

WATER, WATER EVERYWHERE!



INTRODUCTION

Water surrounds us on the Gunflint Trail. It fills lakes, rivers, streams and ponds. Everything alive needs water to survive, making water one of the most important things in the world. Believe it or not, both your own body and Planet Earth are made almost entirely out of water!



WHAT'S IN THE WATER ACTIVITY BIN:

Water Activity Supplies 1

- Watershed Kit

Water Activity Supplies 2

- Pond in a Jar Kit
- Pond Life Guide
- Freshwater Fishes Guide
- Reptiles and Amphibians Guide
- Basin
- Towels

NOTES FOR WATER ACTIVITIES:

- Complete activity outside on the grounds, near the lake.
- Activity takes approximately 60 minutes.
- Please do not remove these supplies from Chik-Wauk grounds.
- Please check out the supplies at museum front desk.
- Kids will be near the water's edge to complete the activities. Children's shoes and clothing can get wet. Never leave children unattended at the waterfront.



WATER ACTIVITIES

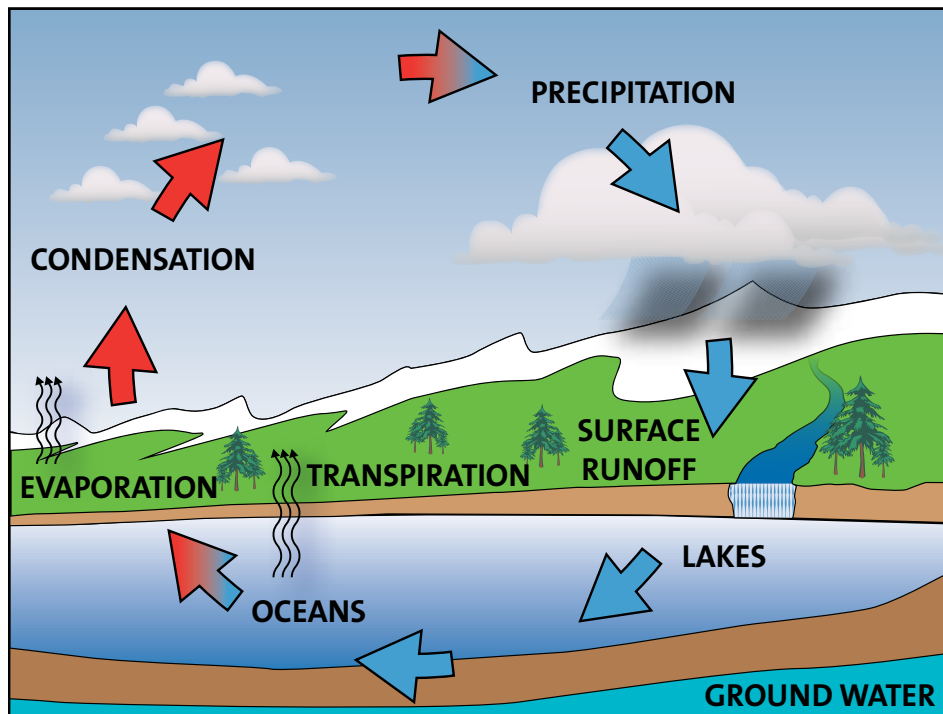
WHERE'S IT FROM?

Grab a bucket and fill it up with water from the bay. Take a good look at the water, then guess how old you think the water is.

Maybe the water you scooped up reached the bay when the snow melted this spring. Maybe it fell from the sky during a rainstorm last week. But when the water reached the bay doesn't tell you how old the water is.

Believe it or not, the water in your bucket is nearly as old as the world itself. This bucket of water was part of the lakes that dinosaurs walked through. Kings, queens, and knights could have pulled up this exact same bucket of water from their wells. *And you thought your parents were old!*

The Earth doesn't create new water – it just recycles it with a process known as the water cycle.



Four Parts of the Water Cycle

Evaporation and Transpiration Remember when you blew into your hand to feel water vapor? After a few seconds, your hands felt dry again because the water vapor evaporated when the heat from the sun warmed the water vapor until air around you absorbed the vapor. Plants also release water vapor into the air through their leaves. This is called transpiration.

Condensation When water vapor in the air cools, clouds form as the vapor starts turning into liquid. (You might have seen this on your windows the last time you had spaghetti for dinner during the winter.)

