

EARTH'S WATER: A DROP IN YOUR CUP

5-ESS2-2: DESCRIBE AND GRAPH THE AMOUNTS AND PERCENTAGES OF WATER AND FRESH WATER IN VARIOUS RESERVOIRS TO PROVIDE EVIDENCE ABOUT THE DISTRIBUTION OF WATER ON EARTH.

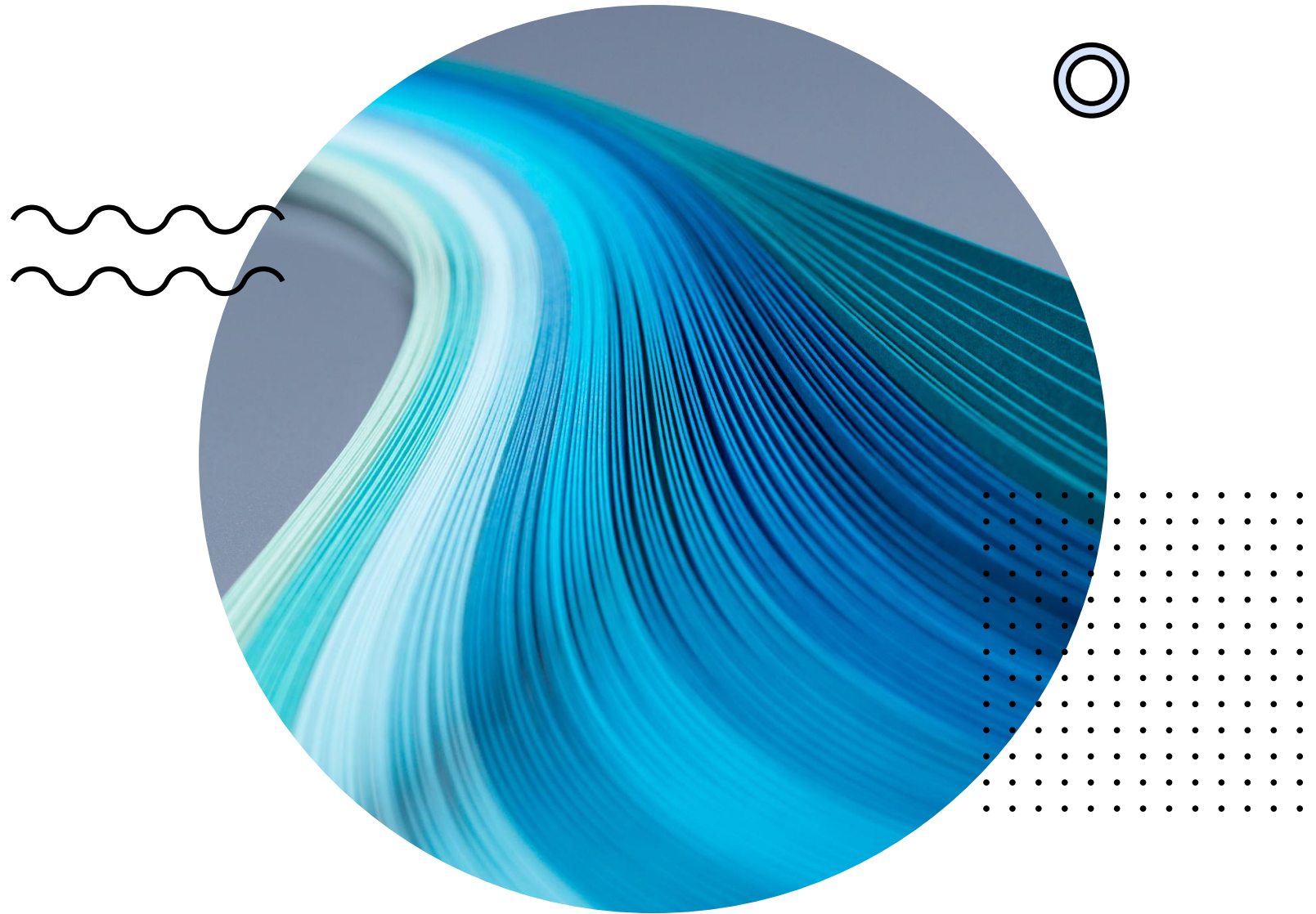
ESS2-C: (THE ROLES OF WATER IN EARTH'S SURFACE PROCESSES) NEARLY ALL OF EARTH'S AVAILABLE WATER IS IN THE OCEAN. MOST FRESH WATER IS IN GLACIERS OR UNDERGROUND; ONLY A TINY FRACTION IS IN STREAMS, LAKES, WETLANDS, AND THE ATMOSPHERE.

