

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.)

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.

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.

Every Student Initiative Curriculum by Year

Topics covered by grade during the 2017-2018 School Year

Kindergarten:

Illinois River Encounter: Plants, Animal Needs

Giant Screen Theater: *Tiny Giants*: Plants, Animal Needs, Seasons and Hibernation

1st Grade:

Illinois River Encounter: Habitats, Plants, Animals

Giant Screen Theater: *Flight of the Butterflies*:

Habitats, Plants, Animals

2nd Grade:

Celebrate Illinois: 200 Years in the Land of Lincoln:

Immigration, fighting for a cause

Giant Screen Theater: *Amazon Adventures*:

Ecosystems, Biological evolution

3rd Grade:

Leuckart Zoological Wall Charts and *Illinois River*

Encounter: Animal Classification

Planetarium: *Uniview and Sensational Sound Show*:

Solar System, Light and Sound

4th Grade:

Emergence: The National Arts of Central Illinois: Personal Narratives

Planetarium: *Dynamic Earth*: Environment, Energy, Transfer of forces.

5th Grade:

Celebrate Illinois: 200 Years in the Land of Lincoln:

War and Reconstruction, Native Americans

Planetarium: *Cosmic Colors*, Light and Sound, Space Science

6th Grade:

Illinois River Encounter (Kankakee Torrent, Stream

Table): Earth's surface, 'The Dynamic Earth'

Giant Screen Theater: *Mysteries of China*: Ancient world, China

7th Grade:

Celebrate Illinois: 200 Years in the Land of Lincoln:

State of Illinois, guided by a cause

Planetarium: *Uniview: Tour of the Solar System*: Solar System/Space exploration

8th Grade:

Celebrate Illinois: 200 Years in the Land of Lincoln:

Roaring Twenties

Giant Screen Theater: *Normandy 1945: D-Day*, WWII

Holocaust Memorial: Anne Frank's legacy

Topics covered by grade during the 2018-2019 School Year

Kindergarten:

Dragons, Unicorns & Mermaids: Mythic Creatures: Stories, Nursery Rhymes, Fables.

Giant Screen Theater: *Tiny Giants*: How plants and animals change the environment.

1st Grade:

American Decoy: The Invention: Plants and Animals

Planetarium: *Earth Moon Sun*: Astronomy

2nd Grade:

American Decoy: The Invention and 10 Medical Inventions that Changed the World: Engineering and Invention

Planetarium: *Legends of the Night Sky: Orion*: Greek Mythology

3rd Grade:

Illinois River Encounter: Ecosystems

Giant Screen Theater: *Extreme Weather*: Weather and Climate

4th Grade:

Tiffany: The Collection of Don Shay and *Rodin: The Work of Many Hands: Poetry*

Planetarium: *Dynamic Earth: Forces that shape the earth*

5th Grade:

Dragons, Unicorns & Mermaids: Mythic Creatures: Eastern and Western Hemispheres

Planetarium: *Black Holes: Space science*

6th Grade:

Stream Table: Water and atmosphere

Holocaust Memorial: Facing Fear, Dealing with Disaster, Decisions that matter

Giant Screen Theater: *Oceans: A Blue Planet: Oceanography*

Topics covered by grade during the 2019-2020 School Year**Kindergarten**

Mangelsen Wildlife Photography: Animal Habitats

Giant Screen Theater: *Tiny Giants* or *Superpower Dogs*

1st Grade

Da Vinci-The Genius featuring the Secrets of Mona Lisa: We are Scientists

Giant Screen Theater: *Flight of the Butterflies* or *Amazon Adventure*

2nd Grade:

Da Vinci-The Genius: Featuring the Secrets of Mona Lisa: Engineering/Inventing

Planetarium: *To the Moon and Beyond* or *The Solar System and its Robotic Explorers*

3rd Grade:

Illinois River Encounter: Animal Classifications

Giant Screen Theater: *Wild Africa* or *Oceans 3D*

4th Grade

MOON or *Vantage Points: Contemporary Photography: Personal Narratives*

Planetarium: *Legends of the Night Sky* or *Storybook Sky*

7th Grade:

