

# grade 3

Essential Question: How do we come to know and appreciate the river environment and our place in it?

Content Questions: What plant and animal adaptations allow them to survive in the river environment?

What food chains and food webs can be found in a river ecosystem?



## 3rd Grade River Biodiversity Overview

**Content question 1:** What plant and animal adaptations allow them to survive in the river environment?

LESSON 1: Who Depends on Rivers? An Introduction.

- Read aloud The Raft

LESSON 2: Schoolyard or Park Observation

- Outdoor exploration

LESSON 3: Plants and Animals of the River

- Assess prior knowledge
- Develop class mural

LESSON 4: What is an Adaptation?

- Animal charades

LESSON 5: Field Guides for the River

- Individual student research
- Creating field guide
- Writing poems

**Content question 2:** What food chains and food webs can be found in a river ecosystem?

LESSON 6: The Human Food Chain

- Food chain creation with bag lunch

LESSON 7: Foods Chains and Webs of the River

- Magic School Bus Gets Eaten video
- Food chain creation with river plant or animal
- Mural

LESSON 8: River Field Trip

- Plant and animals search and identification
- Macroinvertebrate exploration
- Solo time

**Culminating Writing Project**





## 6

## the human food chain

**Essential Question:** How do we come to know and appreciate the river environment and our place in it?

**Content Question:** What food chains and food webs can be found in a river ecosystem?

**Lesson Question:** What is a food chain?

### Goals

- Students will be able to diagram a simple food chain
- Students will be able to define what a consumer, producer and decomposer is
- Students will make the connection that all living things, including themselves, are part of a food chain

### Vocabulary

**Consumer:** A living thing that must eat other living things in order to survive. Unlike plants, consumers can not produce their own food. Primary consumers eat plants (producers), secondary consumers eat primary consumers and tertiary consumers eat secondary consumers.

**Producer:** A living thing that makes its own food. Trees, for example, photosynthesize to produce the energy (sugars) they live on.

**Decomposer:** A living thing that eats dead things and in the process breaks down the dead food item.

**Predator:** An organism that feeds on live organisms, usually of other species.

**Prey:** An organism that is caught for food by another organism (the predator).

**Food chain:** A chain of organisms, where one organism eats another organism and is in turn eaten by a different organism. Energy passes from one organism to the next along the food chain. An example of a food chain would be:

sun → grass → rabbit → fox → fungus (decomposes a dead fox).

**Food web:** A complex interlocking of multiple food chains. For instance, in the above example, a rabbit could also eat dandelions and dandelions could also be eaten by aphids, while the rabbit could also be eaten by an owl and the owl might also eat a mouse.

### Materials

- Bring a bag lunch to school and if possible, have students bring a bag lunch to class. As students will be examining their lunches, make sure to do this lesson before lunch. If students can not bring bag lunches, bring extra lunch items for the students to use. Try to bring a variety of foods: fruits and vegetables, processed foods, dairy foods and meats.
- Mystery River Bag

- **Books:**
    - *Who Eats Who? Food Chains and Food Webs* from Learn and Find Out series
    - *The Hunt for Food* by Anita Ganeri
    - *Food Chains* from the Cycles in Nature series
    - *What are Food Chains and Webs?* from the Science of Living Things series.
- See Procedure for brief descriptions of the books.

## Background Information

Every plant and animal (including humans) in the world is part of a food chain. In fact, most (if not all) are part of multiple food chains. When you combine multiple food chains together you get what is known as a food web where plants and animals eat and are eaten by more than one thing.

The sun is the beginning of every food chain (except perhaps for a few deep ocean food chains where the major source of energy is chemical). The sun provides the energy which plants use to convert carbon dioxide into sugar in a process known as photosynthesis. Plants use these sugars to grow and reproduce. Because plants are able to produce their own food, they are known as producers. When herbivores (plant eating animals) eat plants they use the energy stored by plants, in the form of sugars, starches, proteins, etc. to grow. Herbivores are in turn eaten by carnivores (meat eating animals). Since neither herbivores nor carnivores can make their own food, they are known as consumers. Primary consumers eat plants, secondary consumers eat herbivores and tertiary consumers eat carnivores. At every step along the food chain energy is lost. This is why there are more plants than herbivores and more herbivores than carnivores.