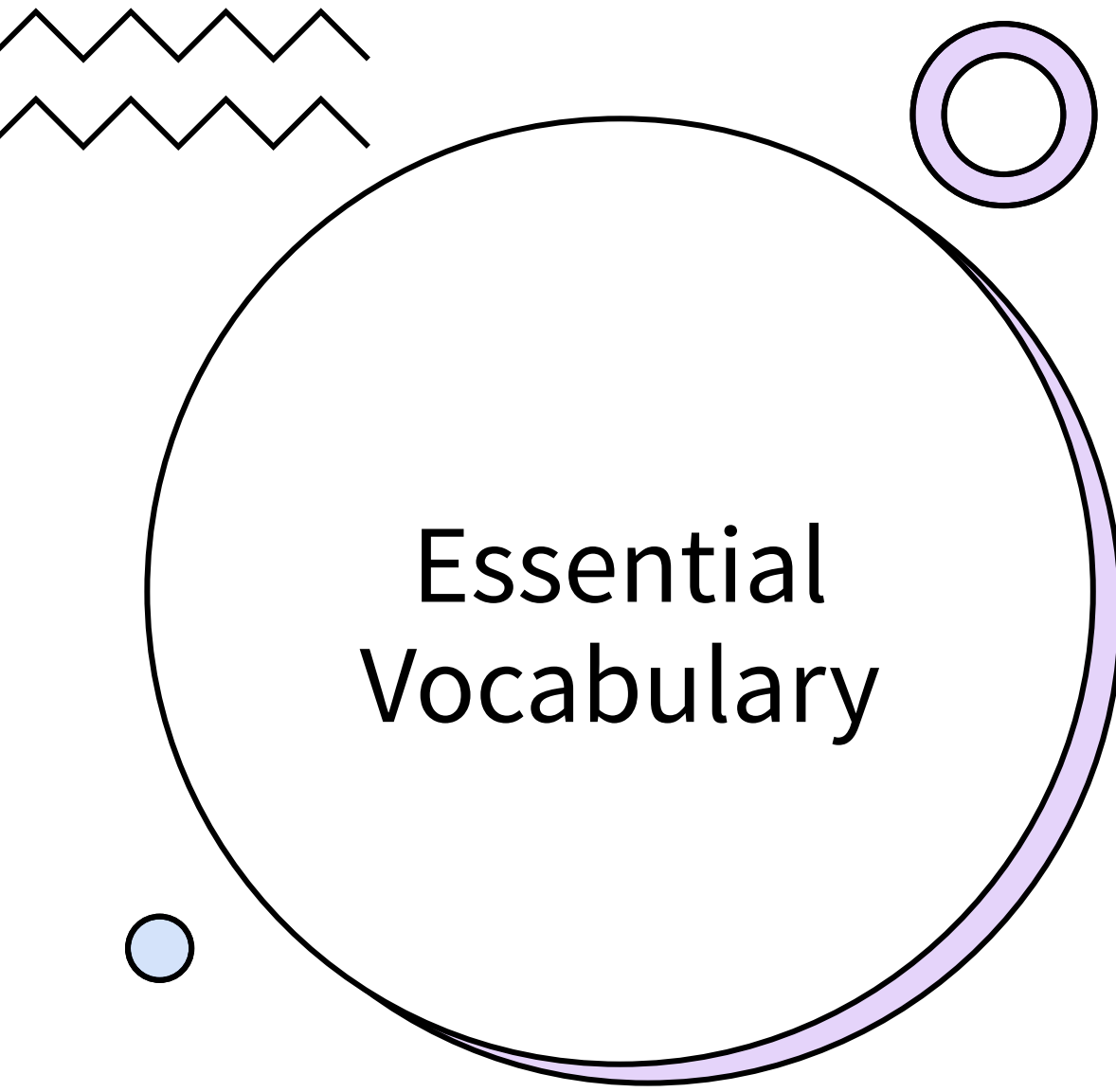
○ Main Objective

- In this lesson students will learn about how our earth's water is distributed between sources, how much is available to humans (drinkable or usable water), water shortages in other parts of the world, and how students can conserve water at home.



