

Leader Activity Guide



Any questions or comments on this Leader Activity Guide are welcome. Contact the Director of Education at:

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Produced by the Division of Museum Services and Interpretation



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To the Leader

Scouting and the National Park Service

The Girl Scouts of the U.S.A. and the National Park Service have a lot in common. Both organizations have a long heritage, beginning in 1912 and 1916, respectively. Both organizations appreciate and preserve nature, the environment and our nation's history. Both are recognized by their distinctive uniforms, badges, and emblems. Scouting and the National Park Service have common goals and missions, particularly in educating today's youths to be responsible and productive citizens. The ideas of scouting and national parks have since expanded to countries around the world.

The National Park Service offers a variety of experiences for Girl Scouts. Join us for exciting and fun-filled programs that will help your troop earn their badges, while scouting in the national parks.

User-Friendly Format

To prepare your scouts, use the two Pre-Visit Activities in this guide before you visit the Gateway Arch Riverboat. We also suggest you use the two Post-Visit Activities after your visit.



Program Description

When you look at a globe, you can see why Earth is called “the water planet.” More than two-thirds of the earth is covered in water. While water may appear to be plentiful, it is also in great demand. We turn on our faucet, wash our clothes, or jump in a pool without much thought about where the water came from or how it got there. While participating in the *Water Wonders* program, scouts will explore the amazing world of water. While traveling on the Gateway Arch Riverboat, your girls will focus specifically on the Mississippi and Missouri Watershed as water source for humans and as homes and food sources for a variety of other living things.

When your troop finishes the required Pre-Visit Activities (*It's in a Cycle*, *The Water You Drink* and *Just Add Salt*), participates in this program aboard the Gateway Arch Riverboat and completes the required Post-Visit Activities (*Not Enough?* and *Fixing It Up*), they will meet all the requirements for the Junior Water Wonders Badge. In addition, there is also a Jefferson National Expansion Memorial patch available to your Girl Scouts, for a nominal fee, to recognize their participation in this program.

As the leader of your group, you are a positive role model and an essential part of this program. Thank you for letting us share in the responsibility of teaching your Girl Scouts to make positive choices and helping them to be responsible and productive citizens.





The Water Cycle

Please share with your scouts:

The Water Wonder Badge explores the amazing world of water. Water is the most common substance found on earth, so much so that earth is called the water planet. More than two-thirds of the earth is covered by water and two-thirds of the human body is made up of water. By these standards, it sounds as if water is in abundance on our planet, but it is a limited resource, especially as the world's population continues to grow. We must be careful not to waste it because it is an essential part of life. All living things from the tiniest insect to the tallest tree need water to survive.

Water Wonders Requirement - It's in a Cycle

“There is no new source of water. All the water that was ever on this earth is still here today.” -unknown.

What is meant by this quote? Read it again. It means just what it says. The water on this planet in the 21st century is the same water and the same amount of water that was here from the beginning of time. The water that you drank this morning may be the same water your grandma used to wash her clothes sixty years ago. Or some prehistoric dinosaur may have drunk the very same water you used last night to take a bath. The process, by which earth's water is constantly recycled, is called the water cycle. Find the water cycle diagram on page 14 in the Appendix. Divide your troop into several smaller groups and give each group a copy. Allow time for each group to analyze and discuss the diagram.

Pre-Visit Activity #1

It's in a Cycle, Cont'd.

Use the water cycle diagram to answer the following questions.

1. Where does the process of condensation occur?
2. Water enters the atmosphere from the leaves of plants. What is this process called?
3. What do you need for evaporation to occur? (Think about a pot of boiling water, what causes the steam to rise from the pot?)
4. Name the two different places water is stored after it reaches the earth.
5. Water exists in several different forms, i.e. as a liquid (water), as a gas (steam, condensation), in what other form do we often see water?

(Answers can be found on page 15 in the Appendix.)



Explore a Career

Park rangers take care of national parks by protecting animals, the environment, and natural and cultural resources. They also teach visitors like you the story of their park and how you can help preserve and protect it. Listen to the ranger's stories and messages.



The Water We Drink

Share with your scouts:

As we all know, we need water to survive. Depending on conditions, a person can live no longer than a week without water. Doctors and health professionals tell us that, for our bodies to operate at their optimum performance, we should drink eight, eight ounce glasses of water each day. Fortunately for those of us in this country, our access to fresh, clean water is easy - we simply turn on our kitchen faucet. However, before the water enters our homes it must go through a highly developed water treatment system.