In addition to sunlight energy, food chains are dependent on air, water and soil. Plants need carbon dioxide to photosynthesize and animals need oxygen to breathe. Water is needed by plants and animals to grow. Some animals drink water while others get most of the water they need from the food they eat. Soil provides the nutrients, such as nitrogen and phosphorus, that plants need to grow (some aquatic plants float in the water and do not get their nutrients from the soil but rather from the water itself).

In a food chain, an often forgotten component is the decomposers. Decomposers are animals that eat dead plant and animal material and in the process break down the plant and animal material into its basic components (such as nitrates). These basic components fertilize the ground and are taken up by plants to support future generations. Without the decomposers, dead plants and animals would just continue to pile up and the soil would not be re-nourished and would become so poor that little would be able to grow in it.



## Procedure **Hook**

Before class place your lunch inside the Mystery River Bag. In front of class, take your lunch out of the Mystery River Bag and start eating it. Make silly comments about where your lunch came from. For example: "Wow, I can really taste the sun in this piece of lettuce!" or "Thanks worms, you made me a great lunch. Don't you just love the work of worms?"

## Activity

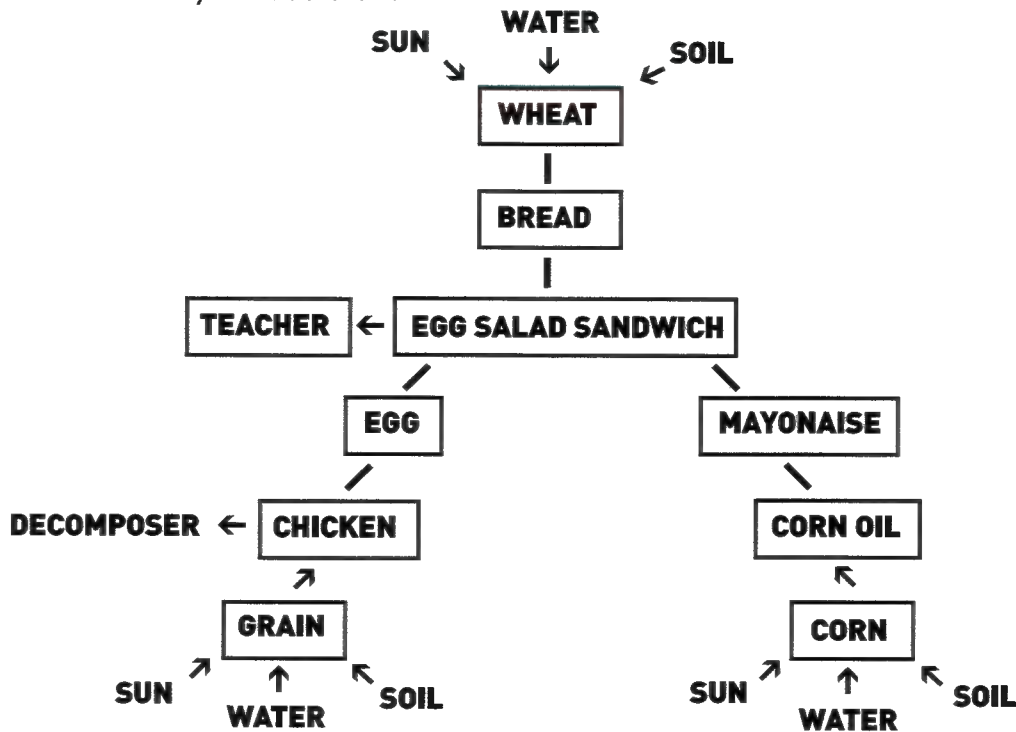
- 1) Discuss with students the concept of food webs and food chains – that food chains are the connections between the sun, plants and animals based on who eats who. Let students know that every plant and animal in the whole world is part of a food chain because every living thing needs to eat. Even they are part of a food chain. So too are all the plants and animals on the river mural. Every living thing is part of a food chain because they eat or are eaten by another organism.
- 2) Read one or more of the following non-fiction picture books to your class. They are helpful in illustrating these new concepts:
  - *Who Eats What? Food Chains and Food Webs* from the Learn and Find Out Science series offers a simple explanation of food chains and food webs. It also explains how to draw your own food chain (and web) diagrams.
  - *The Hunt for Food* by Anita Ganeri from the Life's Cycles series explains the basics of food webs and follows a food web in a meadow.
  - *Food Chains*, from the Cycles in Nature series, and *What are Food Chains and Webs?* from the Science of Living Things series offer slightly more advanced explanations of food chains and webs. They both define and use the vocabulary presented at the beginning of this lesson. They both also explain how to play the "Food Web Game," which could be played before proceeding with the rest of the lesson.
- 3) Tell the students that before they examine how their river plants and animals are part of a food chain they are going to be figuring out what kind of food chain they are a part of. Using your lunch as an example, draw a food chain on the board as you go. Remember to always go back to the sun and include the need for soil, air and water! For fun, you could also include other things that could eat your lunch (such as an ant, and then continue the chain with what would eat an ant).