BACKGROUND KNOWLEDGE





Essential Vocabulary

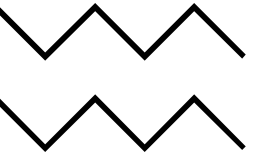
- Resource: a natural, economic, or political asset that can be drawn upon when needed
- Desalination: a process that removes salt from sea water to produce drinkable water
- Fresh water: water that contains minimal amounts of salt
- Aquifer: a body of permeable rock which can contain or transmit groundwater
- Groundwater: water held underground in the soil or in pores and crevices in rock



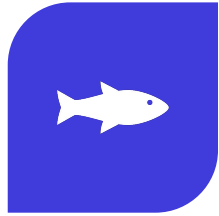
○ Why is water important?

- Water (H₂O) is a very important molecule. Because of water, Earth is able to support many different life forms. In humans, water makes up between 68% and 72% of the body volume (depending on gender and body composition), and it is so important that we cannot survive longer than 3 days on average without it. Because water is such an important resource, we must understand how much is available, where it comes from, and how to make sure we conserve this resource so that it is available to us in the future.
- Water makes up 70% of our planet. Of that 70%, 97% is ocean water and only the remaining 3% is fresh water.
- Through a process called desalination, the salt can be removed from ocean water which makes it drinkable.





Where can water be found?



