

# My nature connection

## Camp Fire Watersheds

GRADE: 5+

### Which watershed does your area belong to?

This activity is perfect for students who are curious about the various water sources here at Camp Fire and want to learn more about watersheds in Minnesota. At the end of the lesson, students will create a topographic map showing how watersheds form.

ACTIVITY (20 MINUTES)

## WATERSHEDS

Minnesota isn't just known for impressive flour mills and a butter company, Land O'Lakes. It's also known for boasting 1 acre of water per 20 acres of land. That's 6% of our state covered in water – more than any other state. After all, we do have 10,000+ lakes.

For this lesson, students are going to focus on watersheds, and then create their own model with provided examples here at Camp Fire. The Minnesota DNR defines a watershed as "the entire physical area or basin drained by a distinct stream or riverine system, physically separated from other watersheds by ridge-top boundaries." Gravity pulls water downhill through valleys, mountains, and hills, creating streams of water that branch out through the landscape—from the sky, or as drawn on a map, a watershed might look like a tree with many branches or blood vessels.

### WHAT YOU'LL NEED

Paper

Blue Marker

Water/ Spray Bottle

### STUDENTS WILL:

- Learn what a watershed is
- Create their own model of a watershed

SETTING  
somewhere  
you can get a  
little messy!

Minnesota has eight major water basins and 81 surface water watersheds. Camp Fire is in watershed 20 and 33, which is the Mississippi and Minnesota River of Shakopee.

A surface water watershed is the area of land where all of the water that drains off of it goes into the same place—a river, stream or lake. The smallest watersheds are the drainage areas for small streams and lakes.

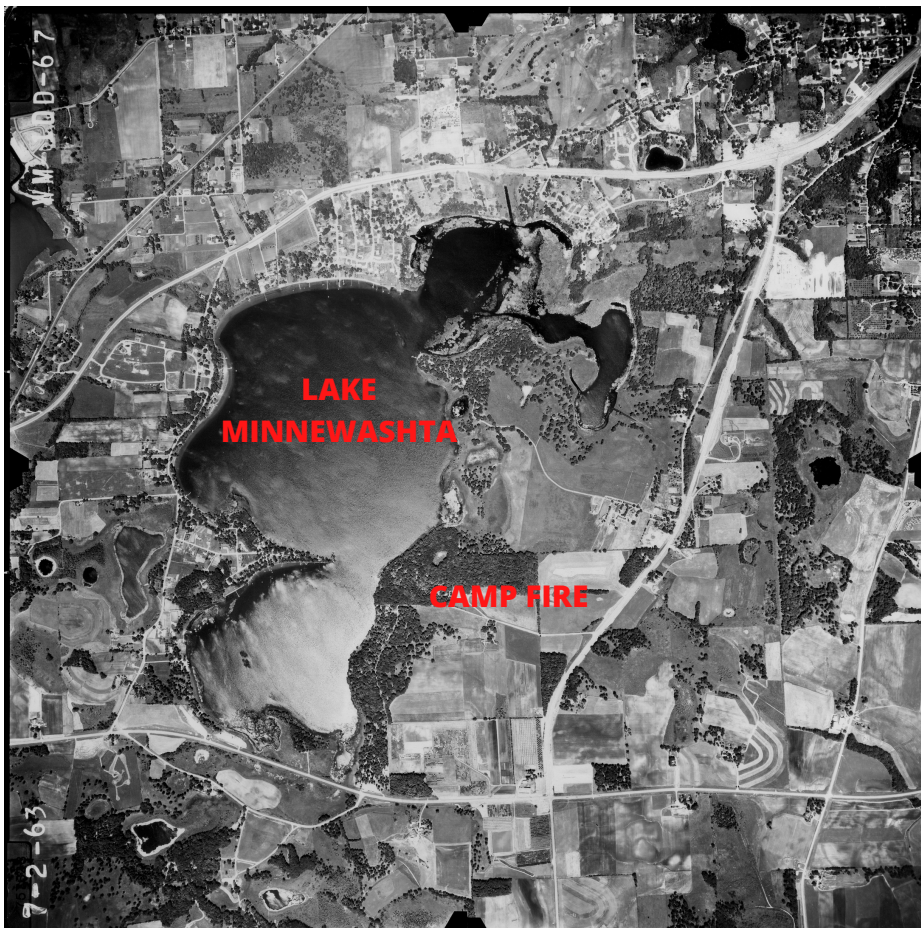
These larger watersheds are, in turn, part of even larger drainage networks, and so on. The largest-scale watershed is called a basin. Minnesota has ten basins, some of which include portions of neighboring states or Canada.

Do you live near a body of water? Check the DNR website to see which watershed it belongs to! ( <https://www.dnr.state.mn.us/watersheds/index.html> )

## LAKE MINNEWASHTA

One body of water on Camp Fire is Lake Minnewashta. It is part of the Minnesota river basin in the Minnesota River watershed of Shakopee. The lake is over 650 acres and has a max depth of 70 feet. This lake is unique to the property because it offers a wide variety of water activity and a moderate level of biological activity. A moderate level of biological activity gives this lake a trophic level of 50, otherwise known as mesotrophic.