Water Wonder Badge Requirement - Just Add Salt

As you have learned the water we use in our homes is derived from nature's fresh water sources. However the majority of water on this planet is in the form of salt water. Even though we cannot drink it, salt water does have some usable qualities. Conduct the following experiment comparing salt water to fresh water.

Recipe for salt water: Mix 1 cup of water with 1 tablespoon of salt until the salt is completely dissolved.

Measure out an equal amount of tap water and do at least two of the following comparisons to find out which:

Boils first
Freezes first

Makes better soapsuds
Makes floating easier

Pre-Visit Activity #2

Water Wonder Requirement - The Water You Drink

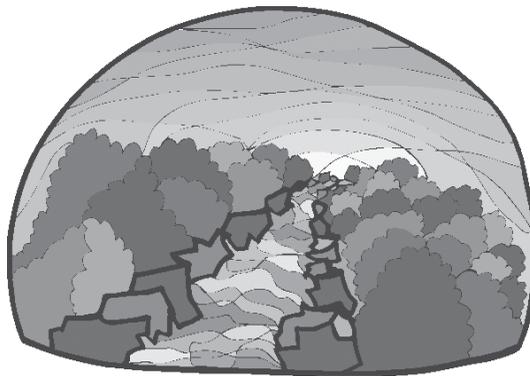
The liquid form of water exists on earth as either fresh water (i.e. rivers, streams, lakes), or salt water, as in the oceans.

The water we use on a daily basis is drawn from freshwater sources. As you learned in Pre-Visit Activity #1, all water on the earth is stored as either surface water or ground water. Depending on what part of the country, or state, or county you live in, your drinking water is drawn from different, but specific sources. Have the scouts work in groups or individually to complete the chart found on page 16 in the Appendix and learn about our fresh water sources. Bring your completed charts with you to the Gateway Arch Riverboat program and the park ranger will provide more information.

Did
You
Know?



The St. Louis Metropolitan Sewer District offers tours of the water treatment plant which serves the metropolitan area. Groups must be 4th grade or above.





Gateway Arch Riverboat

Boat Etiquette
Please read the instructions listed below to your scouts before boarding the Gateway Riverboat.

Registering

Upon arrival, register your group with the park ranger at the boat dock and share the information on Boat Etiquette with your group.

Briefing

Your scouts should have completed Pre-Visit Activities #1 and #2 and brought with them the completed chart from Pre-Visit Activity #2 - The Water You Drink.



Did You Know?

In the Museum Store at the Gateway Arch you can find a variety of books which help students learn about our environment.

The park rangers and riverboat crew are glad we are visiting with them today. They need our help to preserve national parks and their resources as well as protect us—their visitors. Please pay attention to the following:

- *Refrain from running, using loud voices, pushing or shoving.
- *Stay with each other, especially chaperones.



Interpretive Program

Using hands-on items, photographs and riverfront observations, the park ranger will present an interpretive program focusing on the amazing world of water, specifically its importance as a home, food and water source for so many of this planet's living things.

Investigative Learning Activity

The scouts will be divided into a number of smaller groups depending on the size of the troop. Each group will have a chance to observe water specimens drawn from the river and draw conclusions. The groups will then present their findings to the larger group. Based on their findings the program will proceed with discussions and activities on the water ecosystem's food chain.



Safety Tips

This is a U.S. Coastguard inspected vessel. Life jackets are located on the outside decks. Donning instructions are located on all life jacket lockers. If an emergency should develop, please remain calm and instructions will be given over the P.A. system.

*Remain in your group at all times. You are responsible for your behavior.



Water, Water Everywhere...?



Did You Know?

The National Park Service website www.nps.gov has a link called Nature Net which provides current information on Park Service efforts to preserve and manage water resources in our national parks.

Please share with your scouts:

When we think of areas where there is not enough water, we typically think of places halfway around the world. Often we see pictures of children in the deserts of Africa that do not have enough food or water to live comfortably. And while we, in the United States, do not suffer to such degrees, there are areas of our own country where the question of water supply and demand is an issue of great concern.

Water Wonders Requirement - Not Enough?

The Great American West of the nineteenth century was this country's answer to the over-populated cities of the east. The image of the west was a land of wide-open spaces and endless resources. While the west did offer great amounts of land, the unfortunate realization was that its water resources were not as great. Water in the west has become a very serious issue. It causes problems within states like California, where water is pumped from the more humid northern region to the drier southern region. Las Vegas, Nevada is in a desert. Only the water pumped in through long pipeline systems allows it to exist. Have your scouts participate in the activity on the following page and explore the issues of the west's disappearing water.



