



TEACHER'S GUIDE
Scout and Voyager
Vol. 18 No. 7

IN THIS GUIDE:

About the Learning Framework 2

Language Arts
 Lesson and Think Sheet..... 3-7

Saving Sloths
 Science Lesson and BLM 8-9

The Problem with Plastic
 Science Lesson and BLM 10-11

Super Sunflowers
 Science Lesson and BLM 12-13

Explore Maps
 Social Studies Lesson and BLM.. 14-15

Answer Key 16

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

Saving Sloths	350L
The Problem with Plastics.....	300L
Super Sunflowers	390L

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

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:

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

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

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

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.

Kindergarten Standard Supported

- **CCSS Reading Informational Text:** With prompting and support, identify the main topic and retell key details of a text. (K-2)

First Grade Standard Supported

- **CCSS Reading Informational Text:** Identify the main topic and retell key details of a text. (1-2)

What You Will Need

- “The Problem With Plastic” (*Young Explorer*, pages 10–17)
- 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 page 10.

Titles tell what an article is about, especially with nonfiction. In the title, writers try to tell what the big idea is in a few words. Turn and talk about why you think writers do this.

Kids turn and talk. They might mention that a title that tells the big idea helps readers know what they will be reading about, and it might also help readers decide if they are interested in reading the article and learning more.

Let’s look at this title: “The Problem With Plastic.” What do you think the big idea of this article might be? Think about the title, and then turn and talk.

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.

Nonfiction articles like the one we’re reading are often packed with lots of information. Because of that, we need to slow down, read closely, and pay attention to the details. The details tell us more about the topic, and if we pay careful attention, these bits of information can help us discover the big idea.

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

Read aloud pages 11–12. Then write down on sticky notes or on the board what the details are. Be sure to “think aloud” so students can understand how you are sorting through and processing the information. The details are a little different in Scout and Voyager (see below). You can write down the details exactly as they are written in the article or paraphrase them a bit, as shown below.

Scout Details

- A sea turtle swims in the ocean.
- It spots what it thinks is a jellyfish.
- But it isn’t a jellyfish; it’s a plastic bag.
- The turtle eats the bag because it thinks it’s a jellyfish.
- The plastic bag can make the turtle sick.

Voyager Details

- A sea turtle hunts for food.
- It spots a jellyfish, which is food for sea turtles.
- It just looks like a jellyfish, but it’s really a plastic bag.
- That’s a problem, because plastic can make turtles sick.

Yikes! I’m worried about the sea turtles mistaking plastic bags for jellyfish. Plastic is not food! I can understand how this is a problem. And I’m thinking about the title, which is “The Problem With Plastic.” The details on these pages certainly support that plastic is a problem for the poor sea turtles. These details tell one of the reasons why plastic is a problem in the ocean. What do you think? Turn and talk about that and about what you noticed me doing.

Let students turn and talk and then share out.

GUIDE (10 minutes)

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

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

Read aloud page 13. Kids should note on their Think Sheet squares a few more details.

Scout Details

- Plastic can hurt other ocean animals, not just sea turtles
- Some ocean animals think plastic is food.
- Others get stuck in it.

Voyager Details

- It's not only sea turtles that think plastic is food; other animals do, too.
- Some ocean animals get tangled in the plastic that's in the ocean.

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

Encourage kids to think about how to synthesize the details and come up with a few different ways of stating the big idea. Remind them that the title gives us a really good idea, but we might want to word the big idea a little differently. Some suggestions kids might have include the following:

- Plastic is a problem.
- Plastic is a problem in the ocean.
- Plastic is a problem for ocean animals.
- Plastic can harm ocean animals.

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

COLLABORATE (25 minutes)

Now it's your turn. Find a partner and read the rest of the article together. Write down the details on

your Think Sheet squares and keep talking about how they support the big idea. You should also keep talking about what you think the big idea is. With more details, you might have some different thoughts about what the big idea is.

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

Kids read, write down details, and talk about them and the big idea. Move around the room, conferring with partners. This last part of the article includes information about how we all can help solve the problem with plastic, so you might want to make sure they include that in the big idea. Work with kids to come up with a big idea that is something like this: "Plastic is a problem, but there are things we can do to help."

