Ask® Teacher Guide: March/April 2025

Around the River Bend

Conservationist and writer John Muir once stated, "Rivers flow not past, but through us; tingling, vibrating every cell and fiber in our bodies, making them sing and glide."

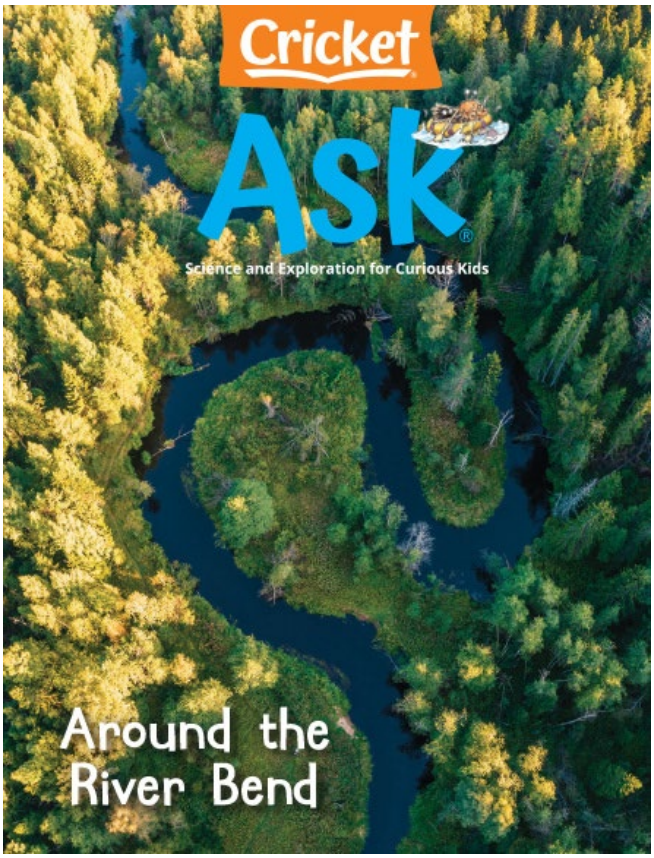
This issue of ASK magazine examines how rivers provide humans with drinking water, fertile soil, wildlife, irrigation, and energy. Students will discover how rivers are essential to human civilizations and ecosystems across the globe.

CONVERSATION QUESTION

Why are rivers important?

TEACHING OBJECTIVES

- **Students will learn about the source and flow of rivers.**
- **Students will learn how beavers use many parts of a river to survive and thrive.**
- **Students will learn how scientific information about a creek is acquired.**
- **Students will obtain and classify information from text and graphics.**
- **Students will collect evidence to support a claim.**
- **Students will identify and analyze investigation plans.**
- **Students will interpret and create maps containing the studied water features.**
- **Students will design and construct models.**
- **Students will locate and define homophones.**



In addition to supplemental materials focused on core STEAM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

SELECTIONS

- **How Rivers Run**
Graphic Nonfiction, 740L
- **Busy Beavers**
Expository Nonfiction, 580L
- **Our Creek**
Narrative Nonfiction, 610L

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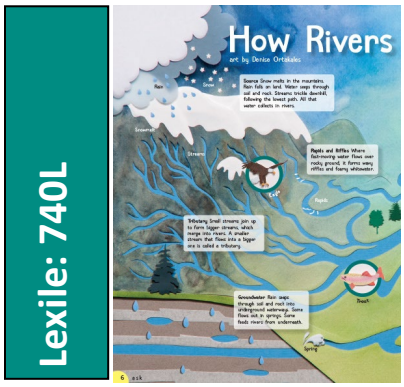
How Rivers Run

pp. 6–9, Graphic Nonfiction

Rivers carry fresh water all over Earth's surface and are vital to life on land in various ways. This article teaches students about important river features using both text and graphics.



RESOURCES

Obtain Information: Running Rivers

OBJECTIVES

- Students will learn about the source and flow of rivers.
- Students will obtain and classify information from text and graphics.
- Students will interpret and create maps containing the studied water features.

KEY VOCABULARY

- ***sediment* (p. 7)** material that sinks to the bottom of a liquid
- ***hydroelectric* (p. 9)** relating to the generation of electricity using flowing water
- ***artificial* (p. 9)** not happening or existing naturally; created or caused by mankind

ENGAGE

Conversation Question: Why are rivers important?