LAKES



OCEANS



GROUND
WATER



ICE

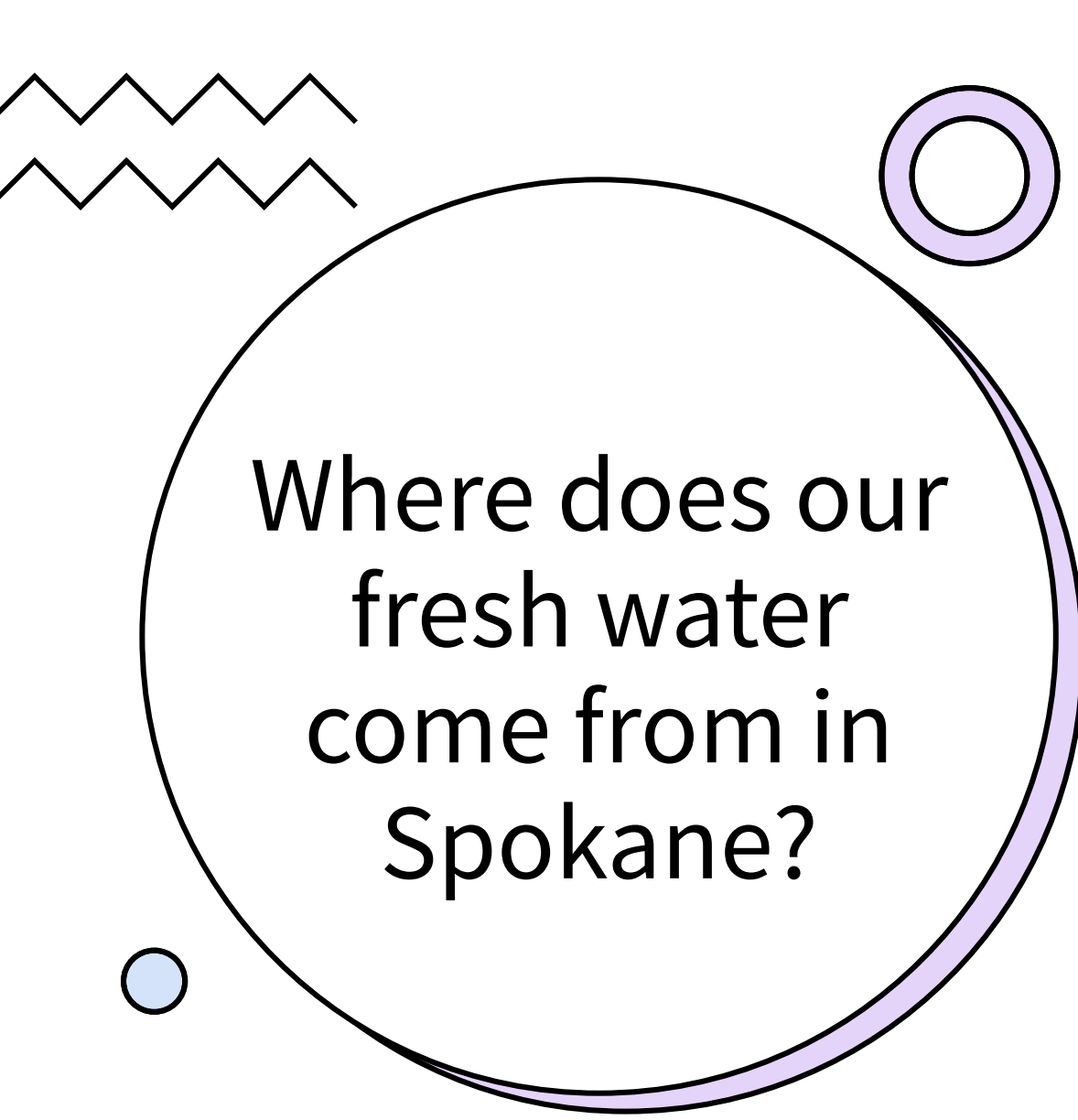


SWAMPS



RIVERS

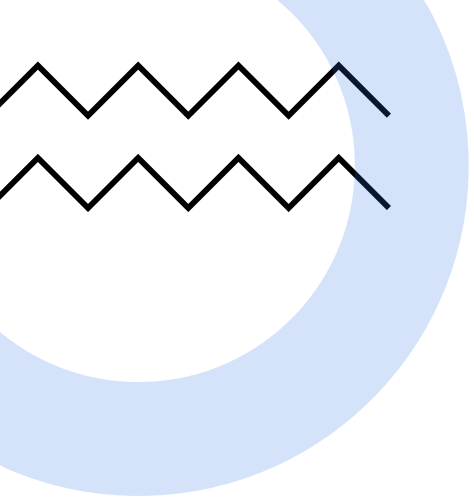




Where does our
fresh water
come from in
Spokane?

- In Spokane, most of our fresh water comes from the Spokane Valley- Rathdrum Prairie Aquifer. This aquifer provides over 500,000 people with drinking water!





What is an aquifer?

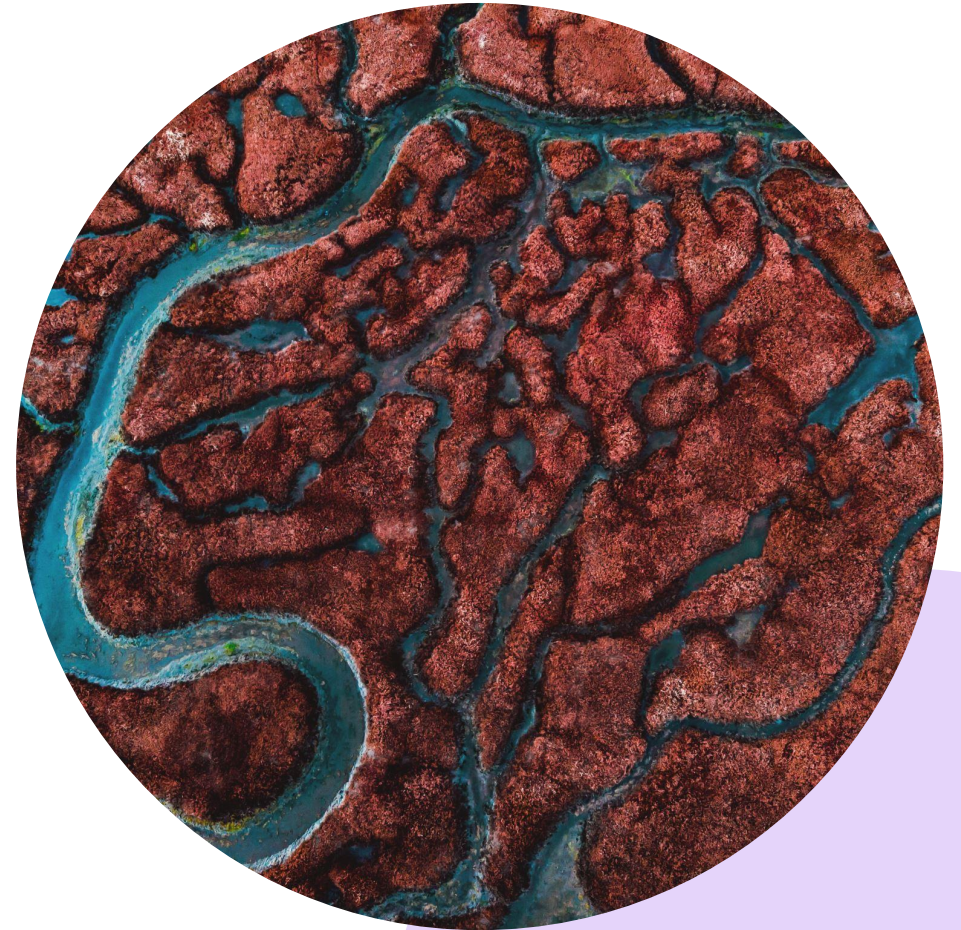
- An aquifer is a body of permeable rock which can contain or transmit groundwater.