SHARE THE LEARNING (10 minutes)

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

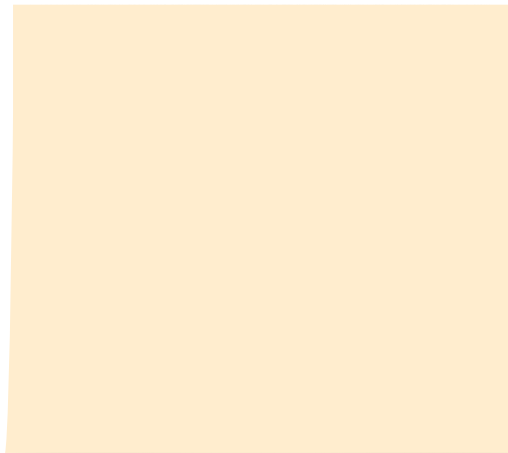
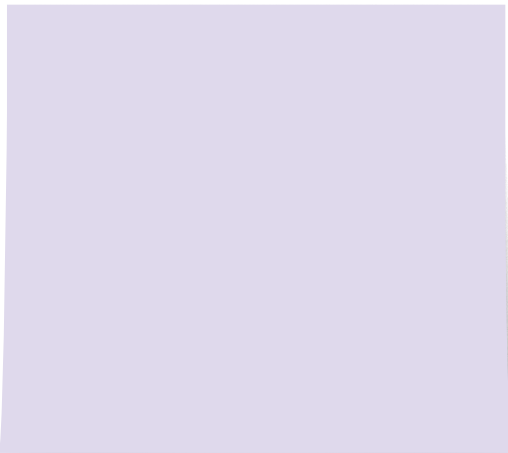
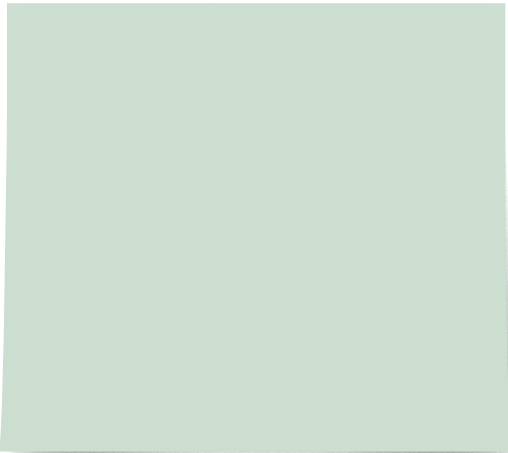
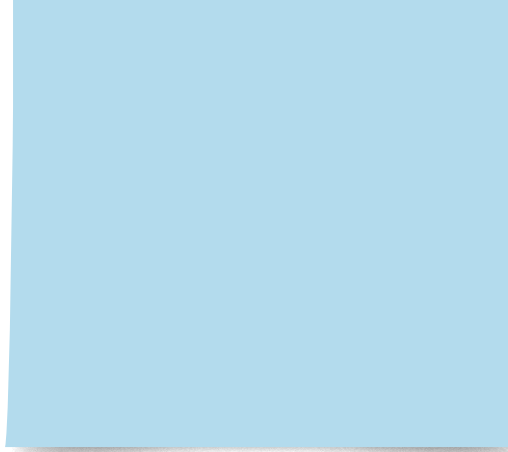
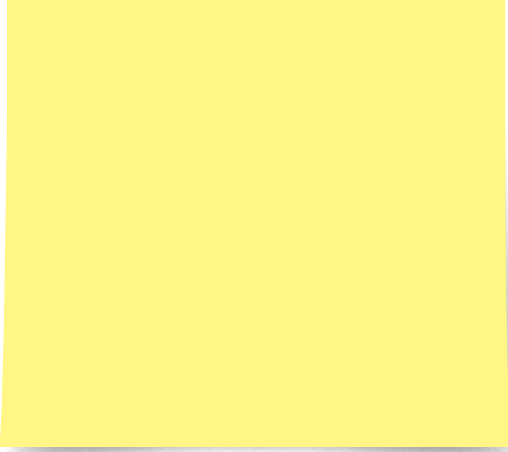
I am going to invite [student name] to share any interesting details or surprising information you learned that support the big idea. We are going to share using respectful language. So when I ask: "[student name] would you like to share some interesting details or surprising information?" you need to say: "Yes thank you." Then you can share. After you've done that, you can invite someone else to share. To do that, you need to call on the person by name and use the same language we just practiced. When we use polite, respectful sharing language, everyone pays closer attention to the information being shared.

