In This Guide
In this guide, you will find language arts, science, and social studies lessons for the articles in this issue of Young Explorer Voyager.

Young Explorer Magazine
Young Explorer classroom magazines for kindergarten and grade 1 develop young readers’ literacy skills through engaging informational text. Great storytelling and stunning photographs teach students about our planet and the people, plants, and animals that live on it. Encourage your students to read and to explore our world with Young Explorer magazines.

Voyager
The Voyager edition is written for first grade readers. All articles in the Voyager edition have been measured using the Lexile® Framework for Reading. Some articles will be easier to read than others, though all articles will be within the 190-400L range.

Visit Young Explorer’s website, NatGeo.org/explorermag-resources, to find additional resources for extending your students’ learning.

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An Eagle Grows Up

Objective
• Students will identify the main topic and retell key details in a text.
• Students will use adjectives to describe how eagles grow and change.

Resources
• Language Arts Master (page 4)

Summary
An eagle changes as it grows from eaglet to adult. Its size and appearance change over the months and years it grows into adulthood. As the eaglet grows, it looks more like its parents.

WORD WORK
Sight Words: an, as, old, them, again, has

BUILD VOCABULARY AND CONCEPTS
• adult
• parent
• eagle/eaglet
• change
• head
• feathers
• beak
• tail
• body

Have pictures available of eagles and eaglets, or use the pictures in the article “An Eagle Grows Up” to point out the adult eagle and the eaglets. Use the pictures to help students understand the concepts of growing up and changing. Talk about the relationship of the eagle to the eaglet. Guide students to understand that the adult eagle is the parent of the eaglets in the article you will read.

Post a large picture of an adult eagle on a wall or bulletin board. Have word cards handy with the words head, body, beak, tail, and feathers written on them. Have students place the word cards on the picture in the appropriate places on the eagle. Students should note that feathers cover nearly all of the bird except its beak, feet, and eyes.

READ AND DISCUSS
Read the article “An Eagle Grows Up” aloud to students as they follow along. You may want to read the entire article first, and then reread the article, taking time to stop and discuss each two-page spread.

Pages 2–3 Read the title and the text aloud to students. After reading say: Look at the picture of the bird. Does anyone know what kind of bird this is? (eagle or bald eagle) Does this eagle look like it has grown up? Let students know that the picture of the bald eagle is an adult.

Help students identify that the main topic of this article is that bald eagles change as they grow. Say: Let’s read to find out how eagles grow and change.

Pages 4–5 Read the text. Ask: What is a baby eagle called? (eaglet) Does the eaglet look like its parent? (no) What words describe the eaglet? (gray, fluffy, small) Eagles need to eat a lot. How do they get their food? (Their parents feed them fish.)

Pages 6–7 Read the text on these pages and ask: What are some other details we learn on these pages about how the eaglet grows and changes? (It is almost the same size as its parent. Its beak is long and brown, and its eyes and feathers are brown.)

Pages 8–9 Read the text on these pages and ask: What are some other details we learn on these pages about how the young eagle grows and changes? (Its eyes and beak turn yellow. Feathers on its head are turning white. The young eagle is starting to look more and more like its parents.) What are the last changes that happen before the eagle is all grown up? (When it is all grown up, it has a white head and tail and a dark brown body.)

TALK AND WRITE
Students can respond to the article by talking and writing. Use the following prompts to guide them. You might also want to use the Language Arts Master for this article.

• Talk about something you learned about how eagles grow and change. Use words that describe how eagles grow and change.
• Write something you learned about eaglets.
**An Eagle Grows Up**

**Objective**
- Students will understand that young animals, such as eaglets, are very much, but not exactly like, their parents.

**Resources**
- Baby Birds poster (Teacher’s Edition)
- Parents and Young poster (Teacher’s Edition)
- Science Master (page 5)

**Science Background**
Bald eagles build their nests high up in tall trees to keep their eggs safe from predators. Eagle parents often return to the same nest each year, building them up with new sticks and grasses. Both male and female bald eagles attend to their young. At least one parent is with the eaglets constantly for the first few weeks after they’ve hatched. Both parents also bring food to the nest. A bald eagle’s diet is mostly fish, when it is available.

**ENGAGE**
Ask students if they have ever seen a bald eagle. If some students have, ask them to describe the eagle and tell where they saw it. You might explain to students that a bald eagle is not bald in the way we think of bald. The word *bald* comes from the old English word *balde* that means white. Say: Knowing that bald (or balde) used to mean white helps us understand why the bald eagle got its name.

