

TEACHER GUIDE TO THE
2018-2019 Every Student Initiative Field Trips



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Introduction

Please read through this document at least once before arriving at the museum for your field trip.

Every Student Initiative

The Every Student Initiative (ESI) is an ambitious new program to bring every student in Central Illinois to the Peoria Riverfront Museum every year. With hands-on learning through objects, a Giant Screen Theater, Dome Planetarium, and rotating exhibits, the Peoria Riverfront Museum is a great place for students to learn in a new environment. ESI supports the museum's mission to encourage life-long learning in students of all ages while connecting them to their community at large.

The Every Student Initiative is privately funded, allowing donors to help their communities by sponsoring field trips to the Peoria Riverfront Museum.

With the Peoria Public Schools, the Barton Family Foundation has sponsored curriculum-related field trips for every student in grades K-8. The field trips are scheduled throughout the year to coincide with the curriculum the Museum can match best. Each trip includes a visit to the Giant Screen Theater or Planetarium and a guided gallery tour. The specific show and gallery are picked based on the current curriculum during that quarter.

This is an excellent opportunity for students to explore what their community has to offer and experience their classroom curriculum in a unique way.



If you have any questions, comments, or concerns, please contact:

Holly Johnson

Every Student Initiative/Group Tours Coordinator

(309) 863-3013

hjohnson@peoriariverfrontmuseum.org

Museum Policies & Expectations

About this guide:

- This guide is intended to help give an overview of your grade level's specific field trip along with pre and post visit activities to help integrate the trip into the classroom.
- Please review this guide prior to your scheduled field trip to ensure a smooth experience.

Arrival/Check-In:

- Please **confirm your final numbers** (students & chaperones) with Holly Johnson **5 days prior** to your visit.
- Do your best to **ARRIVE ON TIME!** Tours are carefully scheduled, and arriving on time makes the day go easier for both you and your students.
 - "On Time" is defined as arriving **5-10 minutes before your first scheduled program** to allow for transition time (e.g.: check-in, bathroom breaks, etc.)
- Upon arrival, one leader should check in at the front desk to report the final tally of students and adults. It is important that you know your total numbers before coming to the front desk. This will ensure your group starts promptly at your designated time.
- Rolling bins will be provided to your group upon arrival to store items like sack lunches and/or coats. We cannot provide cooling or heating services for lunches.
- A museum host/educator will greet the group in the lobby and give a brief orientation.

Bus Loading/Unloading Zones:

- Buses can load and unload at the front entrance of the museum at 222 SW Washington Street. There is a drop-off lane directly in front of the museum.
- There is no on-site bus parking; buses can park under the Bob Michel Bridge.
 - A bus driver map is available [online](#), or at the front desk.





Group Orientation:

- Upon your arrival at the museum, a staff member will briefly explain the museum rules, review your group's specific schedule, and provide chaperones with maps, activity sheets, and gallery guides as needed.

Chaperone Policy:

