TEACHER OVERVIEW

Humans and Water

3rd – 5th Grade

Nature Vision Student Packet

The materials contained within this packet for students have been created by Nature Vision, an environmental education nonprofit organization that brings programming to schools and local greenspaces for over 70,000 PreK-12th grade students each year in King and Snohomish Counties. This curriculum is designed to foster an understanding of the importance of water and its integral role in supporting life and shaping our planet. Packets can be completed by students either independently from home, or with the help of an adult caregiver. Materials for each day of the week build on the previous days' learning by offering a variety of activities that involve art, writing, safe field exploration, and kinesthetic activities.

These materials are provided to you by Cascade Water Alliance (Cascade). Cascade wants everyone to understand the importance of conserving and protecting our limited water resources. Cascade supports Nature Vision in the development and delivery of water education programs and we are happy to offer these materials to our friends in the community. Learn more about Cascade at cascadewater.org.

This unit supports NGSS Performance Expectations across various disciplines, as well as supporting K-12 Integrated Environmental and Sustainability Standards. These are listed at the bottom of this page. Teachers will be supplied with PDF formats of materials to be emailed to families, or teachers may print and send to students to complete at home.

Students begin with an introduction to how water is collected and transported and how it is cleaned for human use. Next, students explore how we use water in the United States, as well as how water is used in other parts of the world. Students then explore the role human impact plays on having enough clean water. Lastly, they learn ways that we can help protect and restore the environment in our local watersheds.

If you have any further questions or concerns regarding this packet, please email our Office Coordinator at info@naturevision.org.

Grades 3-5
Supports NGSS Performance Expectations: 3-ESS3-1, 4-ESS2-2, 4-ESS3-2, 5-ESS2-1, 5-ESS3-1.

Grades 3-5
Day 1 - Water Supply
Day 2 - How We Clean Our Water
Day 3 - How We Use Our Water
Day 4 - Humans and Water
Day 5 - Stewardship

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CASCADE WATER ALLIANCE

Nature VISION

PARENT/CAREGIVER OVERVIEW

Humans and Water

Grades 3-5

Welcome to Nature Vision's student packet for home use. Nature Vision is an environmental education nonprofit organization that brings programming to schools and local greenspaces for over 70,000 PreK-12th grade students each year in King and Snohomish Counties. We are excited to be offering this version of our programming directly to students at home!

This packet is designed to be completed over the course of one week, with each day focusing on a different aspect of environmental science and stewardship. The majority of these materials can be completed independently, but we thought it would be important to provide background information for any adults who may be helping to complete or answer questions. We've included the basic learning objectives for each day along with some vocabulary.

These materials are provided to you by Cascade Water Alliance (Cascade). Cascade wants everyone to understand the importance of conserving and protecting our limited water resources. Cascade supports Nature Vision in the development and delivery of water education programs and we are happy to offer these materials to our friends in the community. Learn more about Cascade at cascadewater.org.

Another great resource to learn about saving water and how to help our salmon and watersheds is weneedwater.org. Check out the We Need Water webpage or on Instagram @WeNeedH20 to see how you can be part of this campaign! Challenge yourself to use #WeNeedWater to post all the things you are doing with your friends and family to conserve and protect water!

Please contact info@naturevision.org with any questions or concerns
Stay connected with Nature Vision! Follow us for updates @naturevisionorg

NOTE: Students may require support in reading directions and/or completing some tasks.

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CASCADE WATER ALLIANCE

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PARENT/CAREGIVER OVERVIEW: DAY 1

Water Supply

Background Information: All of the fresh water that flows into our homes and the other locations in our community comes from nature and is a resource that is shared with all of the other plants, animals, and people within our region. This water is either pumped from lakes, rivers and streams or pulled from underground aquifers via wells.

Learning Objectives: Students will learn where the water we use comes from. They will also explore various methods for transporting water, both within and outside of our own watershed.

Main Activity: Water Transportation

- ***Overview****:* Students use a collection of implements to try to transport water
- ***Parent/Caregiver Tasks****:* Assist students with acquiring materials and doing the activity in a safe, clean manner

Optional Activity: We Need Water Challenge

- ***Overview****:* Students complete a daily task related to a water conservation habit and a challenge to spread awareness on the importance of saving water
- ***Parent/Caregiver Tasks****:* If possible, help the student post their #WeNeedWater challenge on social media

Optional Activity: Video

- ***Overview****:* Students watch a video from “SciShow Kids” that explains how water travels from our watersheds into our homes
- ***Parent/Caregiver Tasks****:* Help students access video online

PARENT/CAREGIVER OVERVIEW: DAY 2

How We Clean Our Water

Background Information: The fresh water that we consume is filtered and treated before reaching our homes. Once it is used, the resulting waste is sent back to water treatment facilities where most of the pollutants are separated out and the remaining water is returned to the Puget Sound.

Learning Objectives: Students will learn how water is treated from where it is collected in nature and before it reaches our homes. In addition, students will learn about how treatment can remove pollutants and other hazardous materials from water.

Main Activity: Water Filter

- ***Overview****:* Student use materials from around their home to construct a water filter
- ***Parent/Caregiver Tasks****:* Assist students with the collection of materials and supervise any outdoor activity

Optional Activity: We Need Water Challenge

- ***Overview****:* Students complete a daily task related to a water conservation habit and a challenge to spread awareness on the importance of saving water
- ***Parent/Caregiver Tasks****:* If possible, help the student post their #WeNeedWater challenge on social media

Optional Activity: Water Art and Poems

- ***Overview****:* Students create a poem or drawing about their favorite way to use the fresh, clean water in our homes
- ***Parent/Caregiver Tasks****:* None

PARENT/CAREGIVER OVERVIEW: DAY 3

How We Use Our Water

Background Information: There are many ways people use water at home and sometimes our daily habits use more water than we need. There are simple ways to save water at home, school, and work, but it first helps to know how we use our water before we learn how to improve.

Learning Objectives: Students will explore various water use habits and ways that water can be conserved at home.