**EXPLORE**
Explore more about bald eagles. Research with students information about the bald eagle. Find out about its habitat and if bald eagles can be found near where you live. You might want to find an eagle cam website to view with students. You can watch how the eaglets in the nest grow and change and see how the eagle parents take care of their young.

**EXPLAIN**
Read the article to students.

After reading, have students look at each picture and describe how the eaglets are similar to or different from their parent.

- Pages 4–5: *Students might say the eaglets look very little like their parent. They are much smaller with different coloring. The eaglets do have a beak and eyes, as does their parent, but they are a different color."
- Pages 6–7: *The young eagle is almost as large as its parent, but the color of its feathers, beak, and eyes are not yet like the adult eagle’s."
- Pages 8–9: *On page 8, the young eagle’s feathers are still not exactly like the parent’s, but its beak and eyes have turned yellow like the adult’s. On page 9, the young eagle now has white head and tail feathers and is a fully grown adult eagle."

**ELABORATE**
Use the Baby Birds poster and the Compare and Contrast Parents and Young poster to find out about other baby animals and how they are similar to and different from their parents.

Baby Birds poster: Read the text on the poster. Then read the label for each picture and ask: How are these baby birds different from their parents?

Compare and Contrast Parents and Young poster: Read the text on the poster. Then read the label for each picture and ask: How are these young animals the same as and different from their parents?

**EVALUATE**
Assess students’ understanding with the Science Master for this article. You might also use the following prompts.

- How do eagles grow and change?
- Describe what an eaglet looks like at 3 weeks old and at 3 months old.
LANGUAGE ARTS: Growing and Changing

Show how eagles grow and change. Color the pictures to match the words.

Then write a sentence that tells how an eagle grows and changes.

white and fluffy  gray feathers  brown feathers

yellow beak and eyes  white head and tail feathers

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How are the eaglet and eagle alike and different?

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<tr>
<th>alike</th>
<th>different</th>
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Resources

• Language Arts Master (page 8)

Summary

There are many steps to making chocolate bars. The steps start with cocoa beans and end with chocolate bars that are sold in stores.

WORD WORK

Sight Words: know, from, let, how, open, put, them, then

BUILD VOCABULARY AND CONCEPTS

• chocolate
• beans
• pods
• factory

Students will likely know what chocolate and beans are, but they may not be familiar with what those words look like in writing. The vocabulary words have several different examples of what they are. Work with students to define each word and find different examples of each of these words, such as the following:

• chocolate: different chocolate bars and candies made of chocolate
• beans: green beans, black beans, pinto beans, etc.
• pods: pea pods, pods from different trees that contain seeds, vanilla bean pods, etc.

For the word factory, the example would not be what the factory building looks like but rather what is made in the factory. With students, discuss different kinds of things that are made in a factory. Some examples might be other types of foods or canned goods as well as items such as cars and clothing.

READ AND DISCUSS

Read the article “Making Chocolate” aloud to students as they follow along. You may want to read the entire article first, and then reread the article, taking time to stop and discuss each two-page spread.

Objectives

• Students will use verbs and sequence words to describe steps in a process.

Pages 10–11

Read the title and text on pages 10 and 11. Ask: What looks familiar to you in these pictures? (Students will likely mention that the chocolate bar looks familiar.) What does the text tell us we will learn about in this article? (how chocolate bars are made)

Pages 12–13

Read the text on pages 12–13. Say: We learned about pods and beans in our vocabulary lesson. What kind of pods and beans are these? (cocoa pods and cocoa beans) The cocoa beans are used to make chocolate. What are the first steps to getting the cocoa beans? (cutting the pods off the trees, cutting open the pods, and scooping out the beans) What happens next? (The beans are put into bins. They change from white to brown.)

Pages 14–15

Read the text. Ask: What are the next steps that have to happen? (The beans are put on tables to dry out, and then they are sent to a factory where the beans are roasted, ground to a paste, and mixed with milk and sugar.) Ask: Is the contents of the large mixing bowl starting to look a little more like chocolate? (Students should notice that the contents is starting to look more like chocolate.)

Pages 16–17

Read the text. Say: Now the chocolate is a liquid. What is the next step? (The liquid chocolate is poured into molds.) Students may not know what molds are. Point out the picture on page 16 and discuss the different shapes of chocolate candy students are familiar with. Let them know that these shapes are formed by molds. Ask: What are the next steps after the chocolate cools and hardens? (The chocolate bars are wrapped and sent to stores.) Ask: What is the final step that we all like best? (eating the chocolate bar)

Have students work with a partner and use the diagram at the bottom of pages 16–17 to talk about the steps in the chocolate-making process. Encourage students to use sequence words such as first, next, and then.

