TEACHER'S GUIDE
Scout and Voyager
Vol. 18 No. 6

IN THIS GUIDE:

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

A Butterfly is Born 270L
Mud is Cool 360L
We Need Earth.....360L

National Standards Supported

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

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

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

A — *Attitudes*

National Geographic kids are:

CURIOUS 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.

S — *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.

K — *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.

LANGUAGE ARTS Determine Important Information: Separate Interesting from Important Information

Kindergarten Standard Supported

- **CCSS Reading Informational Text:** Actively engage in group reading activities with purpose and understanding. (K-10)

First Grade Standard Supported

- **CCSS Reading Informational Text:** With prompting and support, read informational texts appropriately complex for grade 1. (1-10)

What You Will Need

- "Mud is Cool" (*Young Explorer*, pages 12–17)
- Think Sheet (Teacher's Guide, page 5)
- 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 12–13.

This is an article called "Mud Is Cool." Look at the pictures to get an idea of what the article is about. Then turn and talk about what you learned from the pictures.

Kids turn and talk about what they learned from the pictures.

I'm going to read the text on these two pages. Then turn and talk about what I read and how it might add to what you learned from the pictures.

Read aloud the title and text on pages 12–13. Then have kids turn and talk.

MODEL (10 minutes)

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

In articles like this, writers use details. Details are bits of information about something. Details make writing interesting. When we are reading, it's fun to learn about the interesting details. But we can't always remember everything we read. That's why it's good to separate the interesting details from the important information. It's the important information we want to remember.

I'm going to continue to read a few more pages of "Mud is Cool." Listen to how I decide what is a detail and what is important information. I'm going to make a two-column chart on the board. In one column I'll write the interesting details. In the other column I'll write the important information.

Read pages 14–15 aloud.

Well, we've learned some really interesting details on these two pages about warthogs and buffalo. I'm going to write those in the "Interesting Details" column.

Some of the details are a little different in Scout and Voyager. Use the information below for whichever edition you are using.

Scout:

- *A warthog rolls in the mud.*
- *Buffalo are in the water hole.*

Voyager:

- *Many animals sweat to cool off.*
- *Some animals, like warthogs, do not sweat.*
- *The warthog wallows, or rolls, in the mud*
- *Buffalo also wallow in the water hole.*
- *They get covered in mud.*

Those are really interesting details, but I need to figure out what the important information is. I think the important information is that there is mud in the water hole, and animals like warthogs and buffalo use the mud to cool off. I'm going to write that in the "Important Information" column on the chart.

Okay, now turn and talk about what you noticed me doing. Then you can share out.

Let students turn and talk and then share out what they noticed you doing.

Good noticing, class! Separating the interesting details from the important information is another thing good readers do.

GUIDE (10 minutes)

Hand out the Think Sheets attached to clipboards. Kids remain grouped in front of you on the floor.

Let's try separating the interesting details from the important information together as a class. I'm going to read page 16. Then you can turn and talk about what you think the interesting details are and what the important information is.

Read page 16 and let kids turn and talk. The kids should note that the rhino is another animal that uses the mud from the water hole. The important information is that the mud blocks (Scout), or protects (Voyager) the rhino's skin from the sun.

Let's share what we think are the interesting details and important information. Then I'll write them on the board on the chart, and you can write them on your Think Sheet chart.

Have a few kids share their thinking, and then everyone can write their answers on their Think Sheet chart.

COLLABORATE (25 minutes)

Now it's your turn. Find a partner and read page 17 together. Talk about what you think is the most important information. Also discuss what you think are the interesting details. You may not agree, but talking about your ideas with a partner can help you decide.

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 partner up and read page 17 and discuss what they think is the most important information.

How are you doing? When you have separated the interesting details from the important information, be sure to write them on your Think Sheet chart.

Continue to move around the room, conferring with partners.