### For example:

If you bring in an egg salad sandwich, you can begin with the fact that the egg comes from a chicken. A chicken eats corn, which grows from the ground and gets energy from the sun, and water and nutrients from the soil. The corn is the producer, and the chicken is the primary consumer. If you



want to extend the chain in the other direction, you can think of a secondary consumer (besides us!) that eats the chicken. You may also want to add a decomposer, so that you have represented an entire food chain. Egg salad is made with mayonnaise that is made from oil and eggs. You would then follow the oil back to (lets assume it is corn oil) back to corn and hook it into your food chain.



- 4) Once students get the concept, have the students make their own food chains with their lunch, recording their food chains in their journal. If students cannot bring their own lunches, bring a variety of food items, giving one to each student. Then have students switch items, making sure each student does at least one animal product.
- 5) Familiarize students with vocabulary words. Give names (producer, consumer, decomposer and predator and prey) to the different components of your lunch's food chain example on the board. Then have students label their own food chains.
- 6) To reiterate vocabulary pass out a sheet of paper to students. Have them fold the sheet into three columns. In the first column have them write the vocabulary word, in the second column have students draw a picture of the vocabulary word and in the third column write a synonym or a brief definition for each word.
- 7) Pass out students' **Field Guide Forms** and ask them to fill out question 8 now that they know what producers, consumers and decomposers are. Collect the **Field Guide Forms**. Make copies of all the students' forms so that you can make one complete guide book, containing all of the students' plants and animals, for each student. Students will use these guide books on their river field trip.



## Reflection & Assessment

Have students reflect in their journal about how they are connected to the sun and water. Tell students to include a discussion of the food chain.

*Assessment note:* Use the **3-Point Journal Rubric** for assessing the journal.

## Reinforcement & Enrichment

Suggest to students that over dinner they share with their family the food chains they are taking part of.

## State Standards

### Illinois

**4.A.2b** Describe and compare characteristics of living things in relationship to their environments.

**4.A.2c** Restate and carry-out a variety of oral instructions

**4.B.2b** Use speaking skills and procedures to participate in group discussions

**12.B.2a** Describe relationships among various organisms and their environment.

### Indiana

**Science 3.4.1** Demonstrate that a great variety of living things can be sorted into groups in many ways using various features, such as how they look, where they live, and how they act, to decide which things belong to which group

**Science 3.4.4** Describe that almost all kinds of animals found can be traced back to plants

**English 3.7.3** Answer questions completely and appropriately

## 7

# food chain and webs of the river

**Essential Question:** How do we come to know and appreciate the river environment and our place in it?

**Content Question:** What food chains and food webs can be found in a river ecosystem?

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## Goals

- Students will create a food web using river plants and animals
- Students will be able to explain the concept of biodiversity and at least one reason it is important

## Vocabulary

**Predator:** An organism that feeds on live organisms, usually of other species.

**Prey:** An organism that is caught for food by another organism (the predator).

**Food chain:** A chain of organisms, where one organism eats another organism and is in turn eaten by a different organism. Energy passes from one organism to the next along the food chain. An example of a food chain would be:

sun → grass → rabbit → fox → fungus (decomposes a dead fox).

**Food web:** A complex interlocking of multiple food chains. For instance, in the above example, a rabbit could also eat dandelions and dandelions could also be eaten by aphids, while the rabbit could also be eaten by an owl, and the owl might also eat a mouse.