TALK AND WRITE

Students can respond to the article by talking and writing. Use the following prompts to guide them. You might also want to use the Language Arts Master for this article.

• Talk about something you learned about making chocolate.
• Write or draw something you learned about making chocolate.
Making Chocolate

SOCIAL STUDIES

Objectives
• Students will describe the steps to make chocolate.

Resources
• Social Studies Master (page 9)

EXPLAIN
Read the article to students.

Work with students to understand and describe the steps involved in making chocolate. You might have students work in groups of five or six to come up with ways to act out the steps in the process. They can use the diagram on pages 16–17 and the text and pictures in the article to help them.

• Cut the pods off the tree.
• Open the pods. Scoop out the beans. Put them in bins.
• Dry the beans. Send them to the factory.
• Roast and grind the beans. Mix them with milk and sugar.
• Pour the chocolate into molds. Cool and harden.
• Wrap and send to stores.
• Eat and enjoy!

ELABORATE
There are many different things we do that require steps in a process. Brainstorm with students to determine other things that require steps in a process. Some of these might include the following:

• brushing your teeth
• making a meal
• doing your homework
• getting dressed

EXTEND
Chocolate comes from cocoa beans. There are many other foods that come from plants and also animals. To help students find out more about where other foods come from, use the More to Explore activity on the back of the Young Explorer magazine. Have students work with a partner to match each food to the plant or animal it came from. Let students know that there is a process involved in getting each of these foods from the plant or animal to the food we know.

EVALUATE
Assess students’ understanding with the Social Studies Master for this article. You might also use the following prompts.

• What are the steps to make chocolate?
• What is your favorite step? Why?

Social Studies Background
Cocoa beans, pods, and trees are also called cacao beans, pods, and trees. Cocoa trees grow in regions where it is warm and humid. There is an area called the cocoa belt that extends 20 degrees latitude north and south of the equator. In this area, conditions are right for growing cocoa trees.

In addition to the steps outlined in the article, there is a fermentation process that takes place. Before the cocoa beans are dried, and when they are piled in bins for several days, bacterial action causes the beans not only to take on a rich, brown color but also acquire the aroma of chocolate we all know and love.

ENGAGE
Students will know what chocolate is, but most, if not all, will have no idea where chocolate comes from or how it is made. Engage students in a discussion about foods and how they are made. Many will have helped out in the kitchen and will understand that some foods they eat have to go through steps in a process before they can be eaten. Ask some of the following questions to see if you can get a discussion going around the idea of steps in a process using a familiar example.

• Have you helped a parent or an older sibling make a recipe? What did you make?
• What ingredients did you use?
• What steps did you take to make the recipe?

EXPLORE
You might want to explore where cocoa trees are grown. Let students know that you are going to read about how chocolate is made and the ingredients needed to make chocolate. Let them know that one ingredient comes from the cocoa tree. Research places where cocoa trees are grown and find those places on a map.
LANGUAGE ARTS: In the Right Order

Number the pictures in the right order, 1–6. Then write about your favorite chocolate bar.

1. mold
2. wrap
3. open
4. cut
5. dry
6. roast, grind, mix

Then write about your favorite chocolate bar.
SOCIAL STUDIES: Step by Step

Use the words in the box to write the steps for brushing your teeth.

- toothbrush
- mouth
- brush
- toothpaste
- rinse
- wet
- teeth

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Objectives

- Students will learn that observation is one way to explore our world.
- Students will describe the connection between scopes and observation.

Resources

- Observation Master (page 12)

Summary

Scopes are tools that help you take a closer look at nature. Scopes can help you see underwater, far away, and up close.

WORD WORK

Sight Words: some, by, has, them, could, of

BUILD VOCABULARY AND CONCEPTS

- observe
- scope
- tool

Introduce the vocabulary words to students by displaying them in the classroom on a word wall or on a board.

Do a picture walk through the article “A Closer Look” and point out pictures of the different types of scopes. Ask students to name some of the scopes they are familiar with. Many students will recognize a hand lens (or magnifying glass), binoculars, and a telescope. Let students know that a scope is a tool. Ask: What are some other kinds of tools? (Students may mention tools such as hammers, screwdrivers, wrenches, and other tools used to fix things.) Guide students to understand that a tool is often hand-held and is used for different tasks, depending on the purpose of the tool.