SHARE THE LEARNING (10 minutes)

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

I am going to invite [student name] **to share what you learned and what you think is important or interesting in this article. We are going to share using respectful language. So when I ask: "**[student name] **would you like to share what you learned and what you think is important or interesting?" 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.

You learned a lot of important information and interesting details about the mud in a water hole today. Can anyone remind us what a detail is? Turn and talk about that.

Kids turn and talk. Allow time for a few to share out.

You worked hard to pick out the most important information. You learned that a detail is a small bit of information that can make writing interesting. Now you can use this strategy when reading on your own. Great work today!

Name _____ Date _____

THINK SHEET

Write the interesting details. Write the important information.

Interesting Details	Important Information

LESSON FRAME Determine Important Information: Separate Interesting from Important Information

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 • 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 the article.

This is an article called _____. Look at the pictures to get an idea of what the article is about. Then turn and talk about what you learned from the pictures.

Kids turn and talk about what they learned from the pictures.

I'm going to read the text on these pages. Then turn and talk about what I read and how it might add to what you learned from the pictures.

Read aloud pages _____. Then have kids turn and talk.

MODEL (10 minutes)

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I'm going to continue to read a few more pages of _____. Listen to how I decide what is a detail and what is important information. I'm going to make a two-column chart on the board. In one column I'll write the interesting details. In the other column I'll write the important information.

Read pages ____ aloud.

Well, we've learned some really interesting details on these pages about _____. I'm going to write those in the "Interesting Details" column.

Those are really interesting details, but I need to figure out what the important information is. I think the important information is _____. I'm going to write that in the "Important Information" column on the chart.

Okay, now turn and talk about what you noticed me doing. Then you can share out.

Let students turn and talk and then share out what they noticed you doing.

Good noticing, class! Separating the interesting details from the important information is another thing good readers do.

LESSON FRAME Determine Important Information: Separate Interesting from Important Information

GUIDE (10 minutes)

Hand out the Think Sheets attached to the clipboards. Kids remain grouped in front of you on the floor.

Let's try separating the interesting details from the important information together as a class. I'm going to read page(s) _____. Then you can turn and talk about what you think the interesting details are and what the important information is.

Read the page(s) and let kids turn and talk.

Let's share what we think are the interesting details and important information. Then I'll write them on the board on the chart, and you can write them on your Think Sheet chart.

Have a few kids share their thinking, and then everyone can write their answers on their Think Sheet chart.

COLLABORATE (25 Minutes)

Now it's your turn. Find a partner and read page(s) ___ together. Talk about what you think is the most important information. Also discuss what you think are the interesting details. You may not agree, but talking about your ideas with a partner can help you decide.

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 partner up and read page(s) ____ and discuss what they think is the most important information.

How are you doing? When you have separated the interesting details from the important information, be sure to write them on your Think Sheet chart.

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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.

You learned a lot of important information and interesting details about _____ today. Can anyone remind us what a detail is? Turn and talk about that.

Kids turn and talk. Allow time for a few to share out.

You worked hard to pick out the most important information. You learned that a detail is a small bit of information that can make writing interesting. Now you can use this strategy when reading on your own. Great work today!

A Butterfly is Born

SCIENCE

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 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 to survive. (1-LS1-2)

What You Will Need

- From Egg to Butterfly poster (Teacher's edition)
- Science Master (page 9)

Science Background

Monarch butterflies are large, beautiful insects. They have orange wings with black veins and borders and white markings. Their wings can span up to five inches (13 centimeters) across.

Monarchs live in North, Central, and South America as well as Australia, some Pacific islands, India, and Western Europe. They are famous for the mass migration that North American monarchs make each year.

As the weather cools, North American monarchs undertake a nearly 3,000-mile (4,828-kilometer) journey to reach warmer locales in the South. Only monarchs born in late summer or early fall make this trip.

Monarchs begin their lives as an egg, laid on the leaves of a milkweed plant. After a few days, a green-and-white-striped caterpillar (larva) hatches from an egg. The caterpillar eats milkweed leaves, which later on give adult butterflies the toxins that make them poisonous to predators.