Precipitation When the air can no longer hold the condensed water, it starts to precipitate, or rain, snow, hail, or sleet.

Collection When it rains or snows, that water collects in oceans and lakes and then the whole cycle starts again as the sun warms the water and creates water vapor.

WHAT IS IT?

Water is a chemical substance. A single molecule of water contains two hydrogen atoms and one oxygen atom. (That's why people sometimes call water "H₂O.")

Water can exist in three different states: liquid, solid and gas. We usually think of water in its liquid state, but you also frequently see water in its solid state since ice, snow, and frost are all examples of solid water. You've never seen water in its gas state because water as a gas is invisible

ACTIVITY

Dry your hands with the towel in the pack. Now cup your hands over your mouth and breathe heavily into them. Wait a second, then rub your hands together. Do they feel wet or dry?

Yep, they're wet. That's because your breath is filled with water vapor – water in its gas state. Every time you breathe out, you release water vapor into the air which is absorbed by a process called evaporation.

WHY IS THERE SO MUCH WATER HERE?

Millions of years ago, glaciers – huge masses of ice – moved through the Gunflint Trail region. These glaciers carved out the ground underneath them, creating large basins that collected water just like huge rain barrels.

Almost all the water in the world is moving towards an ocean. The world is divided up into watersheds, or an area of the earth where all water flows to same point, usually an ocean. The watersheds are bordered by continental divides, which are usually tall and mountainous.

When you drive up the Gunflint Trail, you travel through two watersheds because a continental divide, known as the Laurentian Divide, crosses the Gunflint Trail. On the north side of the Laurentian Divide, all water eventually flows into Hudson Bay. On the south side of the Laurentian Divide, all the water flows into Lake Superior, through the Great Lakes and Saint Lawrence Seaway ending in the Atlantic Ocean.



ACTIVITY

Stop at the Laurentian Divide on your way down the Gunflint Trail to see where water starts flowing different directions.

ACTIVITY

Create Your Own Watershed

Pull out the watershed kit. The kit's containers represent lakes and rivers. The container with two tubes represents a continental divide.

With water from the bay, fill up all the containers as full as possible. Set the "continental divide" on top of the block of wood labeled "high hill." Now place the two largest containers on either side of the "continental divide." Make sure the "continental divide" is arranged to empty into both containers. Arrange the rest of your "lakes" largest to smallest on either side of the "continental divide," making sure that each river empty into the next lake. The last river empties onto the ground, which represents the ocean.

Fill your bucket with water from the bay and pour water from this bucket into the top of the "continental divide" to make it "rain." Watch how the water moves through your lakes and rivers. Experiment with pouring different amounts into the "continental divide." Create a "rainstorm" in another area of the watershed by pouring water into a random lake or river.

This is how water moves through watersheds, because each lake in the watershed is located at a slightly lower elevation than the lake before it, causing water to run downhill when the first lake overflows.

WHAT LIVES IN WATER?

In general, watersheds and the water cycle move water slowly around the world. When water sits (relatively) still in a pond or lake, it supports all sorts of living things – like plants, ducks, and fish. Water in lakes and ponds contains many nutrients – like nitrogen and phosphorous – which plants, animals, and other creatures need to live. Water gains these nutrients from leaves or plants falling into water or from rainwater or melted snow running along the ground before draining into a lake or pond. You can't see most of the creatures who feed on these nutrients without a magnifying glass or microscope.

ACTIVITY

Create Your Own “Pond in a Jar”

Take the “Pond in a Jar” kit out of the pack. Scoop up some water with a bucket. Scoop through the weeds so you catch creatures living there.

Look in your bucket in a well-lighted place. Do you see any little living things moving around? Use a turkey baster to transfer the ones you want to see, along with water, into a jar. Look through the sides of the jar to see what you can see.

Pour the water into a thin layer on a white plate. Look down at the living things with a magnifying glass. Look at a drop under the microscope. Use the pond guide to identify what you see.

(Adapted from Mary Hoff's “Life in a Jar” activity, published in the July/August 2002 issue of the *Minnesota Conservation Volunteer*.)

WE HOPE YOU ENJOYED USING THIS ACTIVITY PACK!

Please pour all the water you collected during these activities back into the lake and dry the containers as best you can with the towel. Please put everything you pulled out back into the bin and return the bin to the museum front desk. Thank you!