesian tiger— and the Sumatran elephant, a sub-species of Asian elephant.

Over time, many of the world’s rainforest habitats have been cleared for development or agricultural use. In response, people are working to find ways to protect and conserve rainforest ecosystems and the plants and animals that live in them.

Kindergarten Standard Supported
• NGSS Crosscutting Concepts: Patterns: Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)

First Grade Standard Supported
• NGSS Crosscutting Concepts: Patterns: Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2)

What You Will Need
• Projectable PDF or interactive digital magazine
• Animals in Asia poster (Teacher’s edition)
• Science Master (page 10)

ENGAGE
Say the word “rainforest” aloud. Brainstorm ideas about what a rainforest is like. Invite students to think about what it would be like in a rainforest. Encourage them to describe what they might see, feel, or hear in a rainforest.

EXPLORE
Display the “Look in a Rainforest” article with the projectable PDF or the interactive digital magazine. Read aloud the headline and text. Encourage students to examine the photo and identify living things they see. If necessary, point out that plants are living things, too! Have students examine the rest of the photos in the article. Make a list of all the other living things they see. Then read the article aloud or have students read it in groups, with a partner, or on their own.

EXPLAIN
After reading, remind students that the article showed three kinds of living things found in a rainforest: plants, birds, and mammals. Have students find clues in the text that tell them whether each living thing they see is a plant, a bird, or a mammal. (These plants have flowers; Birds have feathers; Many mammals have fur.) Encourage students to look for these features in the photos. Have them compare and contrast the examples they see. Then display pages 2-3 of the projectable magazine. Point out the orangutan. Ask: Is an orangutan a plant, a bird, or a mammal? (mammal) How do you know? (It has hair.) As a class, brainstorm a list of other features common to plants, birds, or mammals that live in a rainforest.

ELABORATE
Display the Animals in Asia poster. Using the clues that helped them identify plants, birds, and mammals in the article, ask students what kind of animals they see here. (mammals) How do you know? (Most have fur.) Which rainforest mammal from the article is on the poster? (tiger) What other animal on this poster lives in a rainforest? (Sumatran rhino) Challenge students to find this animal in another article in their student magazines. Have them scan that article for a clue that tells them this animal is a mammal. (It has hair.)

EVALUATE
Have students complete the Science Master for this lesson. Encourage them to share and compare their results in small groups or with a partner.
Color each animal.

Circle the correct word to finish each sentence.

<table>
<thead>
<tr>
<th>Animal</th>
<th>This is a __________.</th>
<th>It has __________.</th>
</tr>
</thead>
<tbody>
<tr>
<td>barbet</td>
<td>plant</td>
<td>feathers</td>
</tr>
<tr>
<td></td>
<td>bird</td>
<td>fur</td>
</tr>
<tr>
<td></td>
<td>mammal</td>
<td>flowers</td>
</tr>
<tr>
<td>tiger</td>
<td>plant</td>
<td>feathers</td>
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<td></td>
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<td></td>
<td>mammal</td>
<td>flowers</td>
</tr>
<tr>
<td>corpse</td>
<td>plant</td>
<td>feathers</td>
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<tr>
<td>flower</td>
<td>bird</td>
<td>fur</td>
</tr>
<tr>
<td></td>
<td>mammal</td>
<td>flowers</td>
</tr>
</tbody>
</table>

Draw a plant, bird, or mammal.

Write the correct word to finish each sentence.

This is a _____________________.

It has _______________________.

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Where Food Grows

SCIENCE

Kindergarten Standard Supported
- NGSS Science and Engineering Practices:
  Analyzing and Interpreting Data: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)

First Grade Standard Supported
- NGSS Science and Engineering Practices:
  Analyzing and Interpreting Data: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-LS1-1)

What You Will Need
- Projectable PDF or interactive digital magazine
- We Eat Plant Parts poster (Teacher’s edition)
- Science Master (page 12)

ENGAGE
As a class, compile a list of students’ favorite foods. Point out that many people buy food from stores. Ask: Where do stores get the food people buy? Brainstorm ideas about where each type of food comes from.

EXPLORE
Display the “Where Food Grows” article with the projectable PDF or the interactive digital magazine. Have students examine the photo as you read aloud the headline and text. Ask: What kinds of foods do you see in this photo? (fruits and vegetables) Challenge students to identify as many of the fruits and vegetables as they can. Then read the article aloud or have students read it in groups, with a partner, or on their own.

EXPLAIN
After reading, inform students that they can learn a lot about the world around them if they ask questions. Point out that this article asks one important question that can help them learn about some of the fruits and vegetables they eat: “Where does it grow?” Have students turn and talk to review the article with a partner. As they do, instruct them to ask and answer this question for each fruit or vegetable they see. Challenge students to ask each other additional questions to learn more about the fruits and vegetables featured in the article.

ELABORATE
Display the We Eat Plant Parts poster. Point out to the class that people don’t just eat plants that grow in different places. They also eat foods that come from different parts of plants. (NOTE: Caution students that people can’t eat all parts of all plants, because not all plant parts are edible and some plant parts are poisonous!) As a class, review the poster to identify the parts of a plant. Then have students identify foods people eat and the parts they come from. Challenge students to identify other foods they eat that come from these same parts.