After about two weeks, a larva creates a chrysalis (krih-suhl-ihs) around itself as it enters the pupa stage. Between eight and 15 days later, it emerges as an adult butterfly.

ENGAGE

Provide an assortment of photos that show people and animals that students are familiar with in various stages of life (baby, adolescent, adult, elderly). Have students sort the photos by subject. Then have them arrange them by age. Encourage students to identify clues that helped them sort the photos correctly.

EXPLORE

Display pages 2-3 of the projectable magazine. Read aloud the headline and text. Discuss what a butterfly might look like at birth and how it might change as it grows. Then read the article aloud or have students read it in groups, with a partner, or on their own.

EXPLAIN

After reading, have students turn and talk with a partner to discuss what they learned about how butterflies change as they grow.

- First, an adult butterfly lays small eggs.
- A caterpillar comes out of an egg.
- The caterpillar eats, grows, and changes. It makes a case called chrysalis and hangs from a leaf so it can change even more.
- It turns into a pupa and grows wings.
- It comes out of the chrysalis as an adult butterfly.

Encourage students to use the photographs as aids as they describe how a butterfly changes from one stage to the next.

ELABORATE

Display the From Egg to Butterfly poster. Read aloud the text at the top and review the diagram. As a class, add up the time between stages to calculate how long a butterfly lives. (*about three months*)

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.

Name _____ Date _____

SCIENCE: A Butterfly is Born

Cut out the pictures at the bottom of the page.
Glue each picture in the correct space.
Write a title for the diagram in the middle space.

1

❶ A butterfly starts as an egg.

2

❷ A caterpillar hatches from the egg.

3

❸ The caterpillar hangs from a plant.

4

❹ It makes a chrysalis.

5

❺ The caterpillar turns into a pupa.

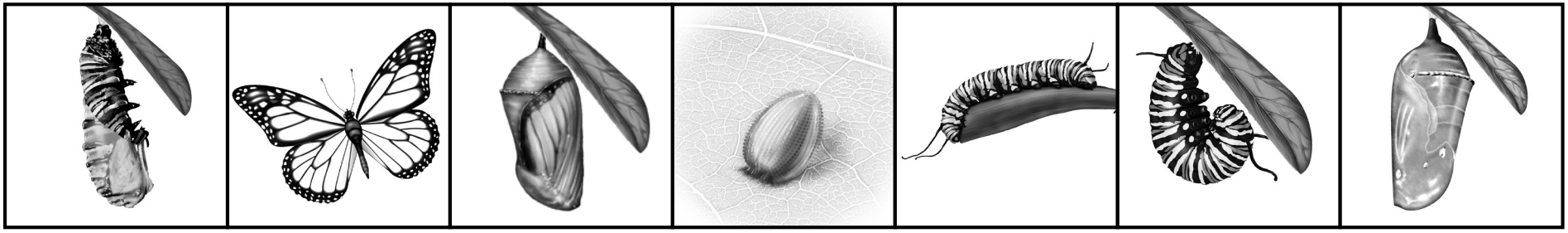
6

❻ The pupa turns into a butterfly.

7

❼ The butterfly is an adult.

Title:



Mud is Cool

SCIENCE

Kindergarten Standard Supported

- **NGSS Science and Engineering Practices: Constructing Explanations and Designing Solutions:** Use tools and methods provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3-2)

First Grade Standard Supported

- **NGSS Science and Engineering Practices: Constructing Explanations and Designing Solutions:** Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)

What You Will Need

- Making Use of Mud poster (Teacher's edition)
- Science Master (page 11)

Science Background

Mud is more than just a messy mixture of soil and water. In the animal world, mud is an important tool that helps animals stay cool in the blistering heat.

Hippos, rhinos, warthogs, and buffalo all wallow in mud for relief. The mud covers their bodies. When it dries, the water in mud evaporates slowly, helping to regulate the animals' body temperature. Mud also creates a barrier that blocks the sun's hot rays. For some animals, it can reduce parasites and disinfect wounds.