Main Activity: My Water Use

- ***Overview****:* Students fill out a worksheet about their water use habits and explore ways that some habits can be improved
- ***Parent/Caregiver Tasks****:* None

Optional Activity: We Need Water Challenge

- ***Overview****:* Students complete a daily task related to a water conservation habit and a challenge to spread awareness on the importance of saving water
- ***Parent/Caregiver Tasks****:* If possible, help the student post their #WeNeedWater challenge on social media

Optional Activity: Hand-Washing Experiment

- ***Overview****:* Students conduct an experiment where they measure the amount of water saved by turning the faucet off while scrubbing hands
- ***Parent/Caregiver Tasks****:* Assist student with acquiring materials and conducting the experiment in a clean manner

PARENT/CAREGIVER OVERVIEW: DAY 4

Humans and Water

Background Information: While our water supply is abundant in the Pacific Northwest, many other communities live with far less. Water shortages are a global crisis that affect billions of people and their environments. Students will consider the implications of having restrictions to their ability to obtain fresh water and explore methods of improving this situation.

Learning Objectives: Students will be introduced to the global water crisis, which affects 2.5 billion people. They will also learn about how water access can affect poverty, access to education, and other social issues. Lastly, students will explore and practice methods for improving water access.

Main Activity: Water Rationing

- ***Overview****:* Students compare the average daily water use of someone in our region to that of those severely impacted by shortages. They will use water use data to plan how they would use water if they had a comparably diminished supply.
- ***Parent/Caregiver Tasks****:* Assist student in gathering materials and provide help where needed

Optional Activity: We Need Water Challenge

- ***Overview****:* Students complete a daily task related to a water conservation habit and a challenge to spread awareness on the importance of saving water
- ***Parent/Caregiver Tasks****:* If possible, help the student post their #WeNeedWater challenge on social media

Optional Activity: Engineering Community Solutions

- ***Overview****:* Students explore how a water development organization helps populations experiencing water shortages by designing a water supply system for a hypothetical community
- ***Parent/Caregiver Tasks****:* Help students access online video and provide coaching where necessary to help students consider many of the challenges that come with building new infrastructure

PARENT/CAREGIVER OVERVIEW: DAY 5

Stewardship

Background Information: Stewardship includes all of the ways we care for the natural world, including conserving natural resources like water. Stewardship activities can help reinforce what we've learned about water conservation and our water use this week by focusing on solutions that will support people and the other life that shares our ecosystem. We can think about how we interact with the world around us and do our best to make sure that we have a positive impact on the environment.

Learning Objectives: Students will be encouraged to be creative with finding solutions to the problems surrounding caring for our environment. This material will help them foster a deeper relationship with environmental and social issues in our region and world. They will learn to commit to mindful and sustainable approaches to water use at home.

Main Activity: Dream for the Future

- ***Overview****:* Students imagine the world they would like to see in the future and draw a scene from it
- ***Parent/Caregiver Tasks****:* Help students to reflect on past learning and relevant experiences that will aid in this activity

Optional Activity: We Need Water Challenge

- ***Overview****:* Students complete a daily task related to a water conservation habit and a challenge to spread awareness on the importance of saving water
- ***Parent/Caregiver Tasks****:* If possible, help the student post their #WeNeedWater challenge on social media

Optional Activity: Plant Pressing

- ***Overview****:* Students create a plant pressing using a leaf or flower they find, in order to remind them why it is important to care for nature.
- ***Parent/Caregiver Tasks****:* None

PARENT/CAREGIVER OVERVIEW: VOCABULARY

DAY 1
Aquifer: An underground water supply flowing through sand and gravel
Groundwater: Water that lies beneath the earth's surface
Saturated Zone: Land that is so full of water it can't hold any more
Surface Water: Water on the earth's surface in lakes, rivers and streams
Reservoir: A large natural or artificial lake used as a source of water supply
Unsaturated Zone: Land that is able to absorb more water and hold onto it

DAY 2
Filtration: The process of cleaning water so it is safe to drink
Sewer or Combined: The pipes used to transport human waste and sometimes rain water
Outfall: Where waste water is piped back into nature
Contaminants: Something that makes water dirty or unclean

DAY 3
Average: The most common amount of something
Habits: Things that we do without thinking much about them

DAY 4
Rationing: A controlled use of a resource, such as water

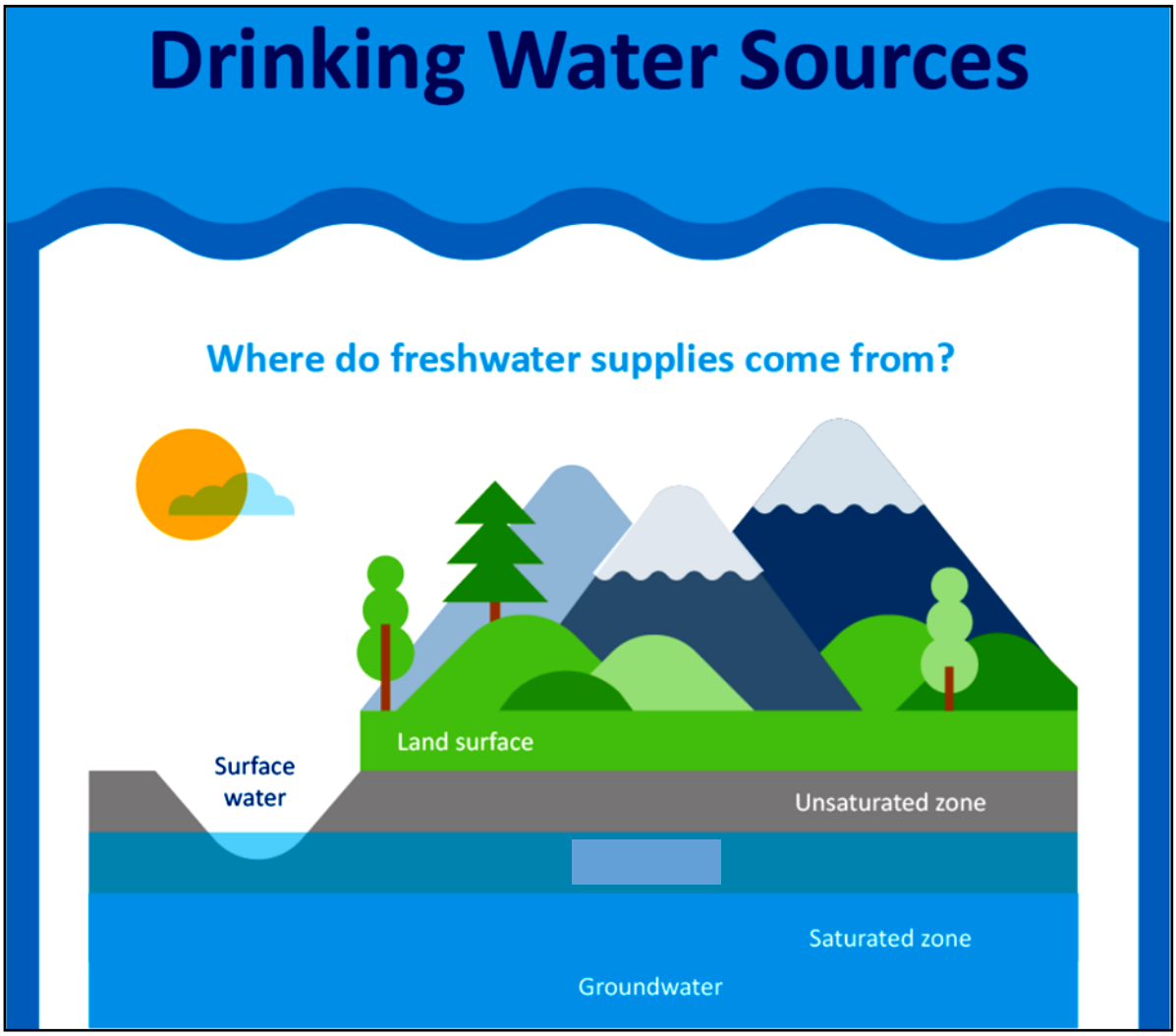
DAY 5
Pledge: A promise
Stewardship: Taking care of something; being a protector