Present photos or a map of a region with a river running through it. Use the following questions to activate prior knowledge: *What is the source of this river? Where does the river go? Where is the river the widest or narrowest? Where would you expect the water to flow the fastest or slowest? Is the water in the river safe for drinking? Why or why not?*

INTRODUCE VOCABULARY

List the three key terms (**sediment**; **hydroelectric**; **artificial**) on the board and have pairs of students define each word. Then post the definitions provided so that students may check their work for accuracy. Have the pairs choose at least seven additional words from this vocabulary-rich article and procure definitions. Instruct them to create a mini crossword puzzle using all ten words. Share puzzles with another class for use as a pre-reading activity for this "refreshing" article.

READ & DISCUSS

As a post-reading activity, lead a discussion based on the following questions:

1. What becomes of the soil, sand, and rocks washing downstream?
2. How does runoff affect the quality of the water?
3. How can farmers use water from rivers?
4. What is the purpose of hydroelectric dams?
5. How are areas of the wetlands beneficial to humans and animals?

SKILL FOCUS: Obtain and Classify Information

INSTRUCT: Guide students to obtain information about the rivers in the article using both the text and the graphics. Read the text boxes aloud, telling students to focus on the illustrations. Then have the students read the text independently, pretending to follow the path of a single drop of water. Distribute the *Running Rivers* organizer and instruct the class to classify and record the information that they collect from both the text and the graphics.

ASSESS: Review the worksheet. Ask: *What areas along the river's path are helpful to people and animals? Where could the water become polluted?*

EXTEND

Geography Post a map of a stream (local, if possible) and have students help to identify some of the features discussed in the article. Then divide students into two groups and provide them with a large sheet of mural paper and have them create their own illustration of a stream. Rivers should include: a source; rapids; tributary; oxbow; estuary; wetlands; meanders; sediment; groundwater. Finally, have students add the following: a beaver dam and a hydroelectric dam; animals; factory; farm; barge; levee; artificial lake. Encourage students to consult the article and to use color to enhance their mural. Display finished murals.

Running Rivers

Obtain and Classify Information Record information from the article under the appropriate headings. Cite facts using page numbers and state whether the information was obtained from text or illustrations.

I. THE SOURCE AND FLOW OF RIVERS		
PAGE	**TEXT OR ILLUSTRATION**	**INFORMATION**
6	TEXT	Rivers run downhill, following the lowest path.
II. HOW RIVERS CHANGE		
III. HOW RIVERS ARE USED		
6	ILLUSTRATION	Eagles use the river to catch a trout to eat.

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Busy Beavers

pp. 10–13, Expository Nonfiction

Beavers are the largest rodents in North America and are among the world's greatest architects. This article follows a beaver family through its spring building process and details how beavers change the river.

RESOURCES

Obtain Information: Home Sweet Home

OBJECTIVES

- Students will learn how beavers use many parts of the river to survive and thrive.
- Students will collect evidence to support a claim.
- Students will design and construct models.

KEY VOCABULARY

- ***rodents* (p. 10)** small furry mammals whose teeth never stop growing, including mice, rats, squirrels, beavers, and many more
- ***gnaw* (p. 10)** to chew something repeatedly
- ***dams* (p. 10)** structures built across a river or stream to stop water from flowing
- ***kits* (p. 10)** baby beavers
- ***predators* (p. 11)** animals that prey on other animals

ENGAGE

Conversation Question: Why are rivers important?

Use a K-W-L chart (Know-Want to Know-Learned) to record students' prior knowledge about beavers. Return to the chart after the completion of the reading/learning activities and have students add details about what they have learned. If there are remaining curiosities, allow the class to use books and the internet to find more information.

INTRODUCE VOCABULARY

Students who make connections while reading are better able to understand the text they are reading and synthesize ideas. Post and read aloud the vocabulary words. Explain that each of the words (**rodents**; **gnaw**; **dams**; **kits**; **predators**) is related to the topic of beavers. Have students discuss the meaning of the terms and how each word might relate to the topic. Present the article, "Busy Beavers," and have students locate and underline the vocabulary words as they read.

READ & DISCUSS

Have students read the article with a partner, then use the following questions to prompt a discussion:

1. Why do beavers work at night when building a dam?
2. What materials do the beavers pack into the gaps between the branches? Where do they get building materials?
3. Where in the river do beavers build their home?
4. How do beaver families prepare for an upcoming winter?
5. What is the meaning of the sentence, "Beaver dams are never really finished?" (p. 12)

SKILL FOCUS: Collect Evidence

INSTRUCT: This article gives the reader a detailed look into the life of a beaver family as they use the river and its surroundings to create a home. Instruct students to review the article and highlight sentences that provide evidence to support each of the claims listed on the *Home Sweet Home* organizer. They will record and cite the information with details.