African elephants use mud to stay cool, too. In fact, the wide cracks in their skin actually retain mud and water after they take a dip. Elephants don't sweat. So this helps elephants stay hydrated as they make the long trek from one water hole to the next.

For some animals, mud is used to make homes. Beavers use mud to help hold their dams together. Some crabs dig holes in mud to live in. In the animal world, mud is a useful tool that can be used in many different ways.

ENGAGE

Have students imagine that they are outside on a very hot day. Invite students to brainstorm ideas and share creative things they can do to cool off.

EXPLORE

Display pages 12-13 of the projectable magazine. Read aloud the headline and text. Brainstorm ideas about how and why animals might use mud to cool off. Then read the article aloud or have students read it in groups, with a partner, or on their own.

EXPLAIN

After reading, encourage students to identify the animals in the article. (*hippopotamus, warthog, buffalo, rhinoceros*) Ask: **How did these animals use mud to get cool?** (*They went into a water hole and rolled around until their bodies were covered with mud.*) **How did the mud keep them cool?** (*It felt cool. It stuck to their skin and dried, blocking the sun's rays.*) Encourage students to turn and talk to discuss how mud would keep animals cool. Challenge students reading Voyager to explain how mud is like sunscreen. Then invite students to identify any other animals they've seen keeping cool in this same way.

ELABORATE

Display the Making Use of Mud poster. Read aloud and review the poster with students. Discuss different ways animals use mud to survive. Instruct students to think about what they learned from the article and poster. Then provide an assortment of art supplies, including playdough. Divide the class into small groups. Challenge each group to use the supplies to design a new tool or method that uses mud or can help them keep cool in the sun.

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.

Name _____ Date _____

SCIENCE: Mud is Cool

Draw a picture of an animal in the mud.

Write to tell how mud helps the animal.

We Need Earth

SCIENCE

Kindergarten Standard Supported

- **NGSS ESS3.A: Natural Resources:** Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

First Grade Standard Supported

- **NGSS Crosscutting Concept: Patterns:** Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1), (1-ESS1-2)

What You Will Need

- Science Master (page 13)

Science Background

Earth, our home, is like no other planet in the universe. Fortunately for people, it has all of the key ingredients we need to live: air, water, and land.

Air is the invisible mixture of gases that surrounds Earth. The air around Earth contains the right mix of substances, including oxygen and nitrogen, that most species on the planet need to survive.

Water covers about 71 percent of Earth's surface. About 96.5 percent of all Earth's water is saltwater. It is found in the ocean. The rest exists as water vapor in the atmosphere or freshwater in rivers, lakes, icecaps and glaciers, or underground aquifers. Thanks to its water cycle, Earth has been recycling the same water for more than four billion years! That means you could be drinking the same water a *T. Rex* did millions of years ago.

The other 29 percent of Earth's surface is land. That land is covered by many different features: deserts, mountains, grasslands, etc. For people, land is where we live. We build our homes on the land. We grow our food in the soil. Land, like air and water, helps us survive on Earth.

ENGAGE

Give each student a slip of paper. Tell the class that you are going to ask a question. They are going to write the first answer that comes to mind. Ask: **What is one thing you need to live?** Give students a moment to write their answers. Encourage students to share and discuss their responses.

EXPLORE

Display pages 18-19 of the projectable magazine. Read aloud the headline but cover the text. As a class, brainstorm a list of reasons why we need Earth. 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 said we need Earth because it has three things: water, land, and air. Ask: **Why are these three things so important?** (*We need them to live.*) **Where on Earth can you find water?** (*It covers much of Earth. The freshwater we need is in rivers and lakes.*) **Why do we need it?** (*Although not stated in the article, students should know that we drink it.*) Encourage students to turn and talk to discuss where on Earth we can find land and air and why we need each. (*land: covers the rest of Earth, to grow food and build homes; air: around Earth, to breathe*) As a class, talk about why Earth is a good home for people.