Kids share out and invite others to share, always using the respectful sharing language that was modeled. There should be time for about 3 or 4 kids to share out with the whole group. Once they are finished, have everyone turn and share with the person next to them, so that all have a chance to be heard.

Paying close attention to the details and seeing how they all relate to one another takes some real brain power. Great work today, everyone!

THINK SHEET

Write or draw the details in the squares. Write the big idea on the line at the bottom.



Big idea: _____

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.

Titles tell what an article is about, especially with nonfiction. In the title, writers try to tell what the big idea is in a few words. Turn and talk about why you think writers do this.

Kids turn and talk. They might mention that a title that tells the big idea helps readers know what they will be reading about, and it might also help readers decide if they are interested in reading the article and learning more.

Let's look at this title: _____.
What do you think the big idea of this article might be? Think about the title, and then turn and talk.

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.

Nonfiction articles like the one we're reading are often packed with lots of information. Because of that, we need to slow down, read closely, and pay attention to the details. The details tell us more about the topic, and if we pay careful attention, these bits of information can help us discover the big idea.

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

Read aloud page(s) _____. Then write down on sticky notes or on the board what the details are. Be sure to "think aloud" so students can understand how you are sorting through and processing the information.

The details on these pages certainly support that _____. These details tell _____. What do you think? Turn and talk about that and about what you noticed me doing.

Let students turn and talk and then share out.

GUIDE (10 minutes)

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

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

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

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

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

COLLABORATE (25 Minutes)

Now it's your turn. Find a partner and read the rest of the article together. Write down the details on your Think Sheet squares and keep talking about how they support the big idea. You should also keep talking about what you think the big idea is. With more details, you might have some different thoughts about what the big idea is.

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

Kids read, write down details, and talk about them and the big idea. Move around the room, conferring with partners.

SHARE THE LEARNING (10 minutes)

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

I am going to invite [student name] to share any interesting details or surprising information you learned that support the big idea. We are going to share using respectful language. So when I ask: "[student name] would you like to share some interesting details or surprising information?" you need to say: "Yes thank you." Then you can share. After you've done that, you can invite someone else to share. To do that, you need to call on the person by name and use the same language we just practiced. When we use polite, respectful sharing language, everyone pays closer attention to the information being shared.

Kids share out and invite others to share, always using the respectful sharing language that was modeled. There should be time for about 3 or 4 kids to share out with the whole group. Once they are finished, have everyone turn and share with the person next to them, so that all have a chance to be heard.

Paying close attention to the details and seeing how they all relate to one another takes some real brain power. Great work today, everyone!

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 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

- Science Master (page 9)

Science Background

Sloths are slow, sluggish mammals that live in the tropical rainforests of Central and South America. They have long arms and wiry, shaggy fur. They look a bit like monkeys. But sloths are actually related to armadillos and anteaters.

There are two main species of sloths: two-fingered sloths and three-fingered sloths. Some sources call them two-toed and three-toed sloths instead. Either way, the name refers to the number of claws a sloth has.

A sloth's arms and legs are great for hanging onto things but can't support the animal's weight. It's hard for a sloth to move along the ground. So, sloths spend most of their time in trees. There, they sleep up to 20 hours a day!

When a sloth is born, it clings to its mother and relies on her for everything. Fathers don't help raise the young. Occasionally, a baby falls from a tree, its mother dies, or people cut trees or change habitats so a baby gets separated from its mother. The baby will not survive without help. That is why people created the Toucan Rescue Ranch in Costa Rica. Workers care for, protect, and teach baby sloths the skills they need to survive in the wild.

ENGAGE

Poll the class to see if any students have ever seen a sloth in real life. If so, invite volunteers to describe what the sloth looked like. If not, provide photos for students to see. Invite students to describe the animals and share what they know about sloths.