Mesotrophic lakes are lakes with intermediate level of biological activity, which otherwise means that it has a diverse amount of aquatic plants and nutrients.



### TIP:

Look up the trophic levels and how it relates to the food web for more learning!

## CAMP FIRE WETLANDS

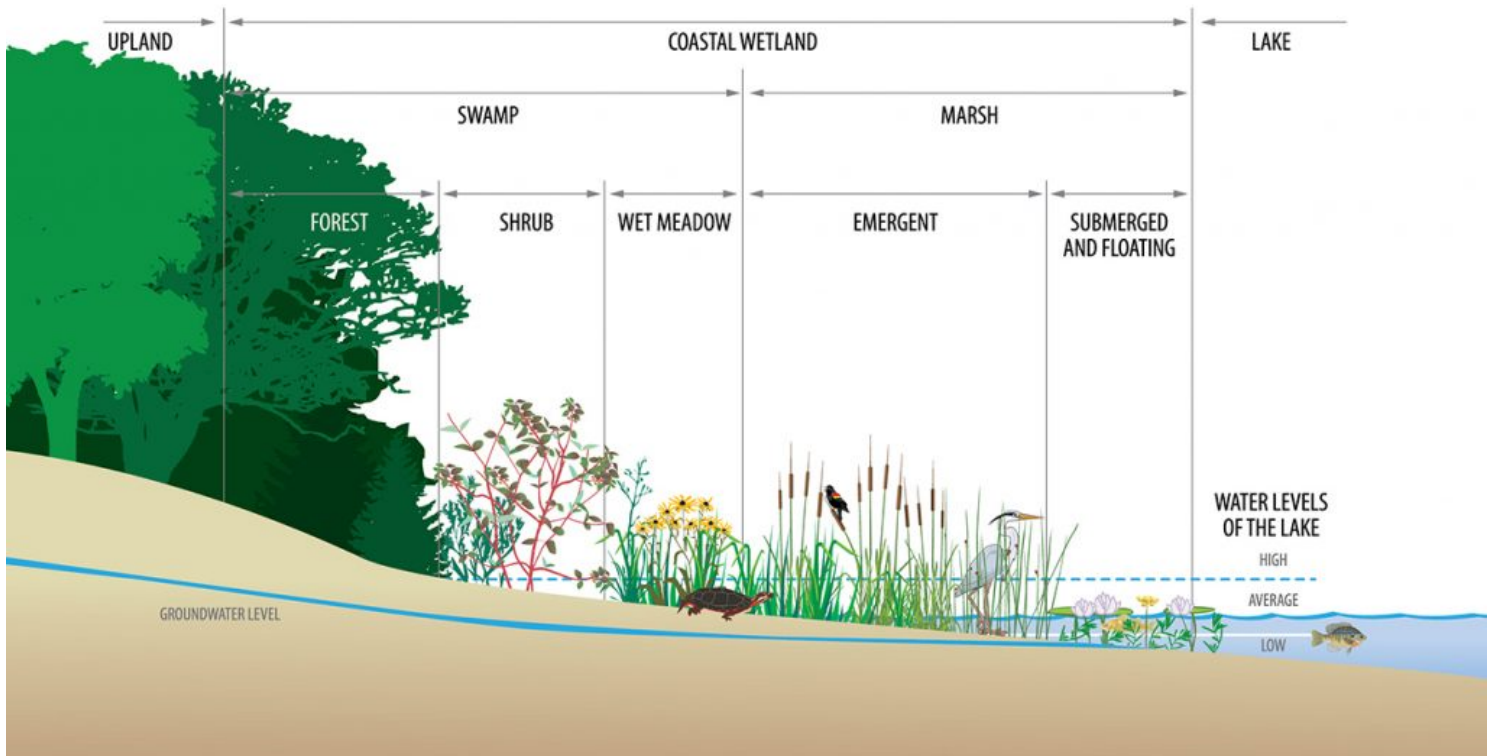
Here at Camp Fire, we have three main wetlands. A wetland is the transition of water to land where diverse organisms house themselves.

Wetlands are the most diverse ecosystems in the world. A wetland can often be missed, but it serves a vital role – it can filter out pollutants from streams, giving us clean water for drinking and fishing. It also helps promote growth in trees and plants by carrying nutrients to the soil.

A wetland has 3 main components:

water  
soil  
organisms

Example location of a wetland in comparison to land and water:





# HUMAN IMPACT ON WETLANDS

A lot of times, property developers see wetlands as a nuisance. They're unable to build because it's too wet and therefore won't make money. To solve that issue, they drain wetlands.