**Ecosystem:** Community of species interacting with each other and the physical environment.

**Biodiversity:** The great variety of genes, species and habitats.

## Materials

- Mystery River Bag
- "Magic School Bus Gets Eaten" video tape
- Items from "Magic School Bus" video – beach towel, yellow ball or balloon (represents sun), blades of grass or small green plants in baggie (to represent phytoplankton), a can of anchovies, a can of tuna fish and a small doll ("Barbie" size)





- Non-fiction books about rivers and field guides (see **Resource section** under rivers and river plants and animals for suggestions or check out your local or school library)
- Student made **Field Guide Forms** from Lesson 5
- List of all the animals on the River Mural, make enough copies so every student can have one.
- Yarn (if possible, different color for each student)
- Index cards
- Colored pencils or crayons

## Background Information

See Lesson Six for a discussion of food chains and food webs.

Biodiversity is defined as the great variety of genes, species and habitats in the world or in one particular place. Across the world we are losing biodiversity as species go extinct and habitats are threatened. There are a wide variety of reasons why protecting biodiversity is important. People depend on natural products such as honey, timber and fish. People also tap the genetic biodiversity of the world in search of new drugs to cure and treat diseases and for genes to hybridize with our crops to increase their productivity. Biodiversity also supports the life systems of the earth, filtering water and cleaning air. People enjoy watching, photographing and exploring the rich species and habitat diversity of the world. Nature offers us a wealth of inspiration and relaxation. It also inspires our creativity and challenges our minds as we try to understand the way the world works. Biodiversity can also be seen as valuable just because it is there. We don't necessarily have to use it or experience it for it to have some value to us. In addition, biodiversity can be seen as valuable and something needing protection because it is believed to have the intrinsic right to exist.

## Procedure

### Hook

Before class, place the video, beach towel, yellow ball (or balloon), baggie with grass, can of anchovies, can of tuna and doll in the River Mystery Bag. Remove beach towel first, and lay it out on table in the front of the room. Tell students that you will be joining Ms. Frizzle and the Magic School Bus on a trip to the ocean, but first they must solve a mystery. Remove all other items from the bag (except video) one by one, and place on beach towel. Ask students to recall previous lesson on food chains. Are they able to find a connection between the items on the table? Can they figure out what they represent? Ask one or two volunteers to come forward and share their ideas. Now, take out and watch "Magic School Bus Gets Eaten" video.

*Note:* The items in the Mystery Bag represent a typical marine food chain, which is described in the video.



## Activity

- 1) Watch the Magic School Bus video with students
- 2) Discuss the video with students. Possible discussion questions:
  - Were their ideas about the items from the Mystery Bag correct? Did they understand the food chain connection?
  - Where do plants get their food?
  - Where do animals get their food?
  - Do animals only eat one thing?
  - What would happen if an animal's food source disappeared? Would only that one animal be affected?
  - Compare/contrast the ocean food chain in the video to a food chain found in a river ecosystem
- 3) Do a quick review of vocabulary words from Lesson 6. (Students can refer back to their "word banks") Review the concept of "predator/prey" and how this relates to food chains.
- 4) Refer students back to the River Mural. Ask students if they think all the plants and animals in the river mural are connected in a food web. Indeed they are, but how? It is the students' job to solve the food chain mystery and hook their chosen plant or animal up to the other plants and animals in the mural to create a gargantuan River Food Web.
- 5) Pass out the list of plants and animals that are included in the River Mural as well as the student made field guides. Tell the students that these are the only plants and animals currently living in their river ecosystem. It is up to them to make a food chain that connects their plant or animal to other plants and animals in the river environment. Remind the students that their food chain must begin with the sun, include a top predator (a predator which is not eaten by other animals as an adult) and end with a decomposer. Students may refer to the student made field guide to remind them what their chosen animal eats and who eats it. Note: depending on what plants and animals the students have chosen, there won't be enough or the right type of plants and animals in their mural. This is okay, and something for the students to realize. If they can't make their chain with the available plants and animals, have the students decide which additional plants and animals they need to have in the river environment. Then have the students make cards for these plants and animals to be added to the mural
- 6) Using the bulletin board river mural, each child will be given a long piece of yarn to connect their animal and/or plant in a food chain all the way back to the sun and to a decomposer. Students who had to add new plants or animals should place the additional plant or animal card/s on the mural in an appropriate location. Hint: Each child can have a different color yarn to help create food web where you can easily trace each student's food chain.