EXPLORE

Display pages 2-3 of the projectable magazine. Read aloud the headline and text. Brainstorm ideas about why sloths might need to be saved. 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 sloths are wild animals that live in the rainforest. Ask: **How are the sloths in the article different?** (*They are orphans who lost their mothers, and they live in a home where people take care of them.*) Have students turn and talk to identify everything people do for the baby sloths. (*provide shelter, keep them clean, feed them, teach them to climb*) As a class, discuss how this helps prepare the baby sloths to return to the wild. (*They are healthy and have the skills they need to survive.*) Ask: **What would happen to the baby sloths if people didn't help them?** (*They would probably die.*) Ask: **How can Lucy Cooke's photos help?** (*Possible response: If people see the photos, they may donate money to help take care of the sloths.*)

ELABORATE

Remind students that the people in the article who are taking care of orphaned baby sloths are teaching them all of the skills they need to survive. Write a list of things the baby sloths would need to learn. Brainstorm ideas about how people can teach them each skill so they're ready to return to the wild.

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: Saving Sloths

Some baby sloths are orphans.

Write a letter. Thank the people who take care of the sloths.

Use as many of the words in the box as you can.

sloth	mother	orphan	home	care	clean
feed	eat	learn	climb	grow	wild

Handwriting practice lines consisting of solid top and bottom lines with a dashed middle line. There are ten sets of these lines provided for writing.

SCIENCE

Kindergarten Standard Supported

- **NGSS ESS3.C: Human Impacts on Earth Systems:** Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-2)

First Grade Standard Supported

- **NGSS ETS1.A: Defining and Delimiting Engineering Problems:** Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)

What You Will Need

- Cut Back on Plastic poster (Teacher's edition)
- Science Master (page 11)

Science Background

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

Once in the ocean, plastic stays for a very long time. It also endangers the animals that live in the ocean waters.

One problem is that it's easy for animals to get trapped in plastic. In beach cleanups, about 10 percent of all dead animals were tangled in plastic bags.

Another problem is that animals eat plastic. More than half of all sea turtles have eaten plastic. Plastic bags floating in the water look like the jellyfish they prey upon. Even after it breaks down, plastic is a problem. On one expedition, one-fifth of all fish found had small pieces of plastic in their stomachs. People who eat the fish eat these tiny bits of plastic, too.

Fortunately, there are things people can do to help. We can recycle, reuse, and refuse single-use items. We can pick up litter when we see it. We can also find ways to use less plastic.

ENGAGE

Display a globe. Point to a blue section and ask what this blue part represents (*an ocean*). Ask: **What is the ocean full of?** (*water, animals, etc.*) Display a plastic straw. Tape the straw in the middle of the ocean. Ask: **How would the ocean change if it also had lots of straws in it?** Invite students to share their ideas.

EXPLORE

Display pages 10-11 of the projectable magazine. Invite a volunteer to describe what is happening in the photo. (*A sea turtle is eating a plastic bag.*) As a class, discuss reasons why this is a problem. Then read the article aloud or have students read it in groups, with a partner, or on their own.

EXPLAIN

After reading, poll the class to see how many students think having plastic in the ocean is a problem. Ask: **How does plastic get in the ocean?** (*People use it, throw it away, and some of it ends up in the ocean.*) **Why is this a problem?** (*Animals eat the plastic and get sick. They get stuck or tangled in plastic, can't move, and die.*) Encourage students to turn and talk to discuss different ways they use plastic. Challenge them to identify habits they can change so less plastic ends up in the ocean.

ELABORATE

Display the Cut Back on Plastic poster. Read aloud and review the poster with students. Point out that switching to reusable items is just one way for people to use less plastic. Instruct students to observe their family members to see how they use plastic. Share and compare results. Then brainstorm ideas about how students could teach family members about the problem with plastic in the ocean so they will want to change their habits, too.

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: The Problem with Plastic

Write or draw things you learned about plastic.

Are your examples problems or solutions?

Circle "Problem" or "Solution" to show.

Problem Solution

Problem Solution

Problem Solution

Problem Solution

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 LS3.B: Variation of Traits:** Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3)

What You Will Need

- A Sunflower Grows Tall poster (Teacher's edition)
- Science Master (page 14)

Science Background

Sunflowers are tall annual plants with big, daisy-like flowers. Their yellow, or sometimes red, petals surround a brown center filled with seeds. Despite appearances, a sunflower head is not a single flower. It actually contains up to 2,000 individual flowers joined together.