Disney: The Collection of Steve Spain: Perception and reality

Planetarium: *Uniview: Around the Universe: Space Science*

8th Grade:

The Street: Roaring Twenties

Holocaust Memorial: Diary of Anne Frank

Giant Screen Theater: *Normandy 1945: D-Day: WWII*

5th Grade

MOON or *Vantage Points: Contemporary Photography: Personal Narratives*

Giant Screen Theater: *Apollo 11: First Steps* or *Dream Big*

6th Grade

Stream Table: The Dynamic Earth

Holocaust Memorial: Dealing with disaster/anti-bullying

Giant Screen Theater: *Extreme Weather* or *Mysteries of China*

7th Grade

Da Vinci- The Genius: Featuring the Secrets of Mona Lisa: Art history and simple machines

Planetarium: *Uniview: Around the Universe* or *Tour of the Solar System*

8th Grade

The Street: Bronzeville to Harlem: Roaring Twenties

Holocaust Memorial: Diary of Anne Frank

Giant Screen Theater: *Normandy 1945: D-Day: WWII*

Giant Screen Theater Option 1

Mysteries of China



Mysteries of China captures one of the great archaeological events of the modern age, telling the story of ancient China, the First Emperor, and the literal foundation of the China we know today. Through the lens of this groundbreaking discovery, we explore an ancient time when a fierce warrior brought together a warring nation and how an accidental discovery changed everything we know about China's past.

The discovery of the Terracotta Warriors and the Tomb of the First Emperor offers a unique time capsule into the past, revealing many things about this great country, which we use to tell a larger story of the growth of China into a true superpower. From modern China to ancient China and back again, the film is a visual adventure, using beautiful aerial photography and cutting-edge time-lapse techniques to reveal great majesty, tragedy, splendor and growth in a nation that continues to excel quickly into the future

Questions to ask your students about this movie:

- How old is China as a country?
- Who built the terracotta army?
- Why was the terracotta army built?
- Who found the tomb with the terracotta army inside of it?
- Each one of the terracotta figures is unique. How long did it take for the army to be built?
- Do you think the terracotta army did its job for the first emperor?

Giant Screen Theater Option 2

Extreme Weather



Hear the rumble of ice blocks shearing off the edge of a glacier. See the destructive power of a tornado's swirling winds. Watch flames devour a forest as if it were so many matchsticks. *EXTREME WEATHER* is an up-close look at some of the most astonishing and potentially deadly natural phenomena, tornadoes, glaciers, and wildfires while showing how they are interconnected and changing our world in dramatic ways.

Questions to ask your students about this movie:

- What is a tornado?
- What is a glacier?
- What is a wildfire?
- What makes these natural disasters dangerous?
- Why do we study these natural disasters?
- How do people study these natural disasters?
- Is this something that you think you could do? Why or why not?

Element 2: Illinois River Encounter and Illinois River Lab



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 interactives

ILLINOIS RIVER LAB

The Illinois River Lab contains the Museum's Stream Table, a place for students to observe and interact with a small model of river formation. Students can see, in real time, how a river forms through erosion or human activity.

Element 3: Holocaust Memorial



In 2001 in central Illinois plans were initiated to encourage a better understanding of the indelible lessons created by the horrors and magnitude of the number of lives lost during the Holocaust.

How could we visually teach our children and future generations about this dark chapter in human history? How does one show the staggering numbers of 6 million Jews exterminated and 5 million enemies of the state who lost their lives?

Undaunted by such an immense undertaking, a diverse group of people united to form ***“The Peoria Holocaust Memorial Button Project: A Prevention, Education, and Awareness Project.”***

The visual image selected: The simple button. These would represent each life lost in the Holocaust. Thus was born The Button Project: *“Joining Our Past to Our Future.”*

WHY BUTTONS?