- 7) Discuss with students why they had to add plants and animals to the river mural. Ask the students if and why they think it is important to have a lot of different kinds of plants and animals living in and around rivers. One reason is that with a greater variety of species, animals have more different things to eat and thus are more likely to survive should anything happen to one of their food sources. At this point you can introduce the students to the word biodiversity. Biodiversity is the name we use to describe the great variety of species we have on this planet and the great variety of habitats they live in. There are other values of biodiversity, in addition to strengthening the food chain. Have the students brainstorm why biodiversity is important to them. How would they feel if we removed half the plants and animals from the mural?

## Reflection & Assessment

In their journals, have students draw and diagram the food chain they created. Students who work more quickly may be able to recreate the whole food web. When they are done, ask them to write a paragraph (or two) that answers the following questions:

- Why do you think that some students had to add new animals to the food web to complete their chains?
- Why are there so many different kinds of plants and animals living in the river environment?
- How would your food chain be effected if your animal left the river environment? (Be specific!)
- How would it effect the river ecosystem as a whole?
- Challenge Question: What are some ways that humans can effect the river ecosystem, and disrupt the food web?

If there is time, you can have students discuss their journal entries in small groups. A reporter from each group can summarize their group's ideas for the whole class.

*Assessment note:* use the **3-Point Journal Rubric** to assess the students' journal entries

## Reinforcement & Enrichment

- 1) Have students identify at least two adaptations of their plant or animal that enables it to eat what it eats and helps them escape from being eaten by a predator.
- 2) Challenge students to go home tonight and observe the plants and animals in their front yard, back yard, park or alley. They should construct a food chain using the plants and animals that they find there. If they cannot see animals, they can use their imaginations to recall what they've seen before. They should diagram the food chain using pictures and labels.





### Extra Credit Challenge

Diagram two or three additional food chains using plants/animals found in the same area. Combine all your food chains to create one large web. Remember that it is fine to add more plants or animals to help your food chains connect. Don't forget about the sun!

*Assessment note:* use the **Assessing Food Chain Homework Rubric** to assess homework. If any student completes "Extra Credit Challenge" you may want to reward him/her with some type of special recognition. Depending on how you structure the assessments, you might add extra points to the student's total unit score to supplement possible lower scores.

### Optional Activity

The following day, pair up your students to discuss and compare their food chains and webs. If time allows, partners can share their diagrams (and comparisons) with the whole group.

### State Standards

#### Illinois

**4.A.2c** Restate and carry-out a variety of oral instructions

**5.A.2b** Organize and integrate information from a variety of sources.

**12.B.2a** Describe relationships among various organisms and their environment.

**12.B.2b** Identify physical features of plants and animals that help them live in different environments

#### Indiana

**Science 3.4.1** Demonstrate that a great variety of living things can be sorted into groups in many ways using various features, such as how they look, where they live, and how they act, to decide which things belong to which group

**Science 3.4.4** Describe that almost all kinds of animals found can be traced back to plants

**English 3.2.2** Ask questions and support answers by connecting prior knowledge with literal information from the text.



## Food Chain Homework Assessment

**Name** \_\_\_\_\_

**Date** \_\_\_\_\_

**Score**

**Criteria**

**3 pts.**

Food chain diagram of connected plants and animals includes detailed drawings and accurate labels. Drawings show evidence of careful observation and thorough understanding of food chain/web concept.

**2 pts.**

Diagram includes mostly accurate details and labels. Drawings show evidence of some careful observation and solid understanding of food chain/web concept.

**1 pts.**

Diagram lacks accuracy and detail. Drawings show some evidence of observation and partial understanding of food chain/web concept.

**0 pts.**

Diagram is inaccurate and shows no detail. Drawings are unrelated to food chain/web concept.

**Comments:**



## 8

## river field trip

**Essential Question:** How do we come to know and appreciate the river environment and our place in it?

**Content Question:** What food chains and food webs can be found in a river ecosystem?

**Goals**

- Students will visit a river environment
- Students will use their observation and critical thinking skills to identify river plants and animals
- Students will develop a more personal connection to the river

**Vocabulary**

**Macroinvertebrates:** Small (but still visible to the naked eye) animals that lack a backbone, includes organisms such as insects, crustaceans, beetles and worms