DAY 1

Water Supply

Where does our water come from? When we turn on the faucet in our homes, fresh, clean, water comes out, but where was that water before the tap? Our water comes from nature, and we share that water with all the other living things in our environment. Today we'll explore the journey that our water takes on the way to our homes, schools, and communities.

Water can be stored in the environment in lakes, rivers, and streams, which we call **surface** water. Water can also be stored below the surface of the earth and is called **groundwater**.



Source: https://www.waterlogic.com/en-us/resources-blog/where-does-our-drinking-water-actually-come-from/

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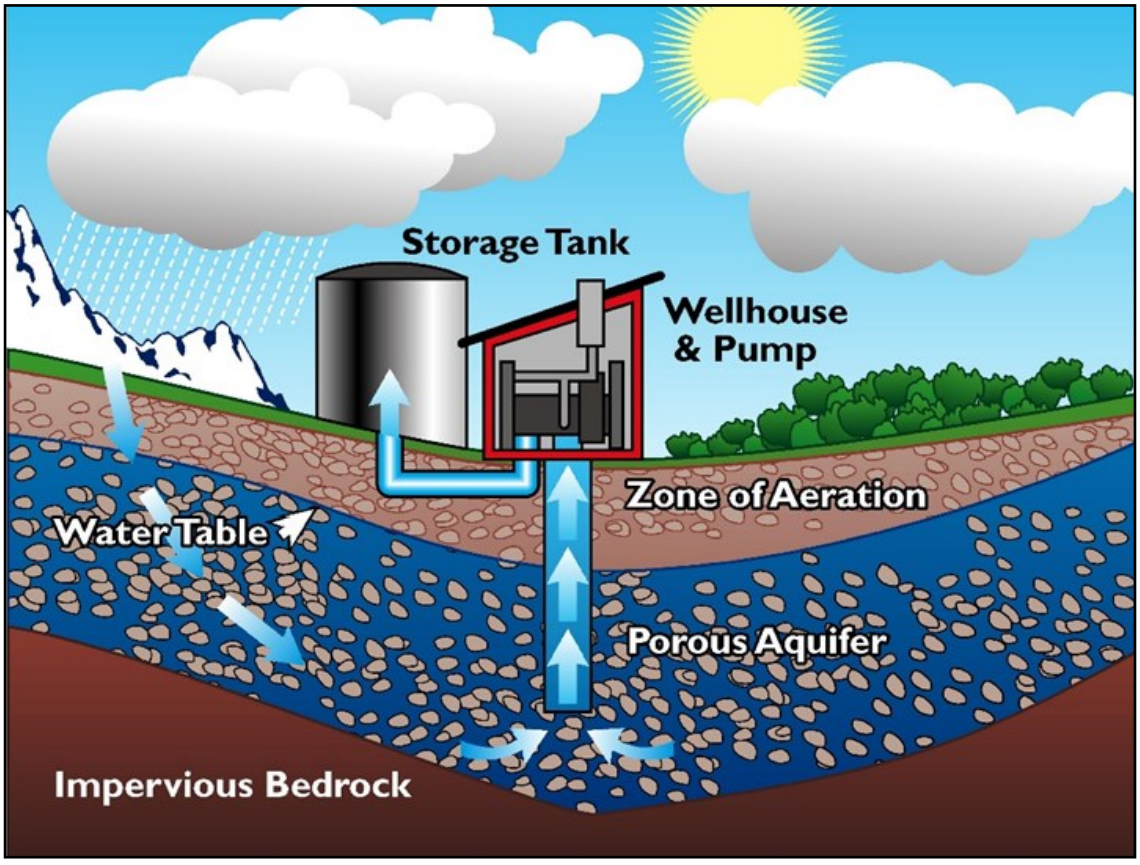
Groundwater is stored in what is called an **aquifer**, an underground source of water that we can access using a well by either digging down to the water, or pumping it to the surface. Some wells are still dug by hand today, but more modern methods are available. Wells are extremely important to all societies. In many places wells provide a reliable and ample supply of water for home uses, irrigation, and industries.

On the other hand, most of the surface water that we use comes from two different sources, the Cedar River and the Tolt River. Water is stored in **reservoirs**, protected lakes for our drinking water and then treated at a facility so that we can drink it. This water is then pumped over 20 miles to reach our homes, schools and businesses. Groundwater is pumped to the surface to be cleaned from groundwater management areas, places where the amount of possible pollution is looked at carefully to protect the source of drinking water.