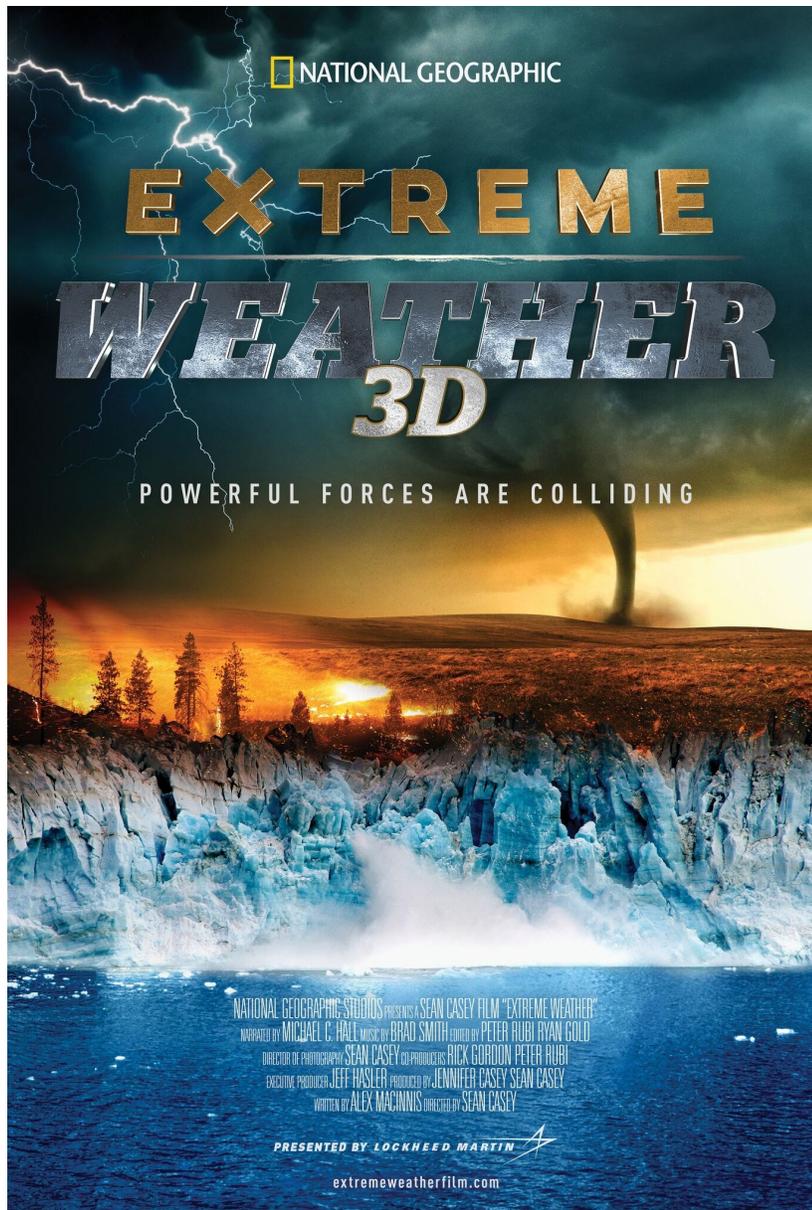
- Peoria Riverfront Museum recommends one chaperone for every five students; all attending adults are considered a chaperone.
- Chaperones arriving separately can park in the museum parking deck for free.
- All chaperones should be made aware of the tour's itinerary.
 - Chaperone guides are available on the museum's website; please make use of these.

Museum Rules:

Our goal is to provide a successful learning environment for all students. **You can help to create that environment by clarifying our behavioral expectations with your students both before you arrive AND by helping us enforce those expectations during your visit.** During your group orientation, a staff member will remind your students of the following rules:

- Walk in the museum. No running.
- Use indoor voices.
- Many of our exhibits are "hands-on," but some are not. We'll help your students to know the difference.
- No food, drink, candy or gum in the galleries.
- Respect others in your group as well as other museum visitors and staff.
- Teachers and chaperones must stay with their groups at all times.
- Photography is permitted in some galleries. Please ask your host for details.

Element 1: Giant Screen Theater: Extreme Weather



Get closer than you've ever been to collapsing glaciers, out-of-control wildfires, and tornado-whipped debris while discovering the surprising connections among these powerful forces.

Watch a trailer here: <https://www.youtube.com/watch?v=yrOYxLt9SCI>

Element 2: Illinois River Encounter



ILLINOIS RIVER ENCOUNTER

Learn the story of the Illinois River in this unique gallery. As you enter, you'll see a 400-gallon aquarium containing native fish species from the Illinois River. In the main exhibit, along one side, learn about the natural history of the river from the time of the Kankakee Torrent more than 14,000 years ago until the present. The opposite side tells the story of how humans have harnessed and changed the river.

Topics & Interactives found in the Gallery:

- Origins of the River: Information about the Kankakee Torrent and the native peoples who lived along the Illinois River
- River Ecosystems: Three dioramas show native plants and animals
- Fishing: Learn about native and invasive species, the shell-button industry, and commercial fishing
- Hunting and Trapping: See a "River Rat" cabin, a duck blind, and learn the history of hunting along on the river
- Tomorrow's River: Learn about groups working to improve the river environment, view a live feed to the Emiquon National Wildlife Refuge
- The River as Highway: Columbia riverboat disaster, barge experience, pristine river model
- Canals and Locks: navigating the Illinois River canal, wicket dam interactive, lock interactive



PEORIA
RIVERFRONT
MUSEUM

Educator Preview Pass

Preview the museum before planning your field trip! Educators are invited to come to Peoria Riverfront Museum and visit the galleries and see the Dome Planetarium shows* at no cost.

Print out this pass and bring it and your official school ID to the ticket desk in the main lobby. This pass is good for free admission for one educator.