**Scat:** Feces of animal, can be used for identification

**Materials****For in class before field trip:**

- Mystery River Bag
- Sun hat or visor for teacher
- Gummi worms

**For field trip:**

- Copies of student made **Field Guide Forms** made into booklets (1 per student)
- Macroinvertebrate identification sheets (available from [www.siue.edu/OSME/river](http://www.siue.edu/OSME/river))
- Bug boxes or two way microscopes (available from Nasco [www.enasco.com](http://www.enasco.com))
- Copies of **Checklist of River Plants and Animals** (enough copies for one for each group of 3-4 students)
- Net for catching small aquatic animals (available from [www.siue.edu/OSME/river](http://www.siue.edu/OSME/river) or more expensive and rugged nets available from Forestry Supply Catalog [www.forestry-suppliers.com](http://www.forestry-suppliers.com))
- Collection trays (4 or 5): these can be any white plastic pan you don't mind getting dirty or they can be purchased from [www.siue.edu/OSME/river](http://www.siue.edu/OSME/river)
- Camera (optional)





- First aid kit
- Baby wipes, for washing hands
- Pencils
- Pre-stamped, blank post card, one for each student

**For in class after field trip:**

- Index cards (one per student)

## Background Information

What you and your students discover at the river depends on the site you visit, the time of year, how quiet and careful you are with your observations and some luck. But, the fact that every visit promises something new and different is part of what makes the outdoors such a fun and magical place.

During the spring migration, the more forested areas along the river are amazing places to watch birds. Encourage your students to be quiet. Break students into small groups with a chaperone if at all possible, so that the students are more likely to see animals.

It is often hard to see animals because they are really quite frightened of us. However, they often leave signs behind. Tree trunks cut off in a way that resembles the tip of a pencil means that beavers have been in the area. Branches and bark that have been scraped indicate that deer are around (male deer rub their antlers on branches and trunks). Muddy areas are good places to look for tracks, as are areas covered in fresh snow. Birds often move fast or are hidden in the foliage, but if you sit and listen, their calls often come through loud and clear. Scat (feces) is another indicator that animals have been in the area. Scat that looks like that of a small dog, but with fur in it could be that of a coyote. Three-eighth inch pellets are the scat of deer.

One thing you can be certain to find in a river are macroinvertebrates (small animals without a backbone that are visible to the naked eye). As part of your field trip you will be collecting these small creatures. Depending on the cleanliness of the river and the type of habitat available, you will find different types of macroinvertebrates. Midges, aquatic worms and sowbugs are present most anywhere. Dragonfly, mayfly and damselfly nymphs and caddisfly larvae are quite common in the more natural sections of the river. These macroinvertebrates are an important food source for many fish, reptiles, amphibians and birds.

3rd

## Procedure Hook

Before the start of class, fill the Mystery River Bag with a sun hat or visor, stamped blank postcards, small fish net, bag of gummy worms and the first aid kit. Display the Mystery River Bag. Take out sun hat or visor and put it on. Ask the students what they think they will be doing today – we'll be heading to the river for some exploration and discovery. Then take out the First Aid Kit and review the safety rules for the trip.

- Students must stay in view of the teacher or chaperone at all times
- If students need to use the bathroom, they must ask a teacher or chaperone first and be accompanied by an adult
- No eating, drinking river water or putting hands in mouth
- No going in water
- Nothing may be taken from the river environment

Next, take out a small fish net to remind students that we will be looking for organisms in the water. Next pull out postcards and have students address them (if you need to, do this the day before). Finally, pull out a bunch of gummy worms and give one to each student. Let kids know that though we might not find worms exactly like this living in the water, that we might just see their cousins.

Before leaving on the field trip, divide students into groups of 3-4. If possible, each group should have an adult chaperone.

### Activity

- 1) At the river review the safety rules.
- 2) Divide student groups into two. Have one begin with the River Walk and the other with the Macroinvertebrate Investigation. Then have the groups switch. You need an adult leader for each of the two groups. This leader needs be familiar with the activity and able to coordinate a group (half a classroom) of students.

### RIVER WALK

- 1) Let the students know that they are river scientists in charge of discovering what plants and animals inhabit their river at this particular spot. Pass out copies of the student made field guide, one to each student. Tell students to use their observation skills and field guides to determine what kinds of plants and animals live in this river environment. Remind students that they don't have to see the animal to know that it lives here – they can look for signs, such as tracks. Tell students that once they identify a plant or animal they need to record what they observed in the checklist and to record one adaptation. If they think they have found a plant or animal which is not in their field guide, tell students to record their observations on the back of the checklist.
- 2) Have students walk along a river edge path to make their observations and discoveries. The length of the walk depends on the time available and time students can stay on task.
- 3) At the end of the walk, gather students together and have students share the coolest thing they found.
- 4) Ask students if there was anything in their field guide that they did not see or find evidence of. If there is, ask students to hypothesize why that is. Is it because the animal could not live there due to a lack of resources (food, water or shelter), because it was not here at this time of the year or because it was hiding or just difficult to see (such as fish in the water)?

