Name: _____ Date: _____

Key Questions

1. What is a watershed?
2. What is the difference between groundwater and surface water?
3. What are your state's water resources?

Key Terms

- water cycle
- condensation
- precipitation
- watershed
- surface water
- reservoir
- groundwater

Code	Benchmark
LA.910.2.2.3	The student will organize information to show understanding or relationships among facts, ideas, and events.
LA.910.4.2.2	The student will record information and ideas from primary and/or secondary sources accurately and coherently.
SC.912.L.17.11	Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.
SC.912.L.17.20	Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

Earth has a limited amount of water. About 97% of this water is salt water found in oceans. Approximately 2% of Earth's water is frozen at the North Pole and South Pole and on mountaintops. The remaining 1% is fresh water and available for humans, plants, and animals to consume. Fortunately, the water cycle makes this limited amount of water available to living things. The *water cycle* is a set of processes energized by the Sun that keeps water moving from place to place on Earth.

Processes in the water cycle

The main processes of the water cycle involve the evaporation of water, the release of water from plants, the formation of water droplets from water vapor (called condensation), and precipitation. The process of *condensation* happens on your bathroom mirror when you take a shower. Warm water vapor from your shower forms droplets of water that collect on the cooler mirror surface. Condensation also happens in the atmosphere to form clouds and *precipitation* like rain, snow, sleet, and hail.

Watersheds, groundwater, and surface water

The U.S. Environmental Protection Agency (EPA) has a web page called "Surf your Watershed." By typing your zip code on this web page, you can find out where your water comes from. You can even find out the names of citizen groups that volunteer to protect your local watershed. But what exactly is a watershed?

A *watershed* is an area of land that catches precipitation and surface runoff. The boundaries of a watershed are often steep mountain ridges. Acting like a funnel, a watershed collects water flowing downhill into a body of water such as a river. Rivers, ponds, oceans, and reservoirs are examples of *surface water*. A *reservoir* is a protected artificial or natural lake that stores water.

Some of the surface runoff collected in a watershed becomes groundwater. *Groundwater* is fresh water that infiltrates (absorbs into) the soil and collects underground. This water represents our most abundant, available water supply.

Water resources research

In this guided tutorial you will learn about your state's water resources. To complete this tutorial, form a water resources investigation team. Keep track of your findings in a team notebook. When you have completed the tutorial, write up your findings in a report and make a poster to hang in your classroom.

1. Information about you and your team:
   a. What is the name of your team?
   b. List the names of all team members.
   c. What is your city and state?
2. Information about your state's water resources (you will have to do Internet research or other kinds of research to answer these questions):
   a. List the names of the main bodies of water in your state (lakes, rivers, and ocean if your state has a coastline).
   b. What is your state's average annual rainfall?
3. Find the U.S. EPA "Surf Your Watershed" website online. Use the search phrase "surf your watershed." What is the name of the watershed for your zip code?
4. At the "Surf Your Watershed" website, click on the link for the citizen-based groups that work to protect your watershed. List the name of one organization.
   a. What does this organization do?
   b. Visit the organization's website if it has one. List three things you learned about the organization from your visit to the website.
5. Use the name of your state and the phrases "water resources" and "USGS" to find the U.S. Geological Survey (USGS) web page that focuses on your state's water resources. Find the menu for "Real-time data."
   a. List the types of real-time data that are provided at this website.
   b. Why do you think it is important for the USGS to collect each of these types of data?
   c. When you click on the "Precipitation" link, what kind of information do you find?
6. The National Institutes for Water Resources (NIWR) is a collection of 54 centers, one for each U.S. state or territory. Visit the website for the National Institutes for Water Resources. Find the website using an Internet search engine. Click on your state on the large U.S. map on the NIWR website.
   a. Where is your state's water resources center located?
   b. List three things you learned about the research performed by this center.
7. Your state government has one or more departments that focus on water use and conservation. Visit your state's government website to find the answers to these questions:
   a. What is the name of the organization that studies and protects water resources?
   b. What does this organization do to conserve and protect your state's water resources?
8. Locate the website for the department in your city that is involved in managing water quality and treatment.
   a. What does your city do to monitor water quality?
   b. What does your city do to treat water?
   c. Why is water treatment important?
   d. From the web site, what is the quality of your city's drinking water?
9. List one question that your team has about your state's water resources. Find the answer to this question by doing research or by interviewing an expert. Write up your findings in a short essay.
10. Your research is complete! Write up your findings in a report. Then, create a poster that colorfully and graphically illustrates your findings.