Session 2
Wading In
Learner's Guide

You'll be taking some time to think about water as a mysterious, yet essential, substance in our Earth's biosphere, and how water moves as cyclical systems through geo-physiological pathways known as watersheds.

Today's Big Question:
What is a watershed?

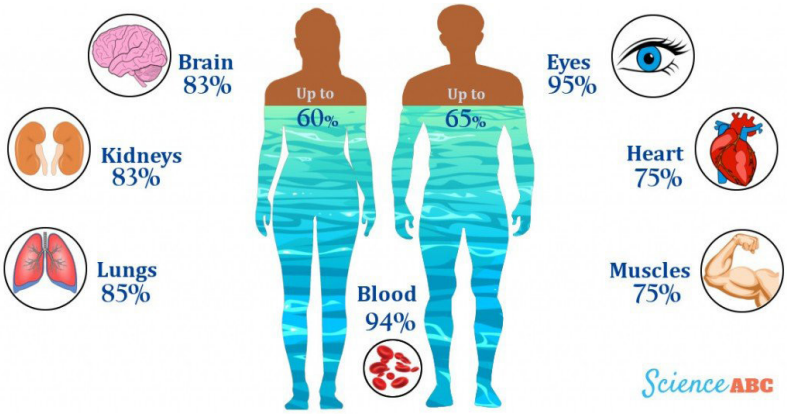
Introduction

Welcome back to your *Best Water Ways* project! This session is called *Wading In*, and it looks at what unusual stuff water is, and how it moves through our lives and our world.

What is Water?

Water is an essential part of life. Did you know that your body is made up of about 60-65% water? Water makes up over half your body composition!

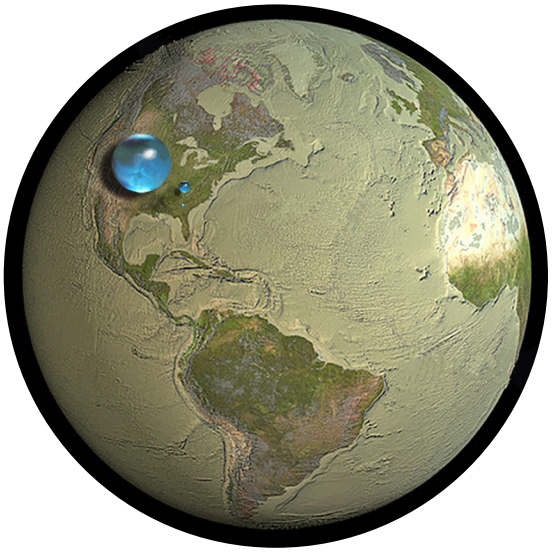
Look at this water composition graphic to see how reliant our bodies are on water.



Source: https://www.scienceabc.com/humans/long-can-survive-without-water.html

Like your body, the Earth is a watery place. Approximately 71% of the Earth's surface is water-covered, and the oceans hold about 96.5% of all Earth's water. Water also exists in the air as water vapour, in rivers and lakes, in icecaps and glaciers, in the ground as soil moisture and aquifers, and in creatures like you. All biological life (humans and other mammals, fish, birds, insects, plants, and microbes) rely on clean, uncontaminated water.

Even though all life depends on water, there really isn't very much of the stuff when you compare it to the Earth itself.



Source: https://www.usgs.gov/media/images/all-earths-water-a-single-sphere

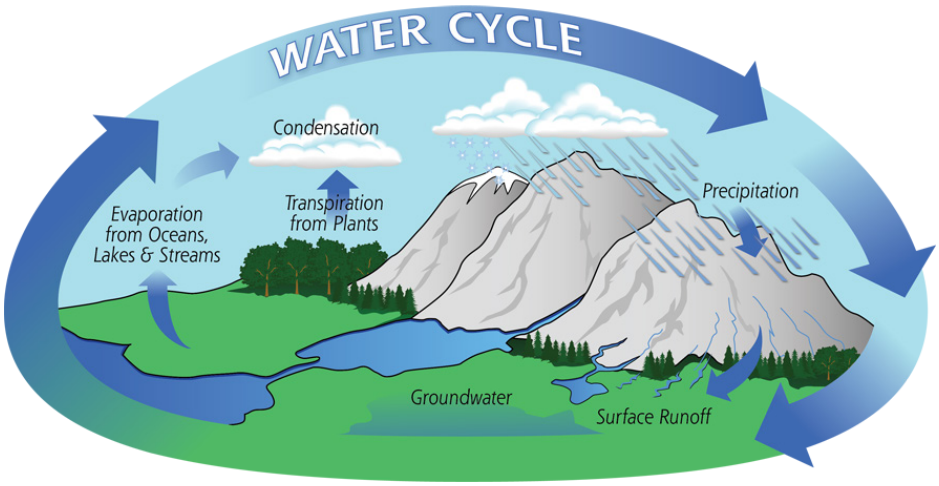
Check out the image on the left. It shows Earth's water volume relative to its size.