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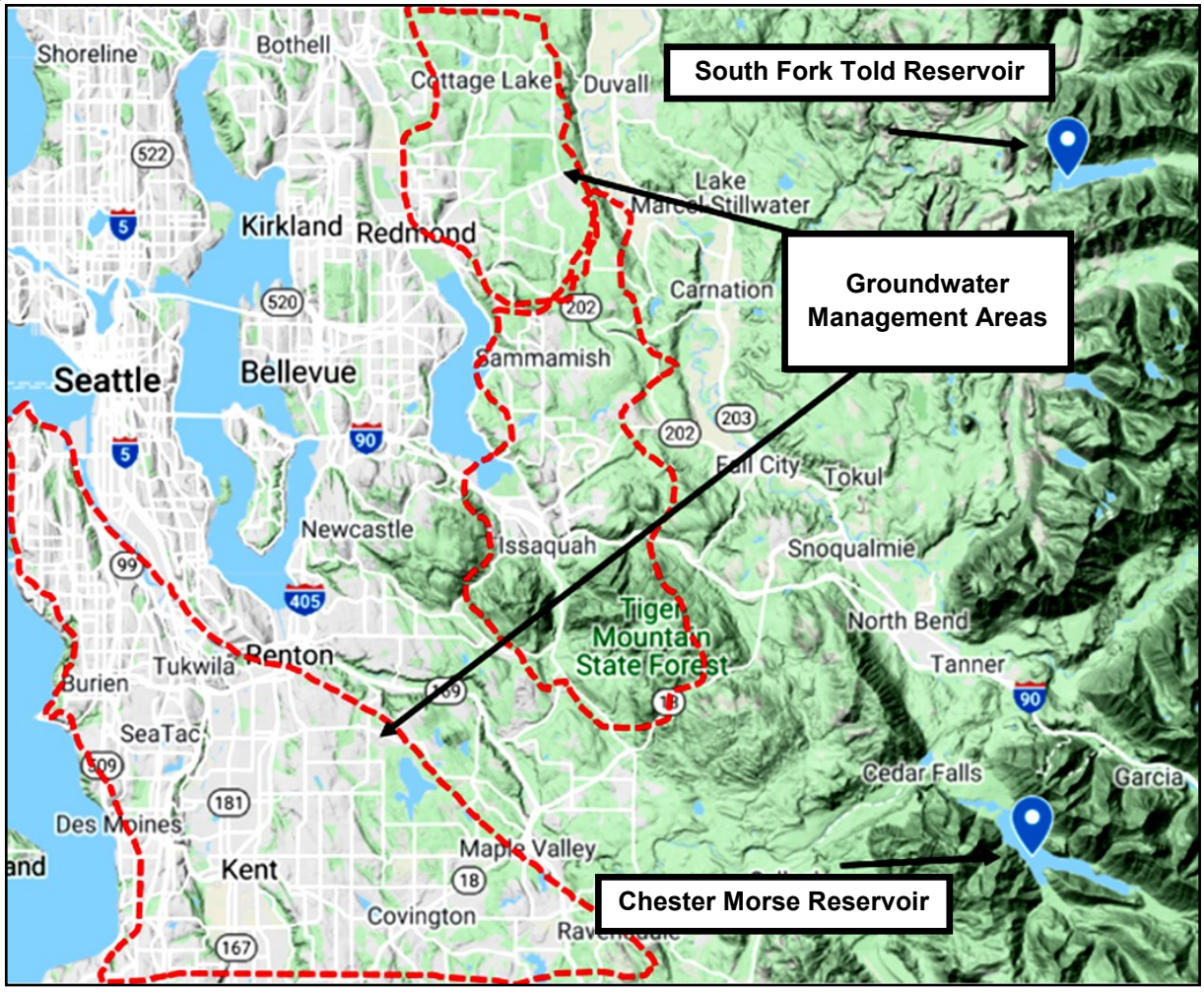


Source: Google Maps

Vocabulary

Aquifer: An underground water supply flowing through sand and gravel
Groundwater: Water that lies beneath the earth's surface
Saturated Zone: Land that is so full of water it can't hold any more
Surface Water: Water on the earth's surface in lakes, rivers and streams
Reservoir: A large natural or artificial lake used as a source of water supply
Unsaturated Zone: Land that is able to absorb more water and hold onto it

Main Activity

Water Transportation

One of the biggest challenges for people is how to move our water from where it is in nature to where we need to use it, like in our homes or our schools. Today, you'll participate in an activity to learn how moving water around is a lot of work!

Materials: (Optional) water, 2 liter bottle or 1 gallon jug, spoons, straws, drink bottles, ladles, other house hold items. ***Use what you have with an adult's permission!***

First, you'll experiment with engineering skills and build some models of how moving water from a reservoir or aquifer can work.

In a safe place like a sink or bathtub (this will be your "reservoir"), using items around your home like spoons, straws, or drink bottles, design and build a way to move 1 liter of water from a "reservoir" to a place where you would want to use it. ***Make sure you ask for adult permission and are very careful to avoid spilling water and making a mess.***

You can scoop the water by hand, build a pipe using drink bottles, or come up with another idea! Communities around the world need to use the things that they have available to them to transport water, so there is no right or wrong way to do this as long as you are careful and safe. Be sure to have an adults help and be careful about how you plan your water project so you spill as little water as possible.

What ways can you find to move the most water quickly and easily?

Why do you think it's important for us to be able to move as much water as possible?

We are lucky to live in a place where our water comes right to our homes. Some communities around the world need to collect their water for the day and carry it from the source to their homes. Sometimes this journey is miles and miles long. In this second part of the activity, we'll practice carrying water from its source to our home, just like they do in other parts of the world.

Make sure you have adult permission and supervision for this activity. Fill a plastic container that you can close, like a two liter soda bottle or a recycled gallon milk jug with a tight screw-on cap. Make sure that whatever container you use is safe and won't break or spill if you accidentally drop it. Fill it with water and prepare for some exercise! Next, find a place in your home to be a "water source" and place your bottle of water there, then carry it your kitchen sink or bath tub.

How many times can you do this before you start to feel tired?

How far do you think you could carry this water if you needed to?

Each gallon of water weighs about 8 pounds (a 2 liter bottle of water weighs about 4.5 pounds) Our water systems moves millions of gallons of water every day. *How many times can you pick up your gallon of water before you feel tired?*

How many times can you do this using only one hand?

Optional Activity

We Need Water Challenge

There are so many ways to save, protect, and care for our water. At the end of every daily lesson, we will be giving a challenge to help you show off what you've learned.