Key Vocabulary:

Permeable: has pores or openings that allow gasses or liquids to pass through.

Groundwater: water held underground in the soil or in pores and crevices in rock.

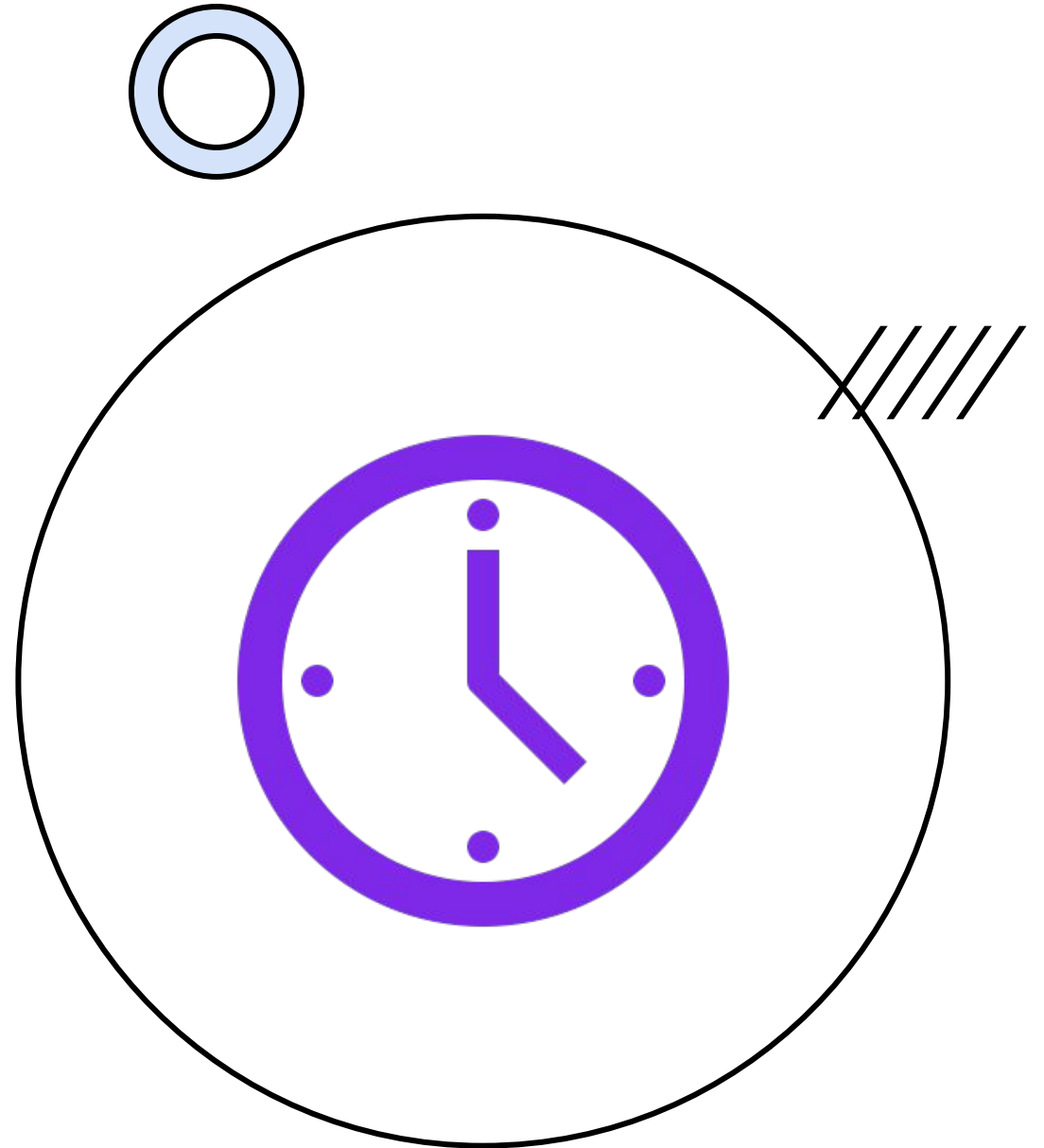
Transmit: cause something to pass from one place to another.