**Applies to our regularly scheduled public shows only.*

INFO BELOW MUST BE FILLED OUT FOR FORM TO BE VALID

Name _____

School _____ Grade(s) Taught _____

City _____ Email _____

Peoria Riverfront Museum
222 SW Washington Street | Peoria, IL 61602
309.686.7000 | www.PeoriaRiverfrontMuseum.org

Pre-Visit Activity: Ecosystems: Food Web Game!

Introduction:

Students will be learning about ecosystems around the Illinois River on their field trip to the Peoria Riverfront Museum. A great way to examine a new ecosystem is by creating a food web. A food web shows how living creatures interact with each other in a environment. This activity is to familiarize your students with the animals near river environments with a fun game. If you would prefer to have this activity be a quiet desk activity, have the students draw their food web instead of playing the game.

Materials

Notecards

Yarn/String (Long enough to connect everyone to the web)

Tape

Instructions

1. Lead your students in a discussion about the different kinds of living organisms in a river environment. Come up with at least as many as you have students. Once you have enough animals, discuss what kind of diets those organisms have. Is the organism an autotroph or a heterotroph? If it's a heterotroph is it a carnivore? Herbivore? Omnivore?
2. Once you have all of your organisms, assign one to each student by writing it on the notecard. Make the notecard into a "nametag" by taping it to their shirt. Have the students stand in a circle.
3. Start the game with you, the teacher, standing in the circle with the students. Explain that you will now create a food web using the organisms you discussed earlier. The teacher is assigned the sun. Keeping ahold of the end of the string, toss the ball of yarn to the student that has an organism that gains energy from or "eats" sunlight. You and that student are now connected on the food web.
4. That student now picks another student's organism that either gives or takes energy from their own. (IE, Plants are eaten by herbivores or omnivores, carnivores eat meat, an animal's body can serve as food for bugs or fungi, etc.)
5. Continue this process until every student is connected to another by the yarn. If students get stuck, discuss their organism's diet to help them pick an organism to which it connects.
6. Once the students are all connected, remind them that an ecosystem is simply a complex chain of interaction between organisms and their environment. You have simulated only one part of that complex interaction by creating a food web. Gather the yarn back up and send the students back to their desks.

In-Visit Activity: Ecosystems: Creating a food web in the Illinois River Encounter

Introduction

This is intended to be a partner worksheet activity in the Illinois River Encounter Gallery. Students will receive a clipboard, pencil, and worksheet in the gallery to complete the activity. A guide from the Museum will be there to help transition and introduce students to the activity. As the students will be taking the worksheet with them, this may be used for extra credit or as an assignment back at school.

The activity is intended to connect students to learning about the ecosystems via food web near their local river. The worksheet is found on page 10 of this packet

Instructions

Students will be led into the River Gallery by a Museum guide, given pencils, clipboards, and the worksheet per pair of students. The guide will introduce the activity, then stay to help the students and the teacher finish the activity. Students will be creating a food web from the three different Illinois ecosystems represented by dioramas in the gallery.

Illinois River and Ecosystem Information

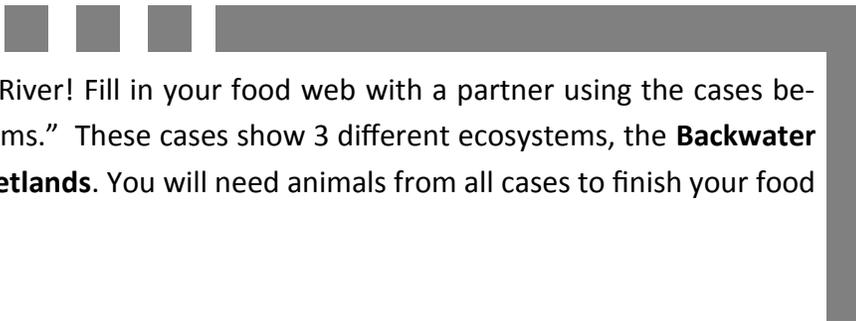
The Illinois River is a principal tributary of the Mississippi River and is 273 miles long. It runs from Grundy County, just south of Joliet, to Grafton, IL, which is north of St. Louis. The Illinois River was very important to the Native Americans and formed one of the strongholds of the Illinois Confederation. Now, it serves as the basis for the Illinois Waterway, which connects the Great Lakes to the Mississippi River. The Illinois River as we know it today was formed by a catastrophic flood known as the Kankakee Torrent. The melting Wisconsin Glacier created a giant lake over Indiana. As the melting glacier overfilled the lake, its dam broke, sending the entire lake flooding down the Illinois River in a matter of days. Due to that, the Illinois River has a much larger channel than what it needs today.