The largest blue sphere is all the water, including atmospheric and what is contained in creatures like us, compared to the Earth.

The next largest blue sphere represents the world's liquid fresh water.

And that teeny-tiny blue dot below it represents the fresh water in all the lakes and rivers on the planet.

Most of the water that all the people and other life on Earth need every day comes from these surface-water sources shown in this teeny-weeny sphere.



Source: https://gpm.nasa.gov/education/water-cycle

In this learning project you will explore the important role of watersheds in the global water cycle. You will also get to know more about your local watersheds, and how to take good care of them so they can continue to take good care of our water (and us!).

As you can see in the image above, the Earth's surface has many different features such as mountains, tributaries, rivers, sub-surface aquifers, riparian ecosystems, marshes, and estuaries. These features are part of the watershed, and they work together to catch, collect, clean, and transport precipitation in the form of snow, rain, mist, and dew.

Indigenous peoples are communities of people that have been living in one geographical area for a very long time, in some cases at least as long as 10,000 years! They are the original humans to have populated an area. Because they have lived and learned for so long in one area, they have valuable knowledge about the ecology and history of local places. Each community is diverse and tied to the geography of the land through their history, language, resources and traditions. Water is sacred to many Indigenous peoples—it is a life giver.

Life in the Watershed

We all live within watershed systems and depend on them to keep water cycling in our environment.

For certain life forms, like salmonids, water flow and the watershed habitat that supports their food chain is critical to their existence. Salmonids are a type of fish that begin their life in streams and rivers, migrate out to the ocean for a time, and then return to the rivers and streams to reproduce and die. The amazing thing is that the salmonids that die and decompose in the watershed nourish the trees and creatures that, in turn, sustain a healthy watershed system.

Did You Know?

Water is an unusual substance! Water in our biosphere arrived here from icy asteroids after the Earth formed!

And, stranger still, water is unique.

It is the only natural substance that can exist in all three states of matter–liquid, gas (steam), and solid (ice)–at the temperatures normally found on Earth.

All this water is never sitting still. You may have already learned about the planet's water cycle, and how Earth's water supply is constantly moving from one place to another and from one form to another.

Much of the fresh water travels across the surface of the Earth through watershed systems.

We all live within an interconnected network of watershed systems, including you!

Activity 1: Watershed Words

Your Words and Terms

At this point you are probably wondering what some of those words and terms mean. The words and terms we're learning in this session are:

- Watershed
- Indigenous knowledge
- The local Indigenous language word for 'water'
- Physiography
- Aquifer
- Tributary
- Surface water
- Ground water
- River
- Riparian ecosystem
- Salmonids
- Aquatic invertebrates

From this list, your group will learn the meaning of one or two of the watershed words or terms, and share that meaning with the rest of the class, using a quick image and key phrases. Follow the steps below.

Steps

1. Research the terms: create a bulleted list of key notes defining your word or term.
2. Think about a simple image that demonstrates your word.
3. On a piece of chart paper:
   - Put your word or term in big letters at the top
   - Draw your image on the left side of the paper, leaving room on the right.
   - Write your bullets notes on the right side of the paper.
4. Share with the class!

On the following pages there is a table for you to draw and record what you learn about other groups' words and terms as they share. One side is for the image and one for the bullet notes. Don't forget to label with the word or term itself.

My word or term: _____ **Image:** _____

Key notes: _____

_____

_____

_____

Word/Term:	Notes:
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A visit to your local salmon hatchery is a great way to connect watershed health with the wellbeing of salmon species.

Photo: Stephanie Cottell

Activity 2: Watershed Wiz Quiz

Now for a little game to show what you've learned.

Carefully take your group's chart paper and fold over the top part where you've written the word or term. Tape or pin your paper at the front of the room so everyone can see the image and bullet notes—but not the word or term itself.

Put your notebooks away and let the quiz begin.

When it's your turn, draw a word or term from a container and match it to the correct chart paper. When you get it right (maybe with a little help from your friends), read out the bulleted notes about the word or term you selected.

Activity 3: Watershed Reflection

Write or draw about facts and ideas that stood out for you in today's session about watersheds. Include your thoughts on what you have learned.

In your reflection, touch on three or more of the following themes:

- How watersheds fit into the water cycle
- The local Indigenous territory where you live
- The local Indigenous language word for water
- Features of a riparian ecosystem
- Salmonids and their connection to the watershed

Watershed Reflection: *Wading In*