- Each button is unique — like each person.
- Buttons hold things together, an analogy to each individual who helped hold together their family, their community, and their society.
- Buttons once opened, left the people vulnerable.
- Buttons were a part of all the clothes left behind at the gates of the concentration camps, ghettos, and slave camps.
- Buttons are enduring — they last long after garments have faded and unraveled to remind us of the lessons of the Holocaust.
- Buttons are round and symbolize the cycle of life.
- Buttons are symbolic of *“Joining Our Past to Our Future.”*



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: Holocaust Memorial: Henry Friedman



PEORIA HOLOCAUST MEMORIAL

Introduction:

As the survivors of the Holocaust get older, it becomes even more important to remember their stories. At the Museum, your students will learn about children who were targeted under the Nazi regime and visit the Peoria Holocaust Memorial with a docent. To help your students prepare to learn about the stories of children who may or may not have survived and what they experienced, they will listen to Holocaust Survivor Henry Friedman talk about his own experiences as a child during World War II.

Materials:

- YouTube video of “Kids Meet a Holocaust Survivor | Kids Meet | HiHo Kids” (Approx. 10 minutes):
<https://www.youtube.com/watch?v=qZS0YlpCS7I>
- Video question worksheet
- (Optional) Additional information about Henry Friedman: <https://www.holocaustcenterseattle.org/survivor-voices/henry-friedman>
- Additional information about the Holocaust: <https://encyclopedia.ushmm.org/content/en/article/introduction-to-the-holocaust>
- Additional information about the Holocaust: <https://www.youtube.com/watch?v=qnEIlhLF6ww>

Activity:

1. Before your students begin watching the video, have them fill out the first part of their worksheet– they should write what they know and what they would like to learn about the Holocaust.
2. If there are many questions about what the Holocaust was and how it occurred that would prevent your students from understanding Henry Friedman’s experiences, use the additional information about the Holocaust resources to give them a brief overview.
3. Have your students watch the video, answering the questions on their worksheet.
4. After the video, go over the questions and their answers. You can guide a brief discussion about the content of the videos, how it made them feel, before turning their worksheet over. On the back of the worksheet are response questions, aimed at helping the students reflect on what they heard. Give them time to answer these questions.

Additional Activity: After watching the video and discussing the questions, have your students take some time to quietly reflect and either write or draw a response to Henry and his story.

Name: _____

Kids Meet a Holocaust Survivor Worksheet

The video you will watch has a Holocaust survivor, Henry Friedman, describe his experiences in escaping the Holocaust. In the space provided below, write what you know and what you would like to know about Henry, his experiences, or about the Holocaust in general.

What I Know

What I Want to Know

Answer these questions while watching the video "Kids Meet a Holocaust Survivor."

1. When and where was Henry born?

2. Henry states at the beginning of the Holocaust there were 10,000 Jewish people living in his town. How many survived at the end of the Holocaust? _____

3. When did Henry start speaking about the Holocaust? Why did he start?

4. Where did Henry and his family hide to escape from being deported to a concentration camp?

5. How long did Henry have to hide in the barn? _____

6. How did Henry pass the time in the barn?

7. Why did Henry and his family have to leave their hiding spot?

8. Did Henry ever feel like giving up? _____

In Henry's story, he talks about the tough decisions that he, his family, and the Christian families hiding them had to face on a daily basis. Often, the decisions you make change the lives of those around you— for better or for worse. Try to think of what you would honestly do, if your life was in danger, when answering these questions.

1. Henry's family survived by hiding in small attics on another family's farm. Do you think you could have hidden a family like the Christian families did? What if you would be punished for helping?

2. The Christian family that hid Henry's family became very frightened when faced with the danger that came with helping hide Jewish people from the military. Why were they afraid? Would you have made the same decision that they did?

3. Can we still see the effects of the Holocaust?

4. Do you think the Holocaust can happen again?

5. What is something that you would like to ask Henry about his experiences?

6. What do you think the hardest part of Henry's experience was?

Kids Meet a Holocaust Survivor Worksheet ANSWER SHEET

The video you will watch has a Holocaust survivor, Henry Friedman, describe his experiences in escaping the Holocaust. In the space provided below, write what you know and what you would like to know about Henry, his experiences, or about the Holocaust in general.

Answer these questions while watching the video "Kids Meet a Holocaust Survivor."