Discuss that the scopes in this article are used to observe things in nature. Have students look at the pictures and discuss what it means to observe something. Ask: How do the pictures show what it means to observe? Then together come up with a definition for the word observe.

READ AND DISCUSS

Read the article “A Closer Look” aloud to students as they follow along. You may want to read the entire article first, and then reread the article, taking time to stop and discuss each two-page spread.

Pages 18–19  Read the text. Ask: What does it mean to take a closer look? (It means to look carefully or to look at something at a close distance from your eyes.) What does the scope on page 19 help the girl do? (see underwater; see tadpoles swim by)

Pages 20–21  Read the text and have students describe what the people are observing in nature. Ask: How do the scopes help? (These scopes help you see things that are far away, such as a bird in a tree feeding its chick or even craters on the moon.)

Pages 22–23  Read the text and have students describe what the people are observing in nature. Ask: How do the scopes help? (The scopes make tiny things look larger. They help the people look at flower petals up close.)

Talk with students about Manu Prakash, the man who invented the Foldscope. Ask students to discuss the advantages of having a microscope you can fit in your pocket.

TALK AND WRITE

Students can respond to the article by talking and writing. Use the following prompts to guide them. You might also want to use the Observation Master for this article.

- Talk about something you learned about scopes.
- Write about something you might see using a scope.
A Closer Look

**LEARNING FRAMEWORK**

**Objective**
- Students will learn that people use different tools to observe things.

**Resources**
- Learning Framework Master (page 13)

**EXPANED**
Read the article to students.

After reading, have students discuss with a partner what they learned about scopes used to observe nature. Ask: Have you ever used any of the scopes mentioned in the article? If any students have, ask them to share with the class what scope they used and what they used it for.

**ELABORATE**
If you have some of the tools mentioned in the article available in your classroom or school, use them with students. Spend time observing some of the things in nature noted in the article. Find other things students might want to observe. You might have students start a science notebook to draw or write about their observations.

**EXTEND**
Students can create their own telescopes. Directions for making a telescope can be found at kids.nationalgeographic.com/explore/nature/make-a-telescope/.

**EVALUATE**
Assess students’ understanding with the Learning Framework Master for this article. You might also use the following prompts.

- What are some things you can observe with scopes?
- How do scopes help us observe things in nature?

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**ENGAGE**
Some of your students may only think about tools in one way. Say: Let’s see if we can create a list of different types of tools people use. Ask students to think about tools used for different purposes. Create different categories of tools, such as the following, and then have students add tools to each of the categories.

**Tools Used to Fix Things**

**Tools Used for Writing**

**Tools Used to Cook**

**Tools Used to Clean**

**EXPLORE**
Have students look around the classroom and find tools used for different purposes. You can make a game of it and send groups of students on a hunt to search for tools used for different purposes. For example, the tools used for science class will be different from the tools used for art class.

**Learning Framework**
The National Geographic Learning Framework emphasizes the attitudes, skills, and knowledge children should learn from their experiences. Observation is a skill that is focused on in “A Closer Look.” Observation for first graders is addressed in this way in the Learning Framework:

- Children can categorize objects they observe.
- Children can place themselves in their surroundings, and make observations relative to their own location.
- Children employ simple equipment and tools to gather data and extend the senses.
OBSERVATION: Nature Counts

Observe. Count each animal and plant. Show your answers in the graph.
LEARNING FRAMEWORK: Up Close and Far Away

Draw something you would like to observe with a hand lens. Then write about it.

Draw something you would like to observe with binoculars. Then write about it.
ANSWER KEY

An Eagle Grows Up
Language Arts: Growing and Changing, page 4
Students should color the pictures to match the labels to show how eagles grow and change. Students should write a sentence to tell how an eaglet grows and changes.

Science: Alike and Different, page 5
Students should list how the eaglet and eagle are alike and different.

Making Chocolate
Language Arts: In the Right Order, page 8
Students should number the pictures in the correct order and then write about their favorite chocolate bar:
1. cut
2. open
3. dry
4. roast, grind, mix
5. mold
6. wrap

Social Studies: Step by Step, page 9
Students should write the steps for brushing your teeth, using the words in the box.

A Closer Look
Observation: Nature Counts, page 12
Students should complete the graph.
three trees
four birds
one fish
six flowers (Students should draw a flower in the fourth column.)

Students should draw and write about something they would like to observe with a hand lens. Students should draw and write about something they would like to observe with binoculars.