Materials: Timer, computer/phone/tablet, internet

Did you know that your shower uses 2 gallons or more of water every minute? Most people shower for about 10 minutes, and use almost 20 gallons of water for every shower. One of the simplest ways to save water is to think about the amount of time that we are in the shower. It's recommended that we take showers of just 5 minutes long to save water. For today's We Need Water challenge, time how long you are in the shower and calculate out how much water you used today. Can you use less tomorrow?

To share your work, post your challenge to Facebook and/or Instagram (with an adult) so other people in your community can learn too! Don't forget to use the hashtag #WeNeedWater and tag @weneedh20 and @naturevisionorg in your post so we can see your work!

Optional Activity

Video

Please ask for an adult's permission to watch this video.

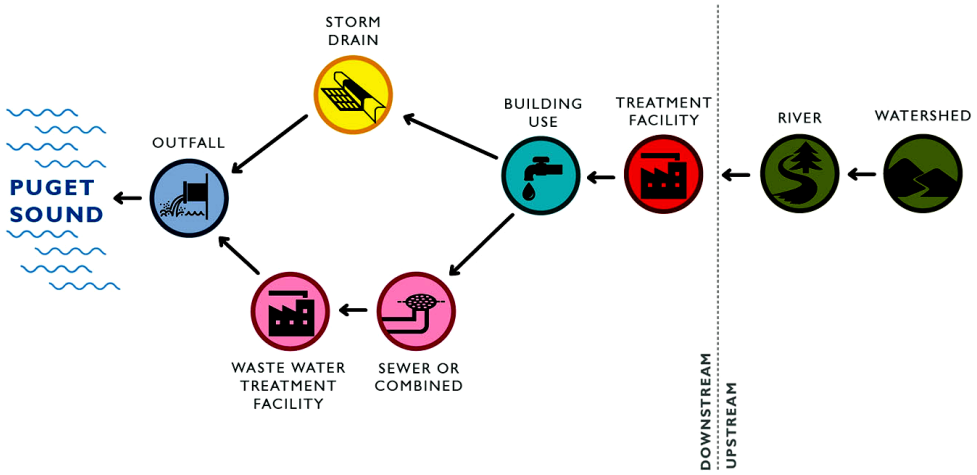
"SciShow Kids: How Does Water Get to Our House?": This short video shows how water makes it's way from nature to our homes. This video can found by doing a YouTube search for "SciShow Kids: How Does Water Get to Our House?" or by using the following link: www.youtube.com/watch?v=cGi4PugN4qY

Materials: Computer/phone/tablet, internet connection

DAY 2

How We Clean Our Water

The water that we use comes from and eventually returns to nature. We collect the water from rivers in our watershed, then treat that water so that it is safe to use and drink. After we use it, it is cleaned and sent back to nature. Because of where we live, it is brought to us from lakes, streams, and from under the ground, then it is cleaned. After we use it, it is treated again and finally it is sent back to Puget Sound.



Source: https://archinect.com/weber-thompson/release/reusing-stormwater-can-release-untapped-benefits

All of this water is made safe for using through a process called **filtration**. You may have a water filter in your home, like a Brita filter that attaches to your faucet, or a pitcher that you fill with water from the tap. These filters work in a similar way to how our water is cleaned before it is sent to our homes. Today we'll practice filtering water in ways that are similar to how we treat the water for drinking.

Vocabulary
Filtration: The process of cleaning water so it is safe to drink
Sewer or Combined: The pipes used to transport human waste and sometimes rain water
Outfall: Where waste water is piped back into nature
Contaminants: Something that makes water dirty or unclean

Main Activity

Water Filter

We can make our own small version of how drinking water is filtered so it is safe for us to use. This is a similar process to how we clean water for our use at home, but much smaller. You'll need some materials that you should be able to find around your home and neighborhood. ***As always, substitute for whatever you have adult permission to use.***

Materials:

- 2 clear cups or jars
- Sand, gravel, and/or small pebbles (***With adult permission,*** *you can collect sand, gravel and pebbles from nature, or use play sand or aquarium gravel if you have it.* ***If you're going outside, make sure you have an adult come with you for safety,*** *and be sure to rinse the sand and gravel you collect before you use it for this experiment.)*
- Measuring cup
- 3-4 coffee filters or napkins
- Dirty water *(You can make your own by starting with clean water and adding some things from your home like black pepper to represent dirt and pollution.)*
- A plastic cup with a hole cut in the bottom or half a bottle without the lid

Instructions:

1. Take the plastic cup (or bottle) with a hole cut in the bottom and layer the napkins (or the coffee filters) inside. You may need help from an adult to cut the hole safely!

2. Next, add about a ½ cup of sand. Then, add a ½ cup of gravel.

3. Put the cup into an empty jar or another cup to catch the water in the next step.

4. Take the dirty water and pour it through the plastic cup with the layers of gravel and sand. Watch the water filter through the cup into the jar! Leave some of the dirty water behind to compare.

5. Compare the filtered water to the water that's dirty. What do you notice? Write your observations below:

Want to see what was filtered? Dig through the sand, gravel and coffee filters/napkins to see what was removed by the water by each material. *Don't drink the filtered water in the filtered experiment* – actual filtration to make water safe to drink takes *much* longer!

Now, try filtering the same water again through clean sand, gravel and coffee filters. What do you notice this time?

Expand the experiment by making dirty water with different types of **contaminants** like oil or spices. Which materials work the best to clean the water? Which contaminants are the hardest to remove?

Optional Activity

We Need Water Challenge

Human actions can affect a lot of different things in nature, sometimes in good ways and sometimes in bad ways. One of the bad ways that people have affected nature is through climate change. Climate change which is when pollution and other human activity starts to raise the normal temperatures of our planet. An increase in Earth's overall temperature negatively impacts the weather, our waterways, and all living things around the world.

Materials: Writing utensil, crayons/markers/colored pencils (optional), computer/phone/tablet, internet connection

For today's #WeNeedWater challenge, it's story time! Talk to an older person in your family and see if they have any stories about climate change affecting their life. If you're wondering what to ask about, maybe see if they have noticed…

- Colder winters than when they were your age?
- Hotter, drier summers?
- Melting ice and glaciers in the mountains?
- Big storms happening more often?
- Bigger wildfires?

If your storyteller agrees, record everything that they tell you! You can write down their stories, draw a picture or comic showing what happened, or you can even record them and make a short video. Use the space below if you'd like!