Bottomland Forests are large wooded areas that border swamps or rivers. They cover about 809,000 acres of land in Illinois. Bottomland forests are frequently flooded, but may lack continuously standing water. Depending on how often the bottomland forest floods, the understory (the plants closest to the ground) might look different. With lots of flooding, the understory would be full of wood debris and wet logs, while areas with less flooding might have a greater variety of plants.

Floodplain Wetlands are a wetland, characterized by an area where water sufficiently saturates or covers the soil for most of the year, including during the growing season, that occurs in a low-lying area near a river that frequently floods. Because of their unique blend of water and land, wetlands may support aquatic and terrestrial species. Floodplain wetlands help keep rivers healthy and thriving, providing homes, food, and water filtering for animals living within it.

Backwater Lakes are a part of a river in which there is little or no current. It can either be backed up by the tide or an obstruction, like a dam, or simply be an alternate branch of the river. Since the river's main course holds the strongest current, backwaters are usually shallow without much movement.

Food Webs!



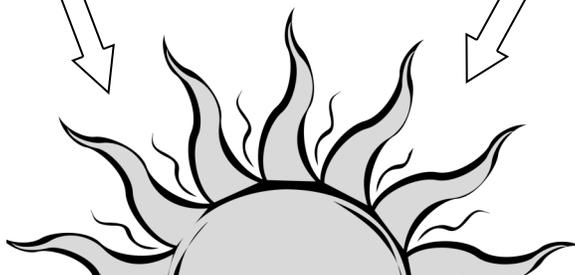
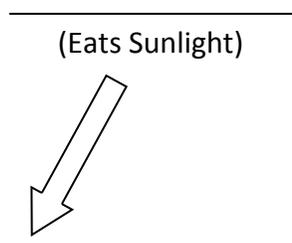
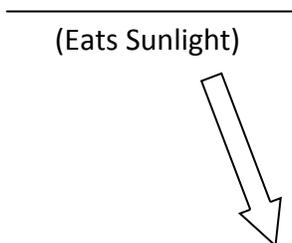
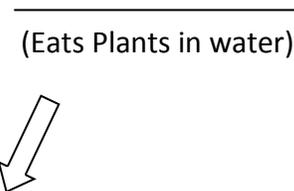
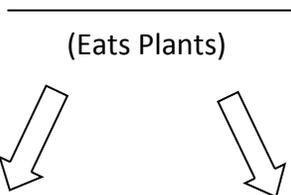
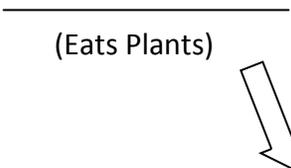
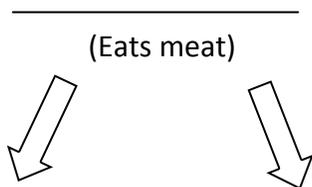
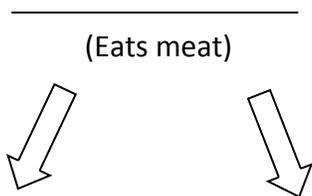
Explore different ecosystems near the Illinois River! Fill in your food web with a partner using the cases behind the wall titled "One River, Many Ecosystems." These cases show 3 different ecosystems, the **Backwater Lakes**, **Bottomland Forests**, and **Floodplain Wetlands**. You will need animals from all cases to finish your food web.

Definitions:

Ecosystem: A community of living creatures living and interacting with each other and their physical environment.

Food Web: A way to see who eats what in an ecosystem.

Examples (These are not answers on your sheet!): An owl eats a mouse, a rabbit eats grass, a bird eats bugs or plants.



Post-Visit Activity: Extreme Weather: Tornado in a Bottle!

Introduction

In the movie Extreme Weather, you watched 3 different kinds of extreme weather– Wildfires, tornadoes, and collapsing glaciers. This activity will focus on tornadoes, something that we can experience in Central Illinois. Students will be learning about the awesome power of the tornado and creating their own tornado vortex that can easily be seen in a jar.