## MACROINVERTEBRATE INVESTIGATION

- 1) Ask students what they think lives in the river that they might not have seen.
- 2) Go (teacher and any chaperones who would want) into the water to collect macroinvertebrates. Place macroinvertebrates in trays filled with water. To find the greatest variety of macroinvertebrates try to find areas of the river that have a rocky bottom. Pick up some of the rocks and look for macroinvertebrates (basically anything moving on the rock). You can also hold the net so that it touches the bottom of the riverbed, downstream from where you are standing. Then kick your feet in front of the net, thus dislodging the macroinvertebrates from the bottom sediment and sending them into your net. Fallen logs and leaf packs are also good areas to dip your net into to find macroinvertebrates. If there is a piece of wood in the water, look under the bark for hiding macroinvertebrates.
- 3) Give students time to observe macroinvertebrates. Show students how to use bug boxes or two-way microscopes and let students get a closer look. If you want, have students try to identify their bug of choice. Ask students how these macroinvertebrates are related to the other plants and animals in the river environment (think food chain).

## ANIMAL CHARADES, OPTIONAL

- 1) Ask students to think of one animal they saw at the river that they could act out.
- 2) Choose students to come in front of the class and act out their animal. The rest of the students then guess what animal they are acting out. Repeat as many times as you like.

## Reflection & Assessment

### SOLO TIME AT THE RIVER:

- 1) Hand out the blank postcards and pencils, one per student.
- 2) Tell students they are going to be writing a post card to their parents about their experience at the river. The totally blank side is for a drawing; the side with the address is for writing.
- 3) Have students choose a spot along river in view of teacher or chaperone.
- 4) On the way back to the school, mail postcards.

### BACK IN THE CLASSROOM:

- 1) Give students an index card.
- 2) Have students draw a picture of themselves at the river.
- 3) Have each student come up in front of class, share their picture and tell the class about it.
- 4) Then have students place their drawing on the River Mural.





Assessment note: use the **Assessing River Fieldtrip** to assess the field trip. You can use a system of points by assigning a number of points to each item in the score column and then totaling. (3=exemplary, 2=proficient, 1=needs improvement, and 0=not evident) For a more informal assessment, you can use a system of checks, and write comments as necessary. Let students know in advance how they will be assessed during their field study.

## Reinforcement & Enrichment

Have students construct a group poem about the river. Each student gets two half-sheets of paper. On one half-sheet, they should write one verb, noun or adjective that describes the river. On the other half-sheet of paper, students should write one verb, noun or adjective that describe how they felt on their river field trip. Have the groups from the field trip get back together to arrange all of their half sheets together to create a poem. Groups then share their poem with the class.

## State Standards

### Illinois

**3.C.2a** Write for a variety of purposes and for specified audiences in a variety of forms including narrative, expository and persuasive writings

**4.A.2c** Restate and carry-out a variety of oral instructions

**12.B.2a** Describe relationships among various organisms and their environment.

**12.B.2b** Identify physical features of plants and animals that help them live in different environments

**13.A.2a** Demonstrate ways to avoid injury when conducting science activities

### Indiana

**Science 3.1.2** Participate in different types of guided scientific investigations, such as observing objects and events and collecting specimens for analysis

**Science 3.1.3** Keep and report records of investigations and observations using tools, such as journals, charts, graphs and computers

**English 3.5.2** Write descriptive pieces about people, places, things or experiences that: develop a unified main idea, use details to support the main idea

# River Field Trip Assessment

**Student's Name** \_\_\_\_\_

**Date** \_\_\_\_\_

Criteria	Score/Check	Comments
1) Shows curiosity about and consideration for river environment		
2) Listens to and follows safety rules and all teacher directions		
3) Uses careful observation skills (using Field Guide as a tool) during River Walk		
4) Accurately records observations on "Checklist of River Plants and Animals"		
5) Participates in group discussion after River Walk (makes hypotheses about absent plants and animals)		
6) Makes predictions about what lives in the river (before Macroinvertebrate Investigation)		
7) Demonstrates observation skills, using bug boxes and/or two-way microscopes (during Macroinvertebrate Investigation)		
8) Identifies river organisms using Identification Sheets (optional)		
9) Identifies river food chains (recognizes and discusses how plants and animals are related)		
10) Completes postcard accurately, including drawing and written description of river experience		
11) Participates in follow-up activity(ies) back in classroom		