To share your work, post your challenge to Facebook and/or Instagram (with an adult) so other people in your community can learn too! Don't forget to use the hashtag #WeNeedWater and tag @weneedh20 and @naturevisionorg in your post so we can see your work!

Optional Activity

Water Art and Poems

We've spent today thinking about how clean fresh water arrives to your homes, and now we want you to think about all the things you do that use that water!

Materials: Writing utensil

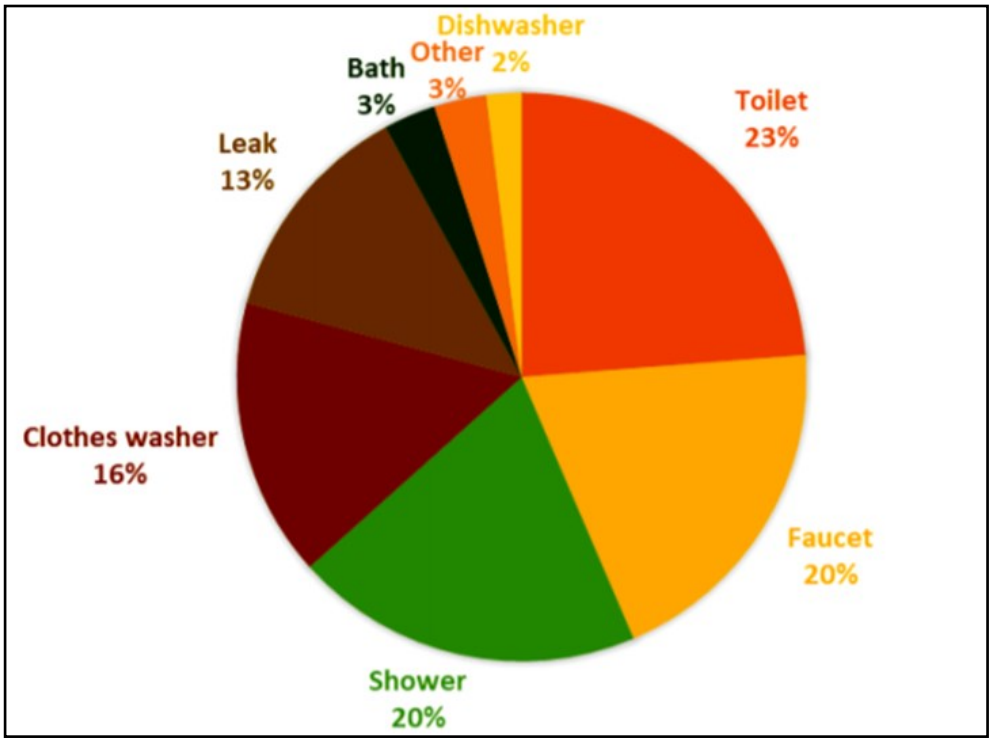
Do you like making lemonade? Cooking pasta? Swimming in a pool? Great! Write a poem or draw a picture about your favorite way to use the fresh, clean water in our homes.

DAY 3

How We Use Our Water

Once the water has been cleaned and sent to our homes we use water in a lot of different ways. People use water to drink, cook, clean, and water our lawns and gardens. We've seen how much work it can be to clean and transport that water, so we know how important it is to be careful with this resource. One way that people can save a lot of water is by being careful about the ways that we use it — or their water use **habits** — and how much we use.

Today, we'll work to keep track of all the ways that you use water in your home. Below is a chart that shows how most homes use their water by showing the **average** water use of households. One of the largest uses of water is our toilets. We can see that each day a household uses about 23% of all the water for the day to flush their toilets. That means that if this home uses 100 gallons of water per person in a day, 23 of those gallons are used to flush the toilet. That's a lot of water!



Vocabulary
Average: The most common amount of something
Habits: Things that we do without thinking much about them

CASCADE WATER ALLIANCE

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Main Activity

My Water Use

Do you know how you use your water? Do you think you be more careful with how you use it and how much of it you use? This guide on the next page helps us think about the ways that we use water in our homes and if here are some better habits that we can try to start doing. Take a look at this guide and complete the activities listed on it! Then write some ideas about your water use in the space below.

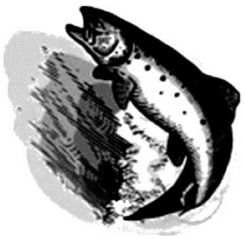
Materials: Writing utensil

My Water Choices-Should I Change My Habits?

How are your current water conservation efforts?
What can you do to improve your water saving habits?

1. Put an X through the boxes that best describes your current water habits
2. Circle the boxes that describe changes you can make to protect our water resources

Water Habit	Needs Work	Better	Best
Teeth Brushing 	I turn on the water to brush my teeth and forget to turn it off.	I leave the water running while I am brushing my teeth.	I turn on the water only when I need to rinse my mouth or toothbrush.
Showering 	I turn the water on hot and let it run on my back like a massage for 20 or 30 minutes.	I limit my shower to 10 minutes.	I try to limit my shower to 5 minutes and turn It off to lather up. I think about saving water for salmon when I turn off the shower.
Using the Faucet 	I know only 2 settings for my faucet: all the way on, or all the way off. I rarely think about using only the water I need.	I use varying degrees of water pressure (high or low amounts of water) based on my needs.	I use a high efficiency (water saving) faucets and only turn it on when I need to.
Car Wash 	It's fun to wash the car so I play with the hose. I let the water run while I'm soaping up the car and let the soapy water run down the stormdrain (these drains in the street go directly to freshwater).	I turn the hose off while I am soaping up the car.	I wash my car at a commercial car wash that recycles the water.
Lawn Care 	I have lots of lawn. I cut my lawn as short as possible and I use lots of chemicals and watering for a uniform green carpet effect.	I cut my grass, but I use few or no chemicals. I water when necessary and obey the restricted watering guidelines during drought time.	I have just a little, or no lawn. I mulch with my clippings when I mow (leave them on the lawn to help hold moisture). I water carefully and only when possible. I obey watering guidelines during drought times.