1. When and where was Henry born? **1928 in Poland**
2. Henry states at the beginning of the Holocaust there were 10,000 Jewish people living in his town. How many survived at the end of the Holocaust? **88**
3. When did Henry start speaking about the Holocaust? Why did he start? **Henry started speaking about the Holocaust in 1983, because he read an article that claimed the Holocaust never happened.**
4. Where did Henry and his family hide to escape from being deported to a concentration camp? **Henry and his family hid on two farms owned by Christians. They hid in the barn's attic.**
5. How long did Henry have to hide in the barn? **18 months**
6. How did Henry pass the time in the barn? **He counted the straws in the roof and could watch the outside world through a small hole**
7. Why did Henry and his family have to leave their hiding spot? **The Christian family they were hiding with became scared after watching a Jewish family get executed and decided to poison Henry and his family to protect themselves from the military**
8. Did Henry ever feel like giving up? **No**

Pre-Visit Activity: Cloud in a Jar & Water Cycle Baggie

Introduction: At the Peoria Riverfront Museum, students will be able to observe the way water affects the surface of our earth through a Stream Table demonstration. The stream table simulates the formation of a river in only a few minutes, using water on a subtle incline flowing through plastigrit. The water cycle is a part of the forces that shape our world, including the creation of rivers through weathering and erosion.

Cloud in a Jar and the Water Cycle Baggie activities both demonstrate the water cycle, you can choose to either use both or just one, or another activity that includes a brief discussion on the water cycle.

Cloud in a Jar

Materials:

- Jar with lid (1 per group)
- 1/3 cup hot water (1 per group)
- Ice (A few pieces per group)
- Hairspray (Only need 1 spray per group)

Instructions:

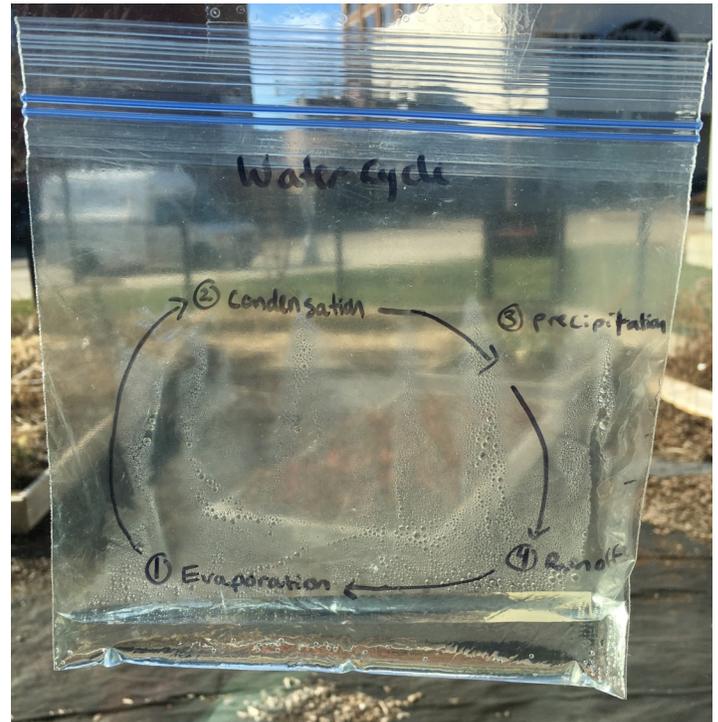
1. Divide your students into groups. Each group should have 1 jar, hot water, ice, and hairspray. Ask your students if they know how clouds are formed. Is it possible to make a cloud in a jar? What do you need to make a cloud?
2. After having your students predict the outcome of the experiment, have them pour the hot water into the jar. Swish the hot water around gently to warm the sides of the jar. The water, since it is warm, will start releasing water vapor.
3. Turn the lid upside down on top of the jar and place the ice cubes on top of it. Wait about 20 seconds, then lift the lid and quickly spray hairspray into the jar and replace the lid with the ice still on.
4. Now watch as the cloud forms in the jar. It might be difficult to see, as the water is clear, but when the lid is removed, there should be water vapor escaping from the jar.
5. Ask your students if they were correct with their answers. Was it possible to make a cloud in a jar? How did it work? Explain to your students that the cloud was formed by the warm water evaporating and rising in the form of water vapor. When the water vapor hits the cold air from the ice, it cools, and starts to condense. The water vapor then condenses around the small particles in the air, in this case, the hairspray, and forms the cloud.



