

# Rivers

## K-2 TEACHER'S GUIDE



**Grade:** K-2

**Objectives:**

Observe animal bodies and behaviors in the Rivers exhibit.

Document observations of external structures that allow movement and feeding.

Hypothesize about function of unique animal structures.

**Timing:** 30 minutes at Shedd Aquarium

**Materials:** Printed activity sheet for each student

Writing utensil for each student

### Introduction

Rivers are home to a great diversity of plant and animal life. In this lesson, students will investigate animals in the Rivers gallery to observe, record and hypothesize about how various external structures help animals move and eat. Students will explore habitats of their choice, as well as the paddlefish exhibit. This activity is meant to be completed in the Rivers gallery at Shedd Aquarium.

### Working toward these Next Generation Science Standards

**LS1.A Structure and function:** All organisms have external parts. Different animals use their body parts in different ways to move from place to place and to find and take in food. (1-LS1-1)

### Science and engineering practices

Obtaining, evaluating and communicating information

### Crosscutting concepts

Structure and function

### Background information

All living things have external structures that help them perform daily processes necessary for life, such as movement, eating, breathing and sensing their environments. These structures are adapted to the unique characteristics of each species' habitat. Similar structures can be found on closely related animals as a result of divergent evolution from a common ancestor (for example, deer and foxes both have four legs because they share a four-legged ancestor), and similar structures can be found on unrelated animals as a result of convergent evolution (birds, bats and insects evolved wings separately to perform the same function). Species can also evolve different structures that serve the same purpose in the habitat (for example, squids use jet propulsion to move through the water while clownfishes use fins). Scientists observe animal behaviors and physiology to determine the functions of these structures.

### Additional resources

River Animal Facts: <https://www.sheddaquarium.org/Animals--Care/Animal-Facts/On-the-River/>

Friends of the Chicago River: <https://www.chicagoriver.org>

*A Peek-and-Find Adventure with Oscar Otter* by Maurice Pledger

*Wetlands* by Shirley W. Gray

# Lesson Outline

## Know before you go

- A **structure** is a part of a living thing's body. Just like each part of a plant has a different function, different parts of animals' bodies have different purposes that allow them to survive.
- We can observe the external structures of animals to learn more about what they are used for (their function).
- Most animal species have external structures that are different from every other species on Earth, making them appear unique.

## Explore at Shedd!

- Give each student an activity sheet. Explain that they will be walking through the Rivers exhibit and writing on their activity sheet.
- A teacher or chaperone can read the prompts aloud to students who cannot yet read.
- For some of the questions, students will need to observe the exhibits.
- The activity sheet is divided into five parts.
  - **Part 1** can be done before students arrive in the Rivers exhibit, but it does not need to be completed beforehand.
  - **Parts 2 and 3**, about observing animal movement, can be completed at any habitat. Encourage students to observe two animals that move differently (for example, a fish and a turtle).
  - **Part 4**, about feeding behavior, can be completed at any habitat where feeding or foraging (looking for food) is happening. Have students look at each habitat to see if any of the animals are eating. If no animals are eating, direct students toward one of the exhibits featuring the clown loach (the large first exhibit on the left has several). Clown loaches continuously forage for food in the gravel, using whiskerlike structures on the bottom of their bodies called "barbels" to locate their food.
  - **Part 5** should be completed at the paddlefish exhibit in the back of the gallery.

## Optional classroom debrief questions

- What structures did you observe that helped animals move?
- What structure did you observe that helped an animal eat?
- What do you think is the function of the paddlefish's "nose"?
- What do the structures on our bodies do? What could be the functions of human ears, fingernails, or hair? How do the shapes of our teeth help us eat?

## Optional extension activities

- Show footage of land and aquatic animals moving. Have students observe and describe the patterns of their movement. Then have students act out the movement and describe how they are using their body parts to mimic the animal.
- Give a habitat description or drawing to small groups of students. Have each student design an animal that can survive in that habitat. What external structures does their animal need to move and eat in this habitat? Have students compare and contrast their animals' structures.

## Notes/considerations

Differentiation