EVALUATE
Have students complete the Science Master for this lesson. Encourage them to share and compare their results in small groups or with a partner.

Science Background

If you walk into a grocery store and explore the produce aisle, you will see a wide variety of fruits and vegetables. These foods are an essential part of a healthy diet. But where do they come from? Plants!

Fruits develop from the ovaries of flowering plants. As fruits mature, they grow, ripen, and change color and shape to become delicious foods we like to eat, such as strawberries, apples, and grapes.

Vegetables come from all other edible parts of the plant. Potatoes and carrots are plant roots. Celery is a stem. Peas are seeds; onions are a bulb; lettuce and spinach are leaves; and broccoli and cauliflower are flowers.

Some fruits grow on trees. Others grow on vines or bushes. Pineapples are fruits that grow on plants close to the ground. Vegetables may grow under, above, or right on the ground. It depends on which plant part you are eating.
SCIENCE: Where Food Grows

Draw the fruit or vegetable you most like to eat.

Answer the questions.

What food did you draw?

Is it a fruit or a vegetable?

Where does it grow?

What plant part does it come from?
Where Food Grows Build a Root Viewer

HANDS-ON SCIENCE

Note: This lesson was developed in association with Out Teach, an organization that empowers teachers to use outdoor instruction as a way to create unforgettable learning experiences. www.out-teach.org

You can use a root viewer to teach experiential lessons in: Science — parts of a plant, life cycle of a plant, soil, sediment, layers of local soil/earth, decomposition, decomposers, variables, and insects.

What You Will Need:

- (2) 48x4x4-inch cedar posts
- (1) 21x2x4-inch cedar board
- (2) 6x2x4-inch cedar board
- (2) 24x16-inch sheets of Plexiglas
- drill with 1-inch drill bit
- pencil
- box of washer screws
- wood screws
- shovel
- level
- (2) bags of concrete
- (1) bag of small rocks
- (1) bag of soil
- seeds

Directions

1. Drill four equally spaced holes through the top of the 21x2x4-inch cedar board.
2. Lay the two 48-inch cedar posts parallel to each other on the ground. Place the 21x2x4-inch board with holes between them. Lay one sheet of Plexiglas on top of all posts so that it is flush with the top of the 48-inch posts, centered between them, and aligned with the bottom edge of the 21-inch board. Use a pencil to mark the bottom of the 21-inch board on the 48-inch posts.
3. Align one 6-inch board with the marked spot on each 48-inch post. Attach the boards with wood screws. Then lay the 21-inch board on top of the 6-inch boards. Attach it with wood screws.
4. Mark seven equally spaced holes on each 48-inch post and five equally spaced holes along the edge of the 21-inch board.
5. Drill holes and use washer screws to attach the Plexiglas to the posts and board in those locations.
6. Flip the frame over. Repeat this procedure with the second piece of Plexiglas on the other side of the root viewer.
7. Dig two 14-inch-deep holes the width of the root viewer. Place the root viewer in the holes, ensuring that it is level.
8. Mix the concrete according to directions and pour it in the holes. Allow the concrete to set.
9. Pour two inches of small rocks inside the root viewer. Add soil. Plant seeds and enjoy!
Where Food Grows Plant Parts

SCIENCE

Note:
- This lesson was developed in association with Out Teach, an organization that empowers teachers to use outdoor instruction as a way to create unforgettable learning experiences. www.out-teach.org

Kindergarten Standard Supported
- NGSS Science and Engineering Practices: Analyzing and Interpreting Data: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)

First Grade Standard Supported
- NGSS LS1.A: Structure and Function: All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

What You Will Need
- journals, pencils, plants, chart paper or portable white board, tear-by-hand tape for sample taking (optional), a fill-in-the blank diagram of plant parts

Science Background
A good way to view different types of plants is to tour an outdoor garden or simply go outside and observe plants growing near the school. As you do, have students inspect the plants to identify and learn about the parts that help the plants grow.

Every plant has some form of roots, stem, leaves, flowers, seeds, and fruit (except for spore plants like ferns). It’s easy to spot these parts during the growing season, though you’ll have to uproot weeds or dead plants to see the roots. In winter, when it is hard to find growing flowers or fruit, dried flowers can be used instead.

Before you go, be sure to point out hazards such as poison ivy and warn students not to eat anything they find. Some plant parts are poisonous.

ENGAGE
Poll the class to see how many students think plants have body parts like people do. Encourage volunteers to explain why they voted as they did and give examples to support their opinions.

EXPLORE
Take the class to an outdoor garden or on a walk around the school. Instruct students to closely observe several different types of plants in the area. Encourage students to create a sketch of their favorite plant. Then challenge students to write or draw in their journals everything they observe about what the plant looks like, what parts it has, where it grows, and how it compares to a different type of plant growing in the same area.