TIME FOR AN ACTIVITY!

Materials needed:

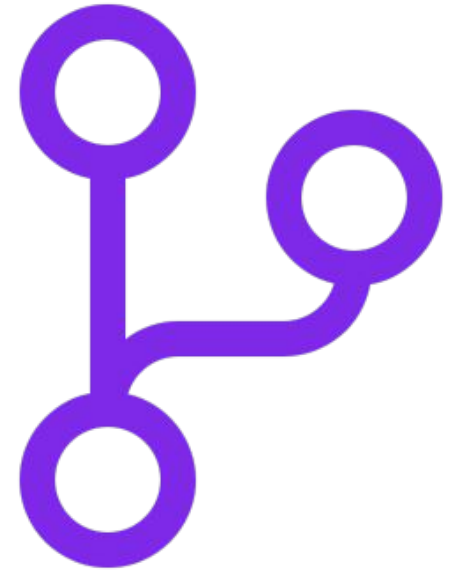
- 1 Liter container or bottle
- Container capable of measuring milliliters
- Water
- Food coloring (optional)
- 5 small containers or cups
- 1 medium sized container





WATER SOURCE PERCENTAGES; A SIMULATION

- <https://youtu.be/wX46rozVHKc>

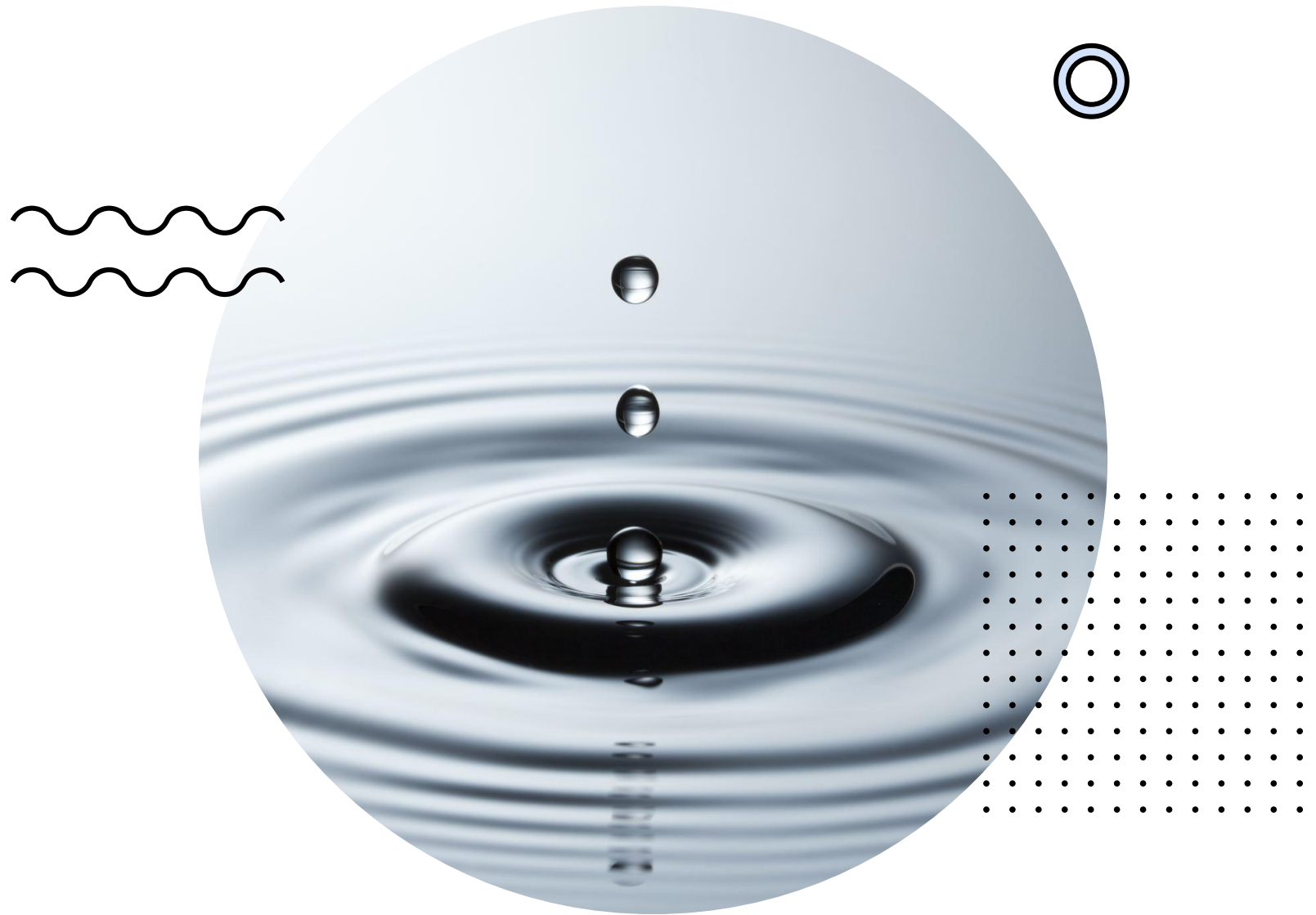


○ How does our accessibility compare to other places around the world?

- According to the CDC, worldwide 780 million people do not have access to an improved water source
- Improved water sources reduce deaths caused by stomach related illnesses by 21%
- Note: An improved water source is defined as water that is supplied through a household connection, public standpipe, borehole well, protected dug well, protected spring or rainwater collection.



**HOW WE CAN
CONSERVE WATER**





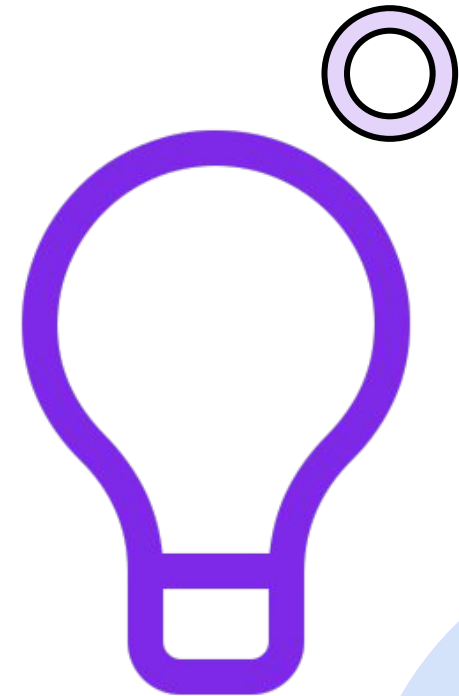
How We Can Conserve Water

- Turn off the faucet while brushing your teeth
- Take shorter showers
- Reuse your bath towel
- Be a leak detective! Find leaks in your home and let your parents know!
- Have a special cup or bottle for water that you can refill throughout the day!