Water Habit	Needs Work	Better	Best
Playing with Water 	I play in the sprinkler for hours most days in the summer and then just leave the water running when I am tired of playing.	I fill a plastic pool with water to play in.	I got to a public beach to play in the water.
Dishwashing 	I let the water run down the drain the entire time I wash and rinse the dishes. I wash the dishes before putting them in the dishwasher and run the dishwasher even if there are only a few dishes in it.	I turn the water off whenever I am washing the dishes and I turn it on only when I rinse. I rinse the dishes and only run the dishwasher if it is full.	I use only one sink full of water for washing and rinsing. I scrape the dishes before I fill the dishwasher and only run the dishwasher full on the energy saving mode. I use one glass a day.
Protecting Salmon Streams and Aquifers 	I let my dog and/or horse run through salmon streams with me. Sometimes we build rock damns across the stream. I never think about aquifers (underground water) and don't know where they are in my community.	I avoid walking in salmon streams so that I do not crush eggs or disturb fry. I know where the aquifers are in my area and try to remember not to pour anything into the environment that might pollute them.	I make sure nothing goes down the stormdrain by my house except water. This means I make a habit of doing things like washing my car at a car wash and recycling my car oil. I make sure not to disturb the important areas around streams and near aquifers.
Clothes Washing 	I wash really small loads in my washer and use lots of soap and bleach because my clothes get cleaner. I would never wear my clothes twice before washing.	I wash capacity size loads in my washer, use recommended amounts of soap and I use bleach only when I need to.	I use only phosphate free soaps in my washer on the cold setting (phosphates are chemicals that are harmful to our freshwater). I often wear my clothes more than once if they are not dirty.
Toilet Flushing 	I never think about how often I flush or if my tank leaks. I use my toilet as a waste basket.	I am careful about how often I flush, and I don't put trash down the toilet.	I have installed high efficiency (water saving) toilets at home and check once a year for leaks.

The ways that we use our water matters because we are taking water from nature, and we are sending it back to nature. If we are not careful with the water that we use, there will be less available for the other living things in our environment, and if we're not careful about keeping our water clean, it can send pollution and other bad things into the environment where it is harmful to people, plants, and animals.

Optional Activity

We Need Water Challenge

We have learned so much about taking care of our world for us and all of the life that will live here in the future!

Materials: Writing utensil, crayons/markers/colored pencils (optional), computer/phone/tablet, internet connection

Write a letter or draw a picture to your future self. In the letter or picture, explain what you are doing or plan to do to make sure your future self has a clean, healthy environment. Talk about what you hope the world will look like in twenty years and why what you're learning here matters. Feel free to use the space on the following page.

When you finish, seal up your letter and write a date years from now and put it somewhere safe. Don't open the letter until that date! Who knows, maybe with enough care the future will look a lot like you imagine when you open it!

To share your work, post your challenge to Facebook and/or Instagram (with an adult) so other people in your community can learn too! Don't forget to use the hashtag #WeNeedWater and tag @weneedh20 and @naturevisionorg in your post so we can see your work!

Optional Activity

Hand-Washing Experiment

Do you know how much water you use to wash your hands? It can be quite a lot if you're not careful. You can find out just how much water you use and practice washing your hands in a way that saves water with this easy experiment.

Materials: Bucket, measuring cup

Instructions:

1. Write down how much water you think you use when you wash your hands.
2. Place an empty tub in the sink to catch all the water used while water you use while washing.
3. First, you'll practice washing your hands in a way that saves water.
4. Wet your hands with clean, running water, ***turn off the tap***, and apply soap.
5. Lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
6. Scrub your hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song twice from beginning to end!
7. Rinse your hands well under clean, running water.
8. Dry your hands using a clean towel or air dry them.
9. Measure the water that you collected to find out how much water you used in the space below:

Cups_____ Ounces_____

Next, you'll see how much water you can <u>waste</u> if you leave the water running while you wash your hands.

1. Wet your hands with clean, running water, apply soap, and ***leave the water running***.
2. Lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
3. Scrub your hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song twice from beginning to end!
4. Rinse your hands well under clean, running water.
5. Dry your hands using a clean towel or air dry them.
6. Turn off the water.
7. Carefully remove the tub from the sink and measure the water that you collected.
8. Measure the water that you collected to find out how much water you used.

Cups_____ Ounces_____

Did turning off the water while washing save any water?

How much?

Did you predict that turning off the water while washing your hands could really save that much water?

DAY 4

Humans and Water

Today, we are going to think about how clean water is a necessary resource for all humans. We are fortunate to live in a place where we have access to plentiful water to drink and use in our day to day lives. But there is a global water crisis affecting 2.5 billion people around the world. Many of the world's poorest communities are without access to clean water and even a simple toilet. This causes many problems, but today we are going to explore solutions to tackle this crisis.

To help us best understand these issues, we will compare our local water usage to the amount of water collected and used daily by people living in the world's poorest communities. We will brainstorm ways we can save water every day to make sure we aren't taking our access to water for granted, like **rationing** our water use. We will also think of ways to save water that make sure we maintain an adequate water supply. We will also learn about the many problems that arise when people do not have access to clean drinking water and engineer a solution by building a water systems model.

Vocabulary
Rationing: A controlled use of a resource, such as water

Main Activity

Water Rationing

An average person in the United States uses around 100 gallons of water each day!

In many communities around the world people do not have access to a water supply in their homes the way we do. Instead of turning on a faucet, women and girls spend up to five hours a day carrying five gallon water containers many miles to and from their local water source. This five gallons of water is the daily water supply for their entire household, meaning they share the water with their whole family. Each jug weighs 40 pounds or more! Imagine carrying one or more of these for many miles every day…

Today we are going to see how your household would do if you could only use five gallons of water each day.

Materials: A sheet or a piece of paper, writing utensil, 20 tokens (can be any small object!)

Gather 20 tokens of your choice. These can be pebbles, pieces of paper, coins, or any other small objects. These tokens represent the five gallons of water that is used daily by the households in the poorest communities around the world. One token equals one quart of water, and four tokens will equal one gallon of water.

On the next page, you will find a water usage sheet with various water fixtures you have around your home and an average of how much water they use daily. Use the water usage sheet to help your household ration out the five gallons of water (20 tokens) to meet your daily household needs.

Place the tokens on each household fixture card that your household has decided is important to use that day. Remember you only have 5 gallons for your entire household for today! Some fixtures like the washing machine use a set number of gallons and if you don't have enough water you cannot use that appliance. With some fixtures, like the sink, you can choose how much water to use. So some fixtures might use fewer gallons than it typically uses during a day, or you might have to break down gallons into smaller units of measurement, like quarts, when you calculate how much you'll use with different appliances. One token equals one quart, so four tokens equals one gallon. It all depends on what is necessary for your household's survival that day!