EXPLAIN
After students complete their observations, have them turn and talk with a partner to discuss what they learned about plants. As students compare their drawings and notes, guide them to recognize that all plants have the same parts. As a class, discuss what the parts do and how each part helps the plant survive. (Roots: anchor plants to the ground, bring up water and food from the soil; Stem: helps the plant stand up and moves food and water from the roots to the top parts of the plant; Leaves: the part of the plant that turns sunlight into food. Leaves also have little openings that let the plant breathe; Flowers: attract pollinator insects so that seeds can form; Fruit: Some plants produce a fruit around the seed that people and animals can often eat; Seeds: the part of the plant that will grow into a new plant.)

ELABORATE
Remind students that many of the foods they eat come from plants—but not all foods come from the same plant part. Brainstorm a list of foods that come from different plant parts. Then challenge students to draw pictures of one food that comes from each part of a plant.

EVALUATE
Give each student a fill-in-the-blank diagram of plant parts. Challenge students to correctly name each part. Encourage them to share and compare their results in small groups or with a partner.
A Rare Rhino

SCIENCE

Kindergarten Standard Supported
• NGSS LS1.C: Organization for Matter and Energy Flow in Organisms: All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

First Grade Standard Supported
• NGSS LS1.B: Growth and Development of Organisms: Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring survive. (1-LS1-2)

What You Will Need
• Projectable PDF or interactive digital magazine
• Science Master (page 16)

Science Background

Delilah, a Sumatran rhinoceros, was born on May 12, 2016. She weighed about 45 pounds and was just the second Sumatran rhino ever born in captivity in Indonesia.

Although these rhinos are native to the dense tropical forests of Sumatra, an island in Indonesia, Delilah and her mother, Ratu, live in a rhino sanctuary. This is necessary because the Sumatran rhino is the most endangered of all rhino species.

In the past 20 years, poachers have killed more than 70 percent of their population. Fewer than 80 Sumatran rhinos now exist, and like Delilah and Ratu, they live in rhino sanctuaries where they are carefully guarded. It is no longer safe for these animals to live in the wild.

As adults, Sumatran rhinos can grow up to 1.5 meters (5 feet) tall and weigh up to 950 kilograms (2,000 pounds). While this may sound large, Sumatran rhinos are actually the smallest of all rhino species. Known for their hairy bodies, they are also the only Asian rhino with two horns.

ENGAGE
Display a collection of photos showing baby animals with their mothers. Invite students to describe what they see. As a class, make a list of all the ways the animal mothers help their babies survive.

EXPLORE
Display the “A Rare Rhino” article with the projectable PDF or the interactive digital magazine. Tell the class to examine the photo as you read aloud the headline and text. Then create a three-column K-W-L chart. Invite students to share what they already know about Delilah. Brainstorm questions they have about the baby rhino and how she survives in the rainforest. Then read the article aloud or have students read it in groups, with a partner, or on their own. Inform students that you will finish the chart after reading the article.

EXPLAIN
After reading, have students turn and talk with a partner to discuss what they learned about Delilah. Encourage them to note these basic facts:
• Delilah is a baby rhino.
• She lives in a rainforest in Sumatra.
• Ratu, Delilah’s mother, takes good care of her baby.

As a class, discuss how Ratu helps Delilah. (feeds her; stays by/snuggled with her; digs mud holes for her) Ask:
How does Delilah learn to take care of herself? (SCOUT readers should note that soon Delilah will explore on her own. VOYAGER readers should note that she learned which plants are good to eat; she eats leaves and twigs; she explores on her own; and one day, she might have babies of her own.) Use details from the article to complete the K-W-L chart you created before reading the text.

ELABORATE
Instruct students to examine page 23 of their student magazines. Ask: What is special about Sumatran rhinos? (They are rare. There are only about 80 of them left.) Why are people working to protect them? (so more baby rhinos can be born) Guide students to recognize that without people’s help, Sumatran rhinos will likely become extinct.

EVALUATE
Have students complete the Science Master for this lesson. Encourage them to share and compare their results in small groups or with a partner.
SCIENCE: A Rare Rhino

Write one thing people do for Delilah and Ratu.

Write one thing Ratu does for Delilah.

Draw or write four things you learned about Delilah, the baby rhino.
ANSWER KEY

Language Arts

Think Sheet, page 6
With prompting and support, students should write or draw the nonfiction features and their purposes in the chart.

Look in a Rainforest

Science: page 10
1. bird/feathers
2. mammal/fur
3. plant flowers
Answers will vary depending on whether students choose to draw a plant, bird, or mammal.

Where Food Grows

Science: page 12
Students should draw a picture of a fruit or vegetable. Answers will vary depending on which fruit or vegetable students choose to draw.

A Rare Rhino

Science: page 16
Students should write or draw four things they learned about Delilah, the baby rhino. Scout readers may note that Ratu, Delilah’s mother, takes good care of her baby, feeds her milk, stays by her, or digs mud holes for her. Voyager readers may note that Ratu took good care of Delilah, fed her milk, snuggled with her, or dug mud holes for her. Readers of both magazines should note that people take care of the rhinos to keep them safe and protect them.

Words to Explore

Back Cover
1. scientist
2. rare
3. plant
4. rainforest