An alternate way to do this activity with two bottles can be found here: <https://www.stevespanglerscience.com/lab/experiments/soda-bottle-tornado/>

Activity Materials

1 clear plastic bottle with a cap per child

Water (3/4ths of the way up the plastic bottle)

Glitter (to make tornado easier to see. Can also put in small objects or food coloring)

Dish soap (a few drops per child)

All about Tornadoes!

Remind your students about tornadoes by watching one of these video resources, then going over these questions:

<https://www.youtube.com/watch?v=-s3UwOq1P1E>

https://www.youtube.com/watch?v=lmWh9jV_1ac

What is a tornado?

A tornado is a violently rotating column of air that descends from a thunderstorm.

How are tornadoes formed?

A tornado is formed when a thunderstorm has strong updrafts within it that begin rotating. The funnel of rotating air begins to suck up warm air from the ground, growing longer and stretching towards the ground. Once it touches the ground, the funnel of air becomes a tornado.

Where are tornadoes most commonly found in the United States?

Tornadoes are most commonly found in an area called Tornado Alley, which stretches across from Colorado to Missouri and from North Dakota to Northern Texas. However, every state has experienced a tornado since 1950!



Which country has the most tornadoes per year?

The United States experiences the most tornadoes, with an average of 1,000 tornadoes per year. But, most countries around the world experience tornadoes.

How fast do tornadoes rotate? How wide can they get? How long do tornadoes usually last?

Tornadoes can rotate between 65-250 mph. Tornadoes can range from just a few feet to 500 feet wide. The largest tornado ever recorded was in Oklahoma, with a width of 2.6 miles. Tornadoes usually last between 1-10 minutes.

What season is the best for tornadoes?

The best seasons for tornadoes are spring and fall during the evening.

How do we rate how strong tornadoes are?

Tornadoes destruction is rated on a scale called the Fujita Scale of Tornado Intensity:

SCALE	WIND SPEED	POSSIBLE DAMAGE	Enhanced, Operational Fujita Scale
F0	40-72 mph	Light damage: Branches broken off trees; minor roof damage	EF0 65-85 mph
F1	73-112 mph	Moderate damage: Trees snapped; mobile home pushed off foundations; roofs damaged	EF1 86-110 mph
F2	113-157 mph	Considerable damage: Mobile homes demolished; trees uprooted; strong built homes unroofed	EF2 111-135 mph
F3	158-206 mph	Severe damage: Trains overturned; cars lifted off the ground; strong built homes have outside walls blown away	EF3 136-165 mph
F4	207-260 mph	Devastating damage: Houses leveled leaving piles of debris; cars thrown 300 yards or more in the air	EF4 166-200 mph
F5	261-318 mph	Incredible damage: Strongly built homes completely blown away; automobile-sized missiles generated	EF5 over 200 mph

How do we stay safe from tornadoes?

We can stay safe from tornadoes by taking tornado warning seriously and taking cover in secure areas away from windows, like tornado shelters, basements, or bathrooms.

After going over the tornado information, introduce your students to the activity:

In your activity, students will be examining the tornado vortex, except in water form! While there are many instances of this activity, your students will be creating an individual tornado in a plastic water bottle. If possible, have students bring an empty water bottle to class WITH the lid. Just make sure to have a few extra in case students forget to bring a water bottle.

Instructions:

1. Each student should fill their water bottle about 2/3rds of the way full with water.
2. Put a couple drops of dish washing liquid in each water bottle, then add glitter or food coloring, if applicable, to help students see their vortex more easily.
3. Put the cap back on the bottle, making sure it is secure before starting the experiment.
4. Now your students are ready to create their vortex! Flip the bottle upside down, so the students are holding the bottle by the neck. Quickly spin the bottle in a circular fashion for a few seconds. Stop to observe if there is a vortex in the bottle!

Explanation:

This “tornado in a bottle” is a vortex caused solely by centripetal force, caused by you spinning the bottle in a circular motion. Centripetal force is simply a force that acts on a body moving in a circular path and is directed towards the center around which the body is moving. Basically, it makes sure the object on a circular path stays moving in a circle. Some other examples of centripetal force are space objects in orbit, tetherball, lassos, spinning tops, riding a graviton (a type of fair ride that spins you so fast your body is pushed to the wall and stays there, even when the floor drops out). Anything that spins experiences centripetal force.

Other vortexes in nature include waterspouts (tornadoes formed over water), hurricanes, Jupiter’s Great Red Spot, and whirlpools. While these are all vortexes, they are created in a variety of different circumstances than the vortex created in your water bottle.