Post-Visit Activity #1

Water Wonders Requirement - Not Enough?, cont'd.

Using the descriptions below break scouts into small groups. Assign each group a role, and then provide the groups with their statement. Have students think about and research the issue and prepare a statement about their feelings. Have the troop discuss or debate the issue as a whole and develop a solution.

Western Farmer

Farming is the only thing I know. I believe the crops I produce are an important part of this country's food supply. In order to continue contributing, I must rely on the water pumped in from my neighboring state.

Illinois Taxpayer

What I don't appreciate is that a portion of my tax money is used to pump water to places like Nevada and Arizona, which are desert climates. It is not a place for green lawns and big beautiful shade trees. The citizens of those states should realize that.

Environmentalist

Everything is connected on this planet. Diverting water from one part of the country to another is in opposition to what nature intended. Irrigation dries out one area while the dams flood others. Ecosystems are being destroyed and food chains disrupted, killing plants and animals that are essential to human existence.

Nevada Hotel Owner

Most of my guests are from the east. They want to get away from the cold, wet, weather and spend a week where it is warm and dry. Maintaining my hotel and its beautiful landscapes require a lot of water in this desert climate. Many complain about water usage, but I am only meeting the needs of a large part of our population.



How Can I Help?

Please share with your scouts:

Our past has taught us that our planet's resources do not exist in infinite numbers. Over the years, carelessness on a worldwide level has led to great losses. Our water is no different. Even though our water continually recycles itself, as the world population grows the amount of water we do have is spread thinner and thinner. And, more people means more pollution seeping into our water, making it more difficult to provide quantities of usable water.

Word Web Activity

As scouts you are committed to serving your community and your world. One way to be responsible citizens is by helping to protect our planet's resources so there will be enough for future generations. Use a word web to brainstorm with your scouts ways they can conserve water, our most precious resource.



Post-Visit Activity #2

Water Wonders Requirement - Fix It Up

As individuals, you can make a difference, but as you know, when you work together you can accomplish great things. Throughout the world, people are joining together to conserve our resources and save our environment.

To complete the requirements for the Water Wonders Badge, you are asked to help with a project to improve a water related habitat. Listed below are two local organizations concerned about the waterways in our region. Read their descriptions to your troop and let them decide which organization they would like to volunteer with. Or maybe you could divide your troop into two groups and lend your services to both organizations. Or maybe you have an idea of your own. Remember, the water's the limit.



Grace Hill Neighborhood Services is responsible for maintaining and monitoring the Riverfront Trail which runs from the Chain of Rocks Bridge to the Gateway Arch. Current projects include restoring native plants to sections of the trail, trash cleanup and a Floodwall Art Project which will result in 100 feet of mosaic-style art along the floodwall, which borders the trail. Phone: 314-340-3207