## LESSON 8: river field trip

# what we found at the river

Fill in the following:

Check the correct box:

Plant or Animal Name	Where did you find it?	List one of its adaptations.	I saw the plant or animal	I saw the animal's track	I saw the animal's home	I saw the animal's scat





## LESSON 8: river field trip

# new plants & animals discovered at the river

**Draw**

**Describe** (include an adaptation)

**Draw**

**Describe** (include an adaptation)

**Draw**

**Describe** (include an adaptation)



# culminating river project

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## Option 1

Students will share their knowledge of the unit by creating a book that is both expository and fictional. It will have 2 parts. When you read it going one way it will be a report and have:

- facts about the river
- river plants and animals and their adaptations
- food chains and food webs of the river environment

Turn it over and read the other direction to enjoy a fictional story about a river animal in a river setting.

Students will use the attached checklist as they design their book. A scoring rubric is also included.

## Option 2

Students will share their learning about river plants and animals and their adaptations and food chains and food webs of the river through a choice project:

Choices include:

- poster
- brochure
- book
- song
- slide show (hyperstudio)
- plays, skits,
- nature collection
- choice \_\_\_\_\_

These projects will have a checklist to use as they are being designed and a scoring rubric.

Finished projects can be displayed and shared at a "river fair".





# student checklist for book project

Name \_\_\_\_\_

Date: \_\_\_\_\_

## **Part 1: Expository**

You will write an informative report.

You must include facts about and examples of:

- A river and its environment
- The plants and animals of the river environment
- Plant and animal adaptations
- Food chains and food webs in or around the river

## **Part 2: Fictional**

You will create a fictional story about an animal(s) that lives in a river environment.

Your story needs to have:

- Characters : river animals
- Setting: river environment
- A plot
- Your feelings about the river environment

## River Book Assessment

**Student's Name** \_\_\_\_\_

**Date** \_\_\_\_\_

<b>Criteria</b>	<b>1 point</b>	<b>2 points</b>	<b>3 points</b>
Cover design: title, author, illustrator	Incomplete	Missing a component	All components complete
Information: • River environment • Plants & animals • Adaptations • Food chains & webs	Incomplete Unorganized	Missing a component  Some organization, Partially edited	All components detailed and clear  Focused, Organized, Detailed, Edited
Fictional story: • Characters • Setting • Plot • Student feelings	Incomplete Confusing	Missing a component Few details	Story is easy to follow Has many details
Diagrams/Illustrations	Incomplete Messy	Diagrams and/or pictures are present, but lacking details	Easy to read and understand  Attractive, detailed

**Comments:**







culminating river project

# student checklist for river project

Name \_\_\_\_\_

Date: \_\_\_\_\_

You may choose from a variety of projects for your final project about river plants and animals. All projects must include the following information:

- What a river is, what it does, and what it looks like
- Description of a river environment: what lives in and around it
- The importance of the river to people, plants and animals
- What an adaptation is, examples of river plant and animal adaptations and how they help plants/animals survive in their river habitat
- What a food chain and food web are and descriptions of those found in a river environment
- Your feelings about the river environment.

My choice project is:



## River Project Assessment

**Student's Name** \_\_\_\_\_

**Date** \_\_\_\_\_

Criteria	1 point	2 points	3 points
<b>Information:</b> <ul style="list-style-type: none"> <li>• River environment</li> <li>• Plants &amp; animals</li> <li>• Adaptations</li> <li>• Food chains &amp; webs</li> </ul>	Incomplete Unorganized	Missing a component  Some organization, Partially edited	All components detailed and clear Focused, Organized, Detailed, Edited
Importance and feelings about the river environment and its plants and animals	Incomplete Confusing	Missing a component Few details	Examples of importance Has many details Includes feelings
Project	Incomplete  Messy	Lacks details  May have minor edits	Easy to read and understand  Attractive, detailed, edited

**Comments:**