ELABORATE

Encourage students to think about the area around where you live. Ask: **Where can people find the water, land, and air they need to live near here?** Have students identify local waterways and landmarks. Challenge them to identify types of food that are grown in your area, either in fields or in people's gardens.

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.

Name _____ Date _____

SCIENCE: We Need Earth

Find out what Earth has that we need to live.

Unscramble and write each word.

Write or draw what you know about each thing.

r a i _ _ _ _ _ _ _

n a d l _ _ _ _ _ _ _

r e a w t _ _ _ _ _ _ _

Explore Maps

SOCIAL STUDIES

Standard Supported

- **C3 Geographic Representations: Spatial Views of the World:** Construct maps, graphs, and other representations of familiar places. (D2.Geo.1.K-2)

What You Will Need

- Social Studies Master (page 15)

Social Studies Background

Creating maps is an essential skill that students must learn in order to better understand the world around them. Maps relay knowledge that is both personally and socially useful. Understanding how to read maps helps people make decisions and solve problems, whether they are studying places in ancient history or just trying to find the quickest route to the grocery store.

To create an accurate map, students must know how to gather relevant information about the area the map will represent. That process begins with asking geographic questions and then organizing and analyzing the answers . Students can use those answers to create a detailed map that is simple and easy for others to use.

ENGAGE

Prior to conducting this activity, collect a variety of easily identified models, such as models of famous landmarks or a model of your school. Challenge students to identify what each model represents. Invite students to identify other models they've seen.

EXPLORE

Display the activity on the back cover of the projectable magazine. Have students examine the photos. Ask: **What do both of these photos show?** (*Earth*) **Why do they look different?** (*One is a photo of Earth taken from space. The other is a picture of a globe.*) Read aloud the title and Big Idea. Then read aloud the rest of the activity or have students read it in groups, with a partner, or on their own.

EXPLAIN

After reading, review the Big Idea with the class. Say: **A globe is a model of Earth. A model is a small example, or representation, of something larger.** Encourage students to identify things they can learn from looking at both a picture of Earth and a globe. (*size and location of land masses and waterways*) Point out that in these photos, both the Earth and the globe look round like a flat circle. Display a globe. Say: **Earth is round like a ball. As this globe shows, Earth is a sphere.** Discuss the difference between something that is round like a circle and a sphere. Invite students to share what else they know or have learned about Earth after completing this activity.

ELABORATE

Divide the class into pairs. Give each pair a globe. Encourage partners to examine the globes closely. Provide assistance as they find major land masses and waterways and locate the area where you live.

EVALUATE

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

Name _____ Date _____

SCIENCE: We Need Earth

Think about a picture of Earth and a globe.

Tell how they are alike and different.

Picture of Earth

Both

Globe

Scout and Voyager

ANSWER KEY

Language Arts

Think Sheet, page 5
Students should write the interesting details and important information on the Think Sheet.

A Butterfly is Born

Science: page 9
Students should arrange the illustrations in the order shown on the From Egg to Butterfly poster. (1. egg; 2. caterpillar on top of leaf; 3. curled caterpillar under leaf; 4. caterpillar making chrysalis; 5. caterpillar turning into pupa; 5; pupa turning into butterfly; 7. adult butterfly.
Titles will vary but should refer to a butterfly growing from an egg into an adult.

Mud is Cool

Science: page 11
Students should draw a picture of an animal in the mud. They should write a sentence telling how mud helps the animal.

We Need Earth

Science: page 13
Students should unscramble the words (*air, land, water*). They should use information from the article and what they already know to write or draw facts about each item.

Explore Maps

Social Studies: page 15
Possible responses:
Picture of Earth: photograph, round, real, flat, taken from space
Both: show Earth, show land masses and waterways
Globe: model, sphere, spins, names landmasses and waterways, may be bumpy in places, has additional lines and numbers on it