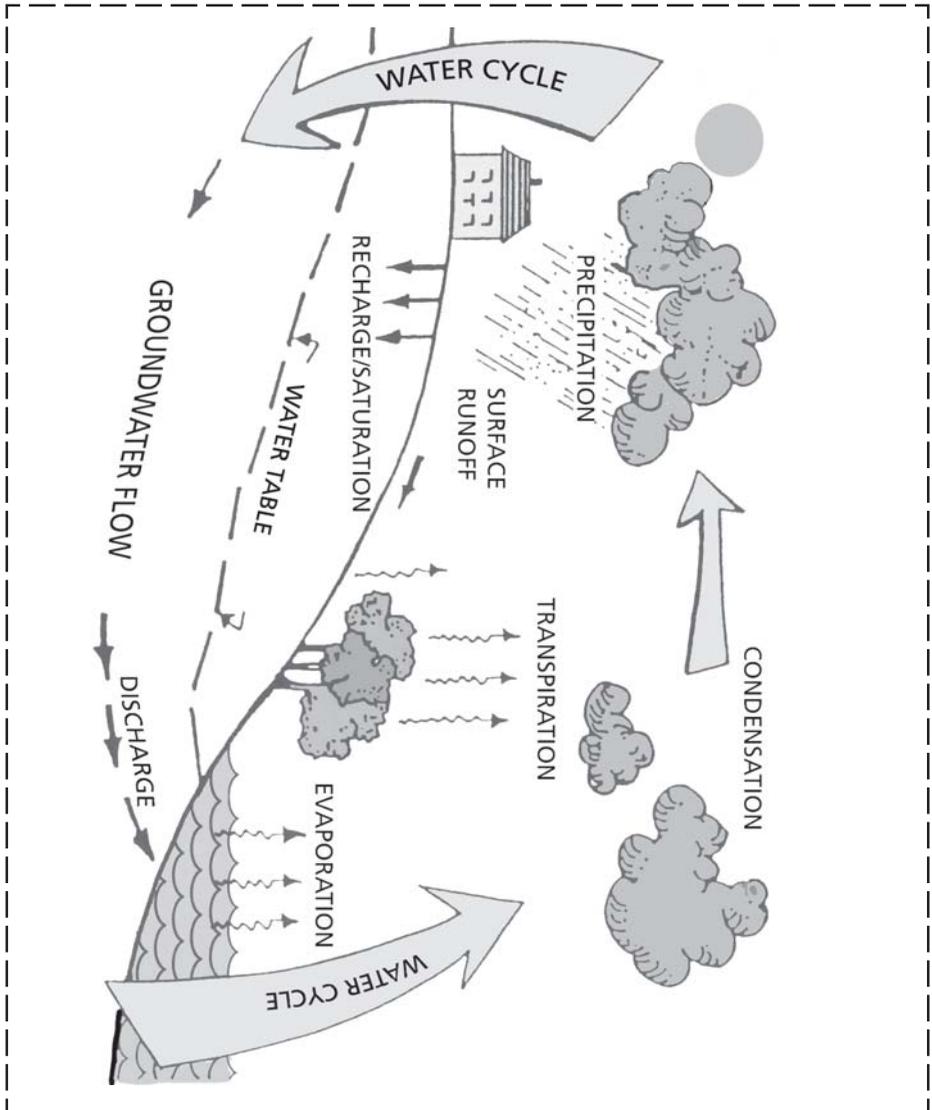


Missouri Stream Team is a network of people concerned about Missouri streams. You will have the opportunity to learn more about the problems confronting our streams and the actions needed to solve the problems. Activities include: water quality monitoring, watershed mapping, litter pickups or planting trees. Phone: 1-800-781-1989



Appendix

Pre-Visit Activity #1 Water Cycle



(copy)

Pre-Visit Activity #1

Water Cycle Answers

1. The condensation process takes place in the clouds. Water molecules group together to form clouds. Air currents move the clouds through the sky.
2. When water enters the atmosphere from the leaves of trees, it is called transpiration.
3. Evaporation occurs when the heat of the sun warms the earth and water turns to gas or steam.
4. After water reaches the earth it is stored either as surface water (i.e. oceans, lakes, rivers, etc.), or it seeps down into the earth's surface and becomes ground water.
5. A solid, or ice, is the other form in which we commonly find water. Many people worldwide have experienced "solid" water as either snow or sleet. What we may not realize is that a large portion of the earth's water exists as frozen ice caps.



Appendix

Fresh water source	Is it ground water or surface water?	What is good and/or what is bad about this type of fresh water source?	Is this your source of water?
Spring			
River			
Lake			
Aquifer			
Reservoir			
Well			

(copy)

Suggested Resources

- Goodnough, David. *Endangered Animals of North America*. Berkeley Heights, NJ: Enslow Publishers, Inc., 2001.
- Kalman, Bobbie. *Food Chains and Webs*. New York, NY: Crabtree Publishing Co, 1998.
- Salveter, Amy, Janet Sternburg. *Missouri Animals of Conservation Concern*. Jefferson City, MO: Missouri Department of Conservation, 2000.
- Schoenfeld, Clay. *Everybody's Ecology*. South Brunswick, NY: A.S. Barnes & Co., 1971.
- Thomas, Jamin, et. al. *Streets to Streams: Youth Investigations Into Water Quality*. Missouri: Missouri Dept. of Conservation (Education Dept.), 1995.
- Van Cleave, Janice. *Ecology for Every Kid*. New York, NY: John Wiley & Sons, 1996.

For information on the cost of the
Jefferson National Expansion
Memorial patch, phone
The Museum Store at: (314) 231-
5474 or (800) 537-7962



**Jefferson National Expansion Memorial
11 North 4th Street
St. Louis, MO 63102**



Visit the Gateway Arch, Museum of Westward Expansion and
Old Courthouse on the Internet: <http://www.nps.gov/jeff>
Visit the National Park Service at:
<http://www.nps.gov>

**Help conserve our natural resources!
If you have no further need for this booklet,
please return it to the Park Ranger at the Information Desk
so another scout group can use it.
Thank you!**