



THE WATER CYCLE KEEPS GOING AROUND

Grade 2 Lesson Plan

OVERVIEW

Fresh water is essential to all life. Where does it come from, where does it go, and how does it come back? Students will create their own water cycle then think about how important fresh water is to us. They are introduced to the many engineer and geoscience careers that are connected to water in our daily lives.

CURRICULUM TIES

AREA	CURRICULUM LINKS
Science (General)	Water is essential to all living things, and it cycles through the environment.
Water Cycle	The water cycle is driven by the sun and includes evaporation, condensation, precipitation, and runoff.

For more information on the links to the BC Curriculum is [available online](#).

MATERIALS LIST

- *Water Cycle* PowerPoint Slides
- Video or photo device and projector
- *Water Cycle* Printable Template

EDUCATOR INSTRUCTIONS

This lesson has 3 main intentions:

- An introduction to the water cycle
 - Identify the ways people use water
 - Learn about Engineers and Geoscientists role in the water cycle
- The provided graphics illustrate the Water Cycle. Show these as a slide show as students create their own illustration. Other images can be found through a Google search or use the suggested links.

WATER CYCLE ESSENTIALS

The water cycle is the movement of water around/through the surface of the earth. It's a continuous process represented by six steps: evaporation, transpiration, condensation, precipitation, runoff, and percolation.

Evaporation is when a liquid turns into gas or water vapor. Some water from any body of water (oceans, lakes, rivers, etc.) evaporates; rising up into the atmosphere.

Transpiration is the same as this, but water evaporates from the leaves of plants instead of bodies of water.

Then, **condensation** occurs. This changes the state of water from a gas to a liquid; forming clouds.

Eventually the clouds may become "heavy". That's when **precipitation** happens in the form of rain, sleet, hail or snow. Snow may melt or become compacted forming ice and/or glaciers.

Water traveling on the surface of the Earth is called **runoff**. It fills up bodies of water.

Sometimes water soaks into the ground. This process is called **percolation**. Water flows downward under the layers of the soil.

Then, the cycle starts again!

ACTIVITY TIMELINE

SECTION	APPROXIMATE TIME
Introduction	10 minutes
Water Cycle PPT & Drawing	30 minutes

Engineers and Geoscientists in Action	15 minutes
Wrap up	10 minutes

***Please note:** Educators can modify the time in each section to best suit their students' needs.

INTRODUCTION

1. Follow Me Exercise
Focus the students on the topic by getting them to copy you with the following 4 movements:
Snap fingers gently,
slide palms together,
then pat your knees,
finally gently alternate tapping feet on ground.
Now reverse the movements
2. See if students can guess the sounds (it's a rainstorm, coming and going).
3. Students turn to a partner and in 30 seconds take turns saying everything they know about water. Have a few students share with the class.

WATER CYCLE DRAWING

1. Show *Water Cycle* PowerPoint Slides
Review the first section of the PowerPoint Slides. Use the slide notes for talking points to share with students and encourage discussion. The slides introduce the water cycle components. Make sure key words from the slides are posted on the whiteboard.
2. Students draw the Water Cycle on the template.
Allow at least 20 minutes to create the water cycle. Make sure they know to label each step in the cycle on their drawing.
3. Show the second section of the PowerPoint Slides that looks at how people use water. Ask students to add themselves into the cycle, in a way that shows how they use water regularly.

ENGINEERS AND GEOSCIENTISTS-IN-ACTION

1. Show the last section of the *Water Cycle* PowerPoint focusing on careers. These slides review how engineers and geoscientists work to ensure that people have clean and easily accessible water. Refer to the PowerPoint slide notes for talking points to encourage discussion.
2. Students now add an engineer or geoscientist into their Water Cycle Drawing.

WRAP UP

1. Have students walk around the class to look at everyone else's water cycles. How did other students show their use of water? Where did they make the connection between the water cycle and engineers or geoscientists?

EDUCATOR EVALUATION

- The Language Arts and Science Curricular Competencies in this activity could be used as evidence students use in a Core Competency self-assessment.
- Questions/observations generated during the drawings can be used as springboards for future lessons.
- The drawing could be displayed as a hallway gallery.

***Please note:** If you are a Career Awareness Volunteer the evaluation section above doesn't apply.

AT WORK IN THE WATER CYCLE

This section contains useful information for educators to communicate about engineering and geoscience careers, relating to this activity. Both engineers and geoscientists play key roles in ensuring that communities have clean and safe water available for them to use.

GEOSCIENTISTS

Geoscientists are earth scientists. They help us to understand the planet and manage the resources that it gives us. They work hard to find things under the Earth's surface, like minerals and ground water. They also study fossils and investigate the ocean floor!

Hydrogeologists: Use their knowledge of the earth and water to locate ground water deposits and track how these deposits are replenished. Hydrogeologists also study the amount of rain and whether the water is clean or polluted. The measurements identified help them improve the water quality for humans, animals, and plants.

Environmental Geoscientists: Look at the soil conditions around water sources. They want to know what's happening to the water as it travels through soil in the Water Cycle.

ENGINEERS

Engineers make a difference. They use their imagination, creativity, and expertise every day to solve problems and improve the world we live in. They work with people like architects and doctors to make the world better and help people live healthier and safer lives. There are many different types of engineers at work in our community.

When it comes to water use there are a few different types of engineers that are involved:

Civil Engineers: Design and build many of the things we take for granted every day, like highways, transit system, bridges, and tunnels. They design systems so that water gets from point A to point B.

Environmental Engineers: Design systems to treat and clean the water so people can use it. There are many different ways that water can be treated so it is ok for people to use, like filtering or chemical treatments.

CONNECTION TO ENGINEERING AND GEOSCIENCE

Engineers and geoscientists play a key role in water exploration, management, and safety. Geoscientists use their knowledge of the earth to locate and track how water is stored underneath the ground. Engineers look at ways to keep water clean for human use.

Hydrogeologist: Students can break this down into its components to learn what it means.

Hydro = water Geo = earth Ologist = scientist

So put simply a hydrogeologist is a scientist who studies water and earth.

MODIFY/EXTEND THIS ACTIVITY

- Consider organizing a field trip to a local organization relating to water sources, water treatment, supply, or waste.
 - Metro Vancouver has various [options available](#).
 - For other areas, contact your city planning department to see if any opportunities are available in this area.
- Consider connecting water conservation, another science content standard to this lesson. A stewardship action would link to other components of the BC curriculum.
 - Ask students “How can you conserve water in your home and school?” and check out the [BC Green Games website](#) for ideas.
- Challenge students to create a digital or hands-on model of the water cycle.
- Educators are encouraged to contact their school district’s Indigenous education team to identify local resources related to water in the community. Educators could introduce a focus on traditional water knowledge as a springboard for this lesson. Visit the [First Nations Education Steering Committee website](#) for additional resources in this area.

RESOURCES

Interested in learning more? Check out these resources.

- [Engineers and Geoscientists BC Website](#)
- [Thirstin's Water Cycle Adventure, June 2004 \(epa.gov\)](#)
- Potential engineering clean water video options
 - [Water Cycle Video](#)
 - [Engineering is Cleaning Poop from Drinking Water](#)
 - [Basics of Freshwater](#)
 - [Exploring Water Filtration with Civil Engineering Sabrina](#)