ASSESS: Have students peer-review their work by sharing completed worksheets with other partners. Circulate and guide them to discuss which evidence would be easiest to observe and which evidence would be challenging to collect.

EXTEND

Engineering Provide groups of students with clay, craft sticks, toothpicks, small beads, and a tray of water. First, have students identify what each material represents in the building process (clay = mud; toothpicks = branches; beads = rocks; tray of water = river/pond). Then, instruct groups to construct a model of a beaver dam and lodge in the tray of water. Lastly, students will share their models and explain how they used information from the article to assist in designing and constructing their models.

Home Sweet Home

Collect Evidence Gather evidence from the article to support each claim listed below. Include details and cite your findings by using page numbers.

Claim: Beavers must find the perfect place on the river to build their dam.
Supporting evidence (p. _____)
Claim: Beavers use their pond in a variety of ways.
Supporting evidence (p. _____)
Claim: Beavers change the land more than any other animal except humans.
Supporting evidence (p. _____)

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Our Creek

pp. 14–18, Narrative Nonfiction

Readers will join a class of students as they set out to gather information about their local creek. This article reveals their methods and explains their findings.

RESOURCES

Analyze Investigation Plans: Water Ways

OBJECTIVES

- Students will learn how scientific information about a creek is acquired.
- Students will identify and analyze investigation plans.
- Students will locate and define homophones.

KEY VOCABULARY

- ***streambed* (p. 15)** the bottom of a creek, stream, or river
- ***dissolved* (p. 16)** absorbed by a liquid, especially when mixed
- ***larvae* (p. 17)** an insect at the stage when it has just come out of the egg

ENGAGE

Conversation Question: Why are rivers important?

Display the title of the article, "Our Creek." Ask students what a creek is and then provide the following definition: *a stream smaller than a river.* Have students share any real world or literary connections regarding a creek. Ask: *What living things were in or around the creek? Where did the water in the creek come from? Did the creek have clean water? What kinds of things can cause a creek to be polluted?*

INTRODUCE VOCABULARY

Post the key words and discuss the meanings of the terms. Then display the following prompts and have students discuss responses with a partner.

- What would you expect to find along a **streambed**?
- What solids would **dissolve** in water?
- Why are insect **larvae** vulnerable?

READ & DISCUSS

Have students read the article with a partner, then use the following questions to prompt a discussion:

1. Where does the water Standing Stone Creek come from and where does the water empty?
2. Why is Standing Stone Creek described as small, but important?
3. Why do you think that the river flows faster in the middle and slower near the banks?
4. How did the students use chemistry and math to gather information about the creek?
5. What did the students learn about Standing Stone Creek?

SKILL FOCUS: Analyze Investigation Plans

INSTRUCT: Discuss with the class how this article demonstrates many different ways that the students were able to gather information about Standing Stone Creek. Assign partners one section of the article to study as listed on the *Water Ways* organizer. They will need to record the steps and equipment used to study the water and life along the creek.

ASSESS: Discuss the organizer with three different groups at a time, so that all of the sections are represented. Combine the groups' graphic organizers into one investigation planner.

EXTEND

ELA Bring students' attention back to the board to reread the title, "Our Creek," written during the introductory activity. Have them read aloud the spelling of the word, creek, and state its meaning. Then ask: *Is there another word that sounds the same but has a different spelling and meaning?* Discuss the meaning of the word, creak (a sharp squeaking sound). Remind students that words such as creek/creak are homophones. Have students use the article (or the whole issue of ASK) to identify and define other homophones.

Water Ways

Analyze Investigation Plans Reread and analyze the section you are assigned. You will need to find out what is being investigated, what equipment was necessary, and the steps that were taken in the investigation. As each section investigates more than one thing, four rows are provided below. Combined groups' planners should create an investigation that could be conducted with any stream.

Circle the section you have been assigned to study:

Along the Banks/The Streambed (p. 14-15) **What's in the Water?** (p. 16-17) **What Lives in the Water?** (p. 17-18)

Page Number	What's being investigated?	Equipment Needed	Steps to Collecting the Information