As their name indicates, sunflowers like the sun. When they are budding, they actually turn their flowers during the day to face the sun.

Sunflowers originated in North America. Around 1000 B.C., Native Americans began growing them as a crop. They used the plants for medicine, fiber, seeds, and oil. When European settlers arrived, they sent sunflower seeds back to Europe so they could grow them there, too.

Today, sunflowers are both garden favorites and an important agricultural crop. There are many different varieties. Some are prized for their beauty, and some for the seeds and oil they produce. Sunflowers can be a mere 18 inches tall or set records for their height. The current record holder, grown in Germany, was 30 feet, 1 inch tall.

ENGAGE

Invite each student to draw a picture of a sunflower. Have students display their drawings on the board. Ask students to point out similarities and differences in the drawings. Encourage them to explain how they know each picture is a drawing of a sunflower.

EXPLORE

Display pages 18-19 of the projectable magazine. Have students examine the photo. Encourage them to describe the flowers they see and compare them to their drawings of sunflowers. Brainstorm ideas about what a sunflower needs to grow very tall. 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 sunflowers.

- Sunflowers are plants.
- Sunflowers grow from seeds, and some seeds can grow into very tall sunflowers.
- A sunflower needs sunlight, water, and soil to grow.

Encourage students to use the illustration on pages 22-23 as they describe how a sunflower changes as it grows. Guide students to understand that there are different types of sunflowers. Each type produces its own seeds. Only sunflowers grown from the seeds of very tall sunflowers are able to grow super tall.

ELABORATE

Display the A Sunflower Grows Tall poster. Read aloud the text. As a class, discuss how a sunflower's parts help it live, grow, and produce seeds for the next generation of sunflowers.

EVALUATE

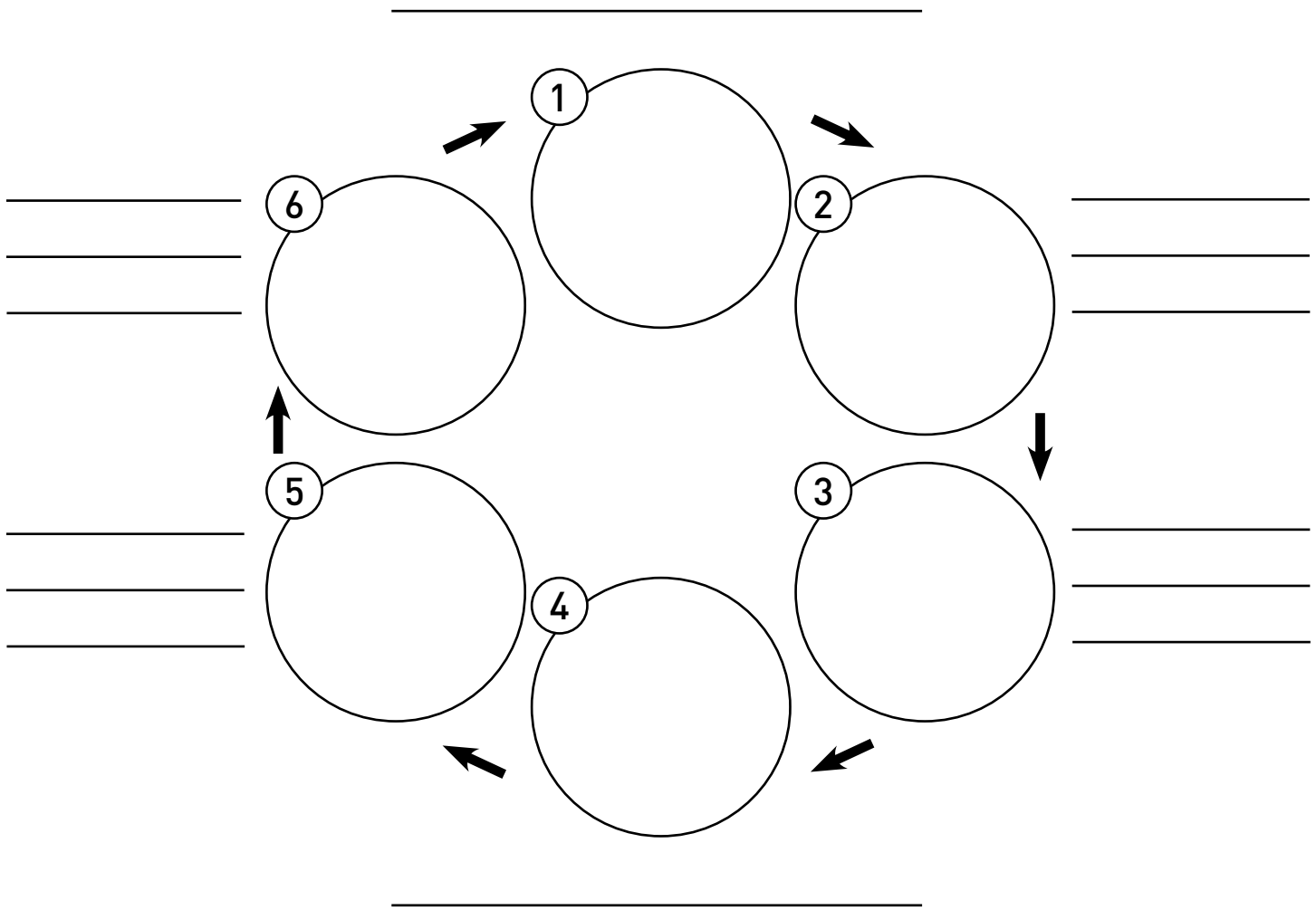
Have students complete the Science Master for this lesson. Encourage them to share and compare their results in small groups or with a partner.