Drained wetlands have long-term effects on land, economy, and the wellbeing of humans and animals. Roads are being cracked which loses important access roads to countryside with farming. Farms are being flooded which ruins the soil and the farmer is unable to plant crops. Water levels in lakes and streams are flooding, which damages property, native shore plants, and other habitats for animals.



Dried up wetland and dead trees from lack of CO2 and water/nutrients

## WHAT IS BEING DONE?

Here, Minnesota Land Trust has created the Wetland Habitat Protection Program that encourages landowners to register to protect precious wetlands from being drained or destroyed. Nationally, legislature everywhere is implementing laws that protect wetlands from being touched to help keep them around for years to come.

(<https://mnlnd.org/2019/01/10/wetland-habitat-protection-program/>)



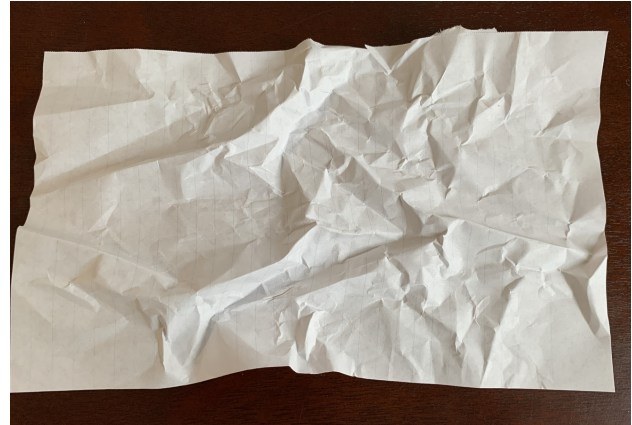
example of a draining wetland destroying a road

Overall, wetlands are an important part to our ecosystem and help carry nutrients to land and water. They help mitigate flooding and keeps soil rich for farming and water packed with nutrients to help organisms thrive.

## WATERSHED ACTIVITY - 10 MINUTES

For this activity, students will create a model of a watershed.

First, grab a blank piece of paper and crumple it up.



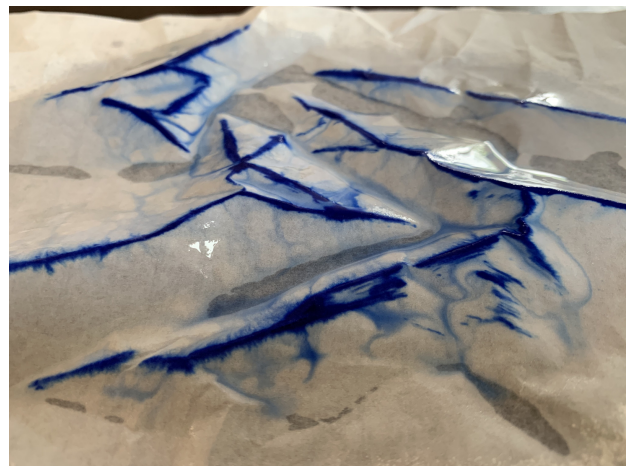
With a blue marker draw on the high ridges of the paper that simulate mountain peaks.



You've created a model of a topographic map. Next, spray the map with water.

**\*\*Before they spray, ask them where they predict where the color will go\*\***

You will start to notice the marker bleeding and forming into streams in the lower valleys of the paper.



Ask students what they notice. Where is the marker color flowing, and how was it different from or the same as their predictions? The marker represents mountain tops, and the spray bottle represents rain. This is a great example of how watersheds form and flow into separate streams and lakes.

### EXTENSION FOR OLDER STUDENTS

Research your area and find out more about possibly contaminated watersheds and natural resources in your area by using the link below. When you find a pollutant near you, use the "More info" option to expand and learn about the site.

<https://gisdata.mn.gov/dataset/env-my-neighborhood>

TIP:  
be sure to do  
this on a  
surface that  
won't stain

## CONNECTING WITH QUESTIONS

- What is something you learned today?
- Which watershed do you live in?
- What actions can you take to help keep our precious water sources clean? (turning off the faucet when you brush your teeth, recycle, etc.)
- How do you think humans are impacting our water? What about animals?
- Share what you observed happen in your watershed model.

## ADDITIONAL RESOURCES

<https://www.dnr.state.mn.us/watersheds/index.html>

<https://www.plt.org/stem-strategies/watch-on-wetlands/>

<https://www.pca.state.mn.us/water/what-watershed>  
(definition of watershed and water basin)

## EDUCATION STANDARDS

Grade Level

Science Education Standard

Grade 5

5.4.2.1.1 Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.

Grade 6

Grade 7

7.4.4.1.2 Describe ways that human activities can change the populations and communities in an ecosystem.

Grade 8

8.3.4.1.2 Recognize that land and water use practices affect natural processes and that natural processes interfere and interact with human systems

Grades 9-12

9.1.3.1.1 Describe a system, including specifications of boundaries and subsystems, relationships to other systems, and identification of inputs and expected outputs.