Water Cycle Baggie

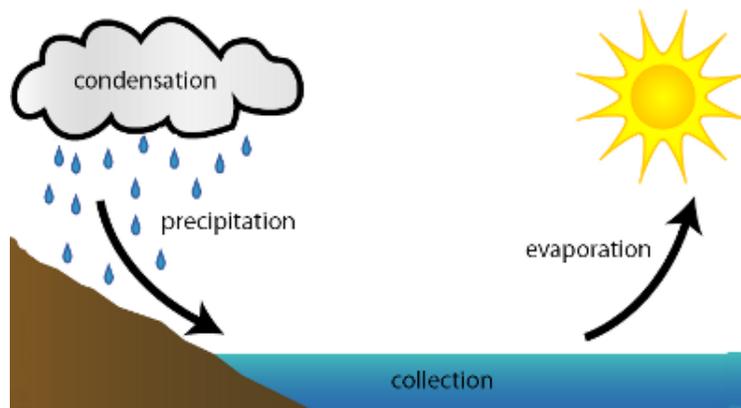
Materials:

- Sandwich baggie (1 per student)
- Permanent marker/Marker able to write on plastic baggies without smearing (1 per student, or have them share)
- Water
- Pencil
- Paper



Instructions:

1. Each student should have a plastic sandwich bag, marker, pencil, and paper.
2. Lead your students through a discussion of the water cycle. What are the 4 basic stages of the water cycle? (Condensation, Precipitation, Run-Off/Flow, Evaporation) What does each stage do? (Evaporation: Water turns into water vapor after being heated, rises. Condensation: Water vapor cools in the upper atmosphere, starts turning back into liquid water or ice, forming clouds. Precipitation: The gathered water droplets become too heavy and fall to the earth as rain, snow, sleet, or ice. Run-Off/Flow: Water on the earth before it evaporates once more. This becomes streams, rivers, oceans.) Remember, this is a very basic water cycle. Can your students think of different places water is stored or how it travels? How might that move?
3. Once your students are finished discussing, have them make a quick drawing of a water cycle, complete with labels for each part. This is going to be their rough draft for their baggie. Make sure you double check their work.
4. Now, your students can copy their water cycle—either very basic, like in the example, or complete with a little drawing—onto their plastic baggie. Fill with approximately 1/4th cup of water. Seal the baggie and tape to a window. This experiment works best on a sunny day, but students should, over time, see how the sun heats the water in the bag, the water condenses against the sides of the bag, and then run back down.



In-Visit Activity: Stream Table Demonstration

Introduction

Your 6th grade students will be experiencing a demonstration at the Stream Table in the River Science Lab. This is a hands-on demonstration will cover the topics of water, the water cycle, erosion, and weathering in the process of river formation. Erosion and weathering are simulated quickly via the Stream Table, which is an inclined table that uses water flowing through Plastigrit.

Safe Conduct Rules

1. All students (and chaperones if they wish to touch the table) must either use hand sanitizer or wash their hands before touching the Stream Table
2. Use inside voices
3. Do not throw Plastigrit or splash the water
4. Do not drink the water or eat the Plastigrit
5. Respect the presenter by listening to their instructions

The presentation will go over the following topics:

1. The water cycle. Rivers are a part of the water cycle, which helps reshape our physical earth. Students will be led through a brief overview on the different stages of the water cycle.
2. Erosion. Rivers are a force of weathering and erosion, which are constantly in the slow process of changing. Students will be able to observe the plastigrit on the table eroding from the force of the water in real time in a variety of ways.

Some additional topics, which depend on time and the presenter are:

1. Permeability. Water is able to find its way through small cracks to continue it's way down. Students will be able to observe this at the stream table by making an earthen dam or digging a "well."
2. Pollution. In conjunction with permeability, students will be able to see what happens when a contaminant (liquid watercolor) is placed in or near the river.

Post-Visit Activity: Erosion Labs

Introduction: At the Peoria Riverfront Museum, your students experienced the Stream Table, which demonstrated erosion and weathering via water. These erosion labs are intended to continue that thought of water weathering and erosion in a similar hands-on environment.