SCIENCE: Super Sunflowers

Draw pictures to show how a sunflower grows.

Write about each picture.

Then answer the question.



Why are some sunflowers taller than other sunflowers?

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 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

Display a compass. As a class, discuss what a compass is and what it shows. Brainstorm ideas about what the letters N, E, S, and W on the compass mean and why it is important to understand them.

EXPLORE

Display the activity on the back cover of the projectable magazine. Point out the North and South Poles on the diagram. Brainstorm ideas about how the Poles got their names. Then read aloud 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: **Earth has four main directions: north, east, south, and west. North is opposite from south. East is opposite from west. Directions are important because they tell you how to find places. Without directions, you would never know which way to go.** Point out the words North, East, South, and West on the diagram. Explain that sometimes, as shown here, the whole word is used to show directions. Other times, like on a compass, the first letter of each word is used instead. Revisit the North and South Poles on the diagram. Discuss how directions helped give the poles their names. Using this same logic, have the class find North and South America.

ELABORATE

Post signs that say North, East, South, and West in accurate locations on the classroom walls. Have students stand. Call a direction and practice turning that way. Then start the game. Call directions and have students turn. Anyone who turns the wrong way sits down. Play until one student is left standing. Then try again.

EVALUATE

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

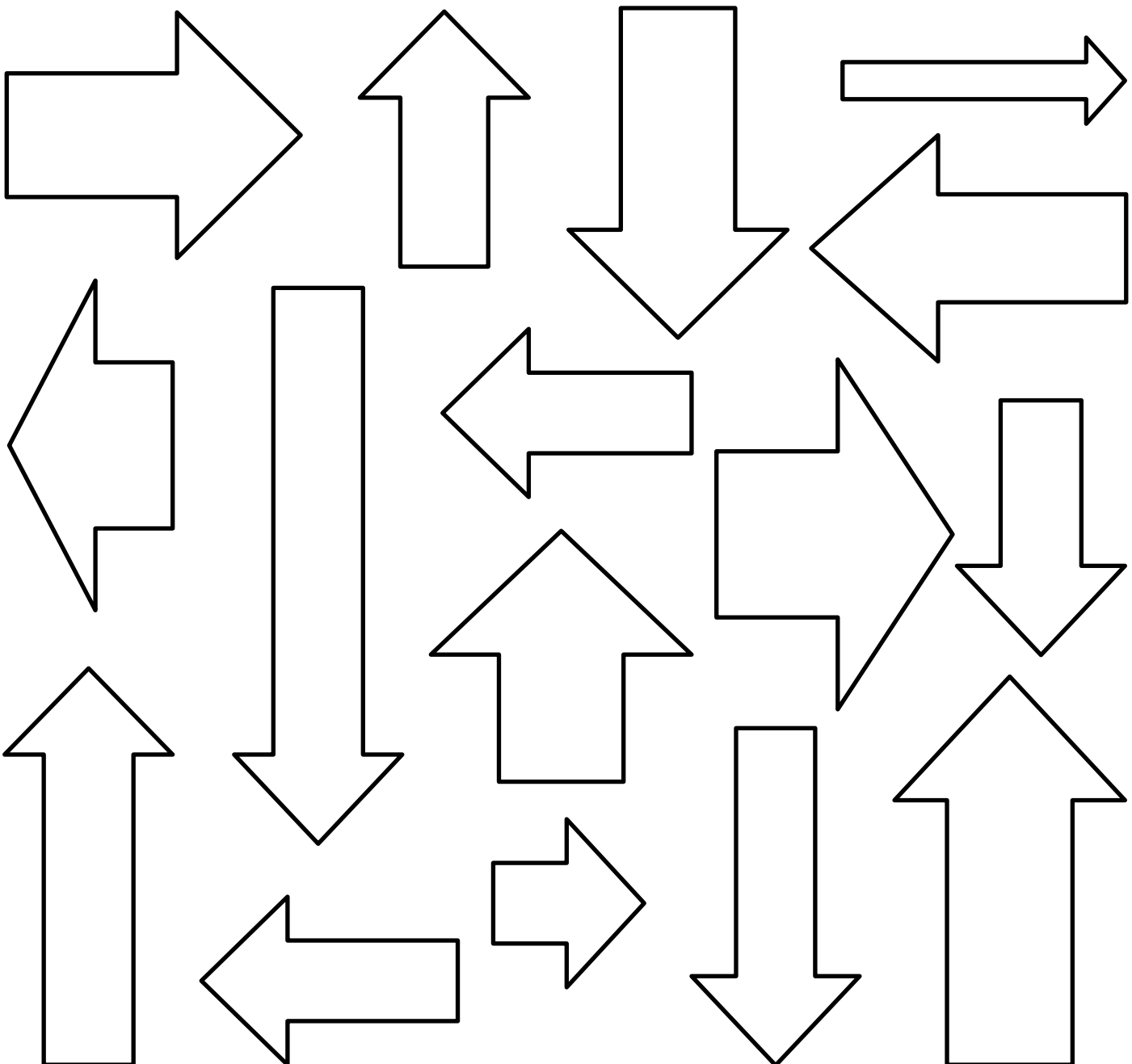
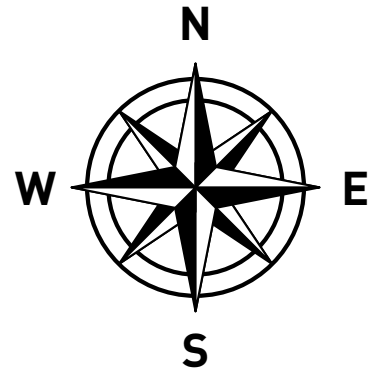
SOCIAL STUDIES: Explore Maps

Color each arrow pointing **north** blue.

Color each arrow pointing **south** red.

Color each arrow pointing **east** yellow.

Color each arrow pointing **west** green.



ANSWER KEY

Language Arts

Think Sheet, page 5

Students should write down details and the big idea.

Saving Sloths

Science: page 9

Students should write a thank you letter that contains one or more words from the word bank. They should write complete sentences that begin with a capital letter and end with proper punctuation.

The Problem with Plastic

Science: page 11

Students should write or draw to tell about four things they learned or know about plastic. They should circle the correct word to indicate which items are problems and which are solutions.

Super Sunflowers

Science: page 13

Students should draw pictures and write captions similar to those found on the A Sunflower Grows Tall poster.

Question: They grow from the seeds of taller sunflowers

Explore Maps

Social Studies: page 15

Students should color the arrows the correct color.
pointing north: blue
pointing south: red
pointing east: yellow
pointing west: green