- Drink water instead of juice (did you know that it takes 200 liters of water to make one glass of orange juice?)
- These are just some small ways we can practice water conservation at home!





**NOW, BRAINSTORM SOME
IDEAS OF YOUR OWN!HOW ARE
YOU GOING TO CONSERVE
WATER?**



○ Follow-up Questions

- How does your access to water compare to others around the world?
- What do you and your family do already to save water?
- What is your favorite water source?
- What other activities are made possible by fresh water?



○ Other Resources

- Video on desalination:

https://youtu.be/5ZyjhYSf_ew

- Recharging aquifers:

<https://youtu.be/ZimRO31Nobw>

- Website on protecting clean water in the Pacific Northwest:

https://www.columbiariverkeeper.org/?gclid=Cj0KCQjwreT8BRDTARIsAJLI0KIw1NQ1UMouHEAKES1oEWvmVuPUyPvpa8L3Xz3JlY2ZQlrFdq1_r5QaAvSYEALw_wcB



○ References

- “Aquifers / Groundwater.” *Aquifers / Groundwater | Spokane County, WA*, www.spokanecounty.org/1203/Aquifers-Groundwater.
- “Earth's Water: A Drop in Your Cup.” *California Academy of Sciences*, www.calacademy.org/educators/lesson-plans/earths-water-a-drop-in-your-cup.