Erosion Lab 1

Acid Rain and Copper-Bearing Rocks

Acid rain is a type of precipitation that has higher levels of acid— typically caused by atmospheric pollution that can cause environmental harm. This lab will demonstrate how acid rain can effect copper-bearing rocks specifically. **This lab takes at least 1 day once the pennies are put into the acid rain to see the effects, so please take note!**

Materials:

- 1 copper penny per group
- Cups/Jars/Bowls/Container to hold the penny
- approx. 1 tsp of salt per group
- Vinegar (Enough to cover the penny, probably about 1/8th of a cup per group)
- A paper towel
- Marker



Instructions:

1. Put the penny in the container. To make “acid rain,” sprinkle the penny with the salt, then pour enough vinegar to cover the penny.
2. Observe after 10 seconds and record your observations. What do you think is happening?
3. Take the penny out of the vinegar/salt solution and place on paper towel without rinsing it off. Make sure to label your paper towel so you know which penny is yours. Write down a hypothesis about what you think will happen to your penny overnight.
4. Wait for a day, then take a look at your penny. What happened? Was your hypothesis correct? Record your observations.

What’s Happening?

As pennies age, the copper plating on the outside interacts with oxygen, forming copper oxide, which can be removed by a weak acid. In this experiment, vinegar and salt form the weak acid and dissolved the copper oxide coat on the penny. After 10 seconds, this is why the penny looks shiny and new.

The penny turned green without rinsing because the copper reacts with oxygen from the air and chlorine from the salt to create a compound called malachite, which is blue-green in color.

Erosion Lab 2

Water and Carbonate Rocks

Carbonate rocks are a type of sedimentary rock that contain a lot of carbonate minerals and include limestone and dolostone, which are made primarily out of calcite, aragonite, or dolomite. Carbonate rocks are easily dissolved in slightly acidic water. Alka-Seltzer tablets also contain carbonates and will be used to portray carbonate rocks in this experiment.

Materials:

- 2 Alka-Seltzer tablets per group
- Jar/Cup/Bowl/Container to hold water and tablets
- Timer/Clock
- Water



Instructions:

1. Look at Alka-Seltzer tablets and record observations about what they look like. Pick one tablet to be your control tablet and place it to the side. Make a hypothesis— what do you think is going to happen to the Alka-Seltzer tablet in the water?
2. After making your hypothesis, the other tablet should be placed in the container and have water poured over it. Record your observations. After 3 minutes, record your observations. Was your hypothesis correct? What happened to the Alka-Seltzer tablet?

What's Happening?

To simulate how carbonate rocks dissolve in water, Alka-Seltzer tablets are used because they also have carbonate in them. Alka-Seltzer tablets are a solid form of citric acid (vinegar) and baking soda. When they're in water, they dissolve and react, which releases carbon dioxide. This is exactly what happens when hydrochloric acid is introduced to limestone and dolostone. When acidic water hits limestone, it erodes faster and can create caves or sinkholes.



Erosion Lab 3

Rain Erosion on Rocks

Materials

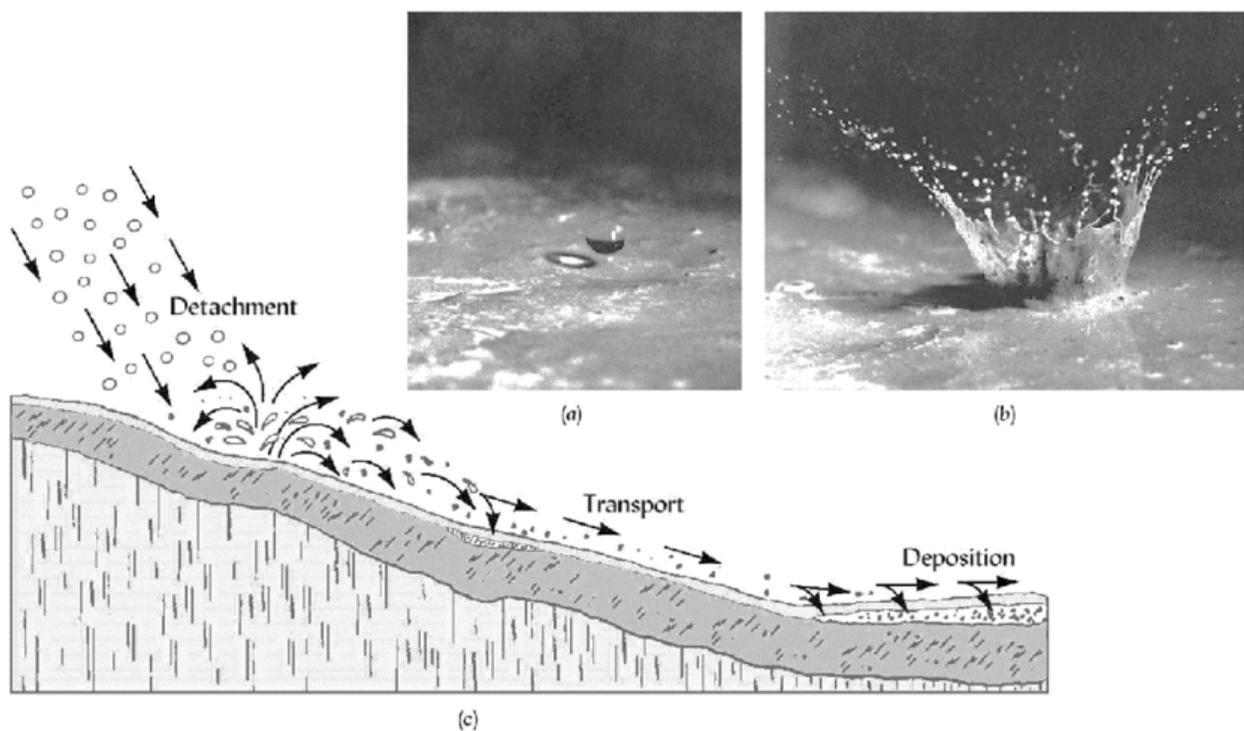
- 1-2 M&Ms or Skittles per group
- Pipette or Water Dropper
- Water
- Plate/Bowl to hold candy and water
- Cup for water

Instructions

1. Place candy, either M&Ms or Skittles on plate or bowl.
2. Using the pipette or water dropper, drop 10 drops of water on the M&M or Skittle from about 6 inches above the candy. After dropping 10 drops, stop and record your observation.
3. Repeat step 2 until you have dropped 50 drops of water on the candy.

What's Happening?

This is a form of physical erosion and is exactly what happens to the ground when it rains. As the droplets hit the rock, the impact forces tiny pieces of that rock to fly away. This is called Splash Erosion. However, since rain is the product of a lot of raindrops, they can oversaturate the soil and create runoff, where the water picks up and moves the particles off of the rock. This is Sheet Erosion. Over time, small cracks can start to form on the rock, creating Rill Erosion, which refers to the concentrated flow paths of water and particles through these small cracks.



Erosion Lab 4

Moving Water Vs. Still Water Erosion

Materials

- 2 jars with a lids (Make sure they can be tightly secured)
- 2 pieces hard candy (Like Jolly Ranchers) per group
- 2 pieces soft candy (Like soft mints) per group
- 2 M&MS per group
- 2 cups of cold water

Instructions

1. Put 1 piece of each type of candy into the two jars. You should have 3 pieces of candy in each jar– Hard, Soft, and M&M. Pour one cup of cold water into each jar, then carefully tighten the lids.
2. Pick one jar to be your control. Leave that jar on the table and don't move it. The other jar is your experiment– make sure the lid is on tightly, then start shaking the jar. Shake the jar for 30 seconds, then record your observations.
3. Repeat step 2 another 3 times. Record your observations.

What's Happening?

Moving water makes rock erode more quickly compared to still water! As water flows over rocks or sediment, it carries particles of that rock away, to deposit them elsewhere. The same thing happened to your candy rocks when you shook the jar, but much more quickly. The three different types of candy are the 3 different types of rock– Igneous (the M&Ms), Sedimentary (Soft candy), and Metamorphic (Hard Candy). Because they're different types of rock, they will be influenced by the moving water differently.