The average showerhead uses 2.5 to 5 gallons of water per minute.

This is where you collect your water to bathe in our scenario.

The average toilet uses 1.28 to 1.6 gallons of water per flush.

This is your toilet if you don't have access to proper sanitation.

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The average washing machine uses 20 to 50 gallons of water per load.

This is the water you collect to wash your clothes in our scenario.

The average faucet uses 3 to 7 gallons of water per minute.

This is where you collect your water for things like brushing your teeth and washing your hands in our scenario.

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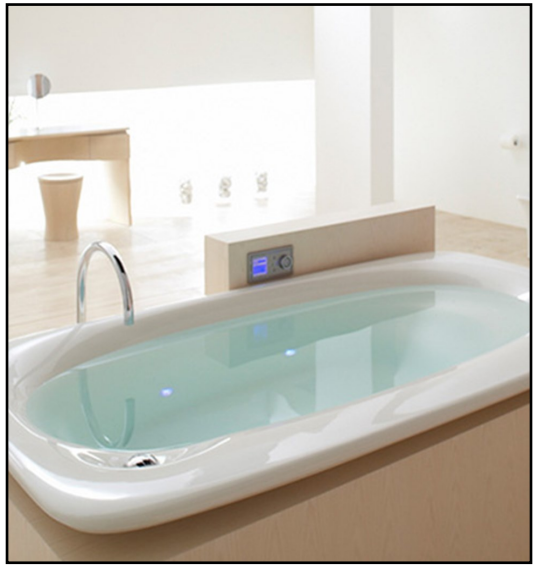
The average dishwasher uses 3 to 6 gallons of water per load .

This is where you gather water for washing your dishes in our scenario.



Most bathtubs take over 30 gallons of water to fill.

Here is an example of a place you could wash yourself in our scenario.

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Questions:

- What fixtures did you decide were necessary to use today?

- How much water in gallons-or quarts-did you ration for each of these water fixtures?

- What water fixture(s) did you sacrifice for the day?

- Was the five gallons enough to meet your daily household water needs?

- How does the amount of water that is used by our local households everyday compare to the five gallons being used by the world's poorest communities?

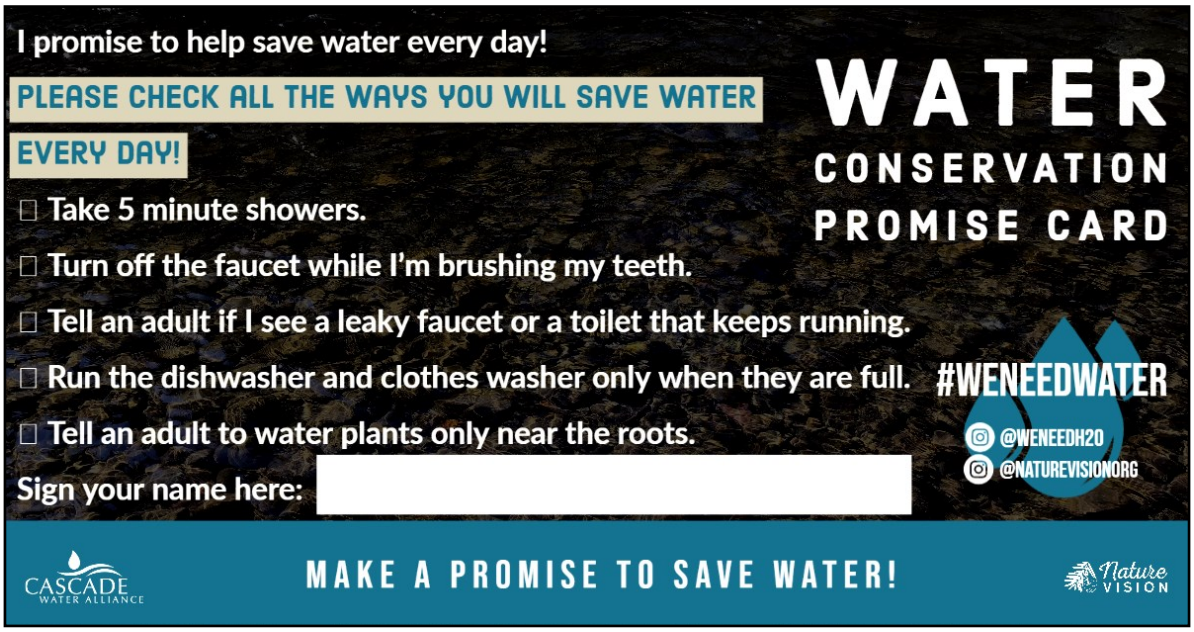
Optional Activity

We Need Water Challenge

Water Conservation means to save water. *You will learn more about this in tomorrow's lesson!* Water is a shared resource. That means all humans, plants, and animals need and use water. We learned that the water we use comes from nature. It is our responsibility to not waste this water and use it wisely.

Materials: Writing utensil, crayons/markers/colored pencils (optional), computer/phone/tablet, internet connection

Let's make a promise to save water! Below is a promise card that lists saving water promises. Read the promises with an adult and choose the water conservation promises you choose to keep. Mark the water conservation promises and sign your name on the bottom. With an adult, post your promise card on social media to show your friends and family how you are committed to saving water!



To share your work, post your challenge to Facebook and/or Instagram (with an adult) so other people in your community can learn too! Don't forget to use the hashtag #WeNeedWater and tag @weneedh20 and @naturevisionorg in your post so we can see your work!

CASCADE WATER ALLIANCE

Nature VISION

Optional Activity

Engineering Community Solutions

Please ask for an adult's permission to watch this video.

"The Power of Water": Watch the video by the organization Water.org. They are working to end poverty by building lasting water systems in towns around the world.

This video can be found by doing a YouTube search for "The Power of Water" by Water.org or by following this link: https://www.youtube.com/watch?v=LSqan1xmMpY

If you are unable to play the video, look at the key points below! Afterwards, look at the directions on the following page in order to design your own plan for transporting water.

Materials: Writing utensil, phone/computer/tablet, internet access

Lack of Clean Water Hurts Children's Health:

- 2.5 billion people do not have clean water or a toilet which makes many people sick.
- Getting sick from dirty water is one of the biggest problems for children around the world. These sicknesses can permanently hurt them and make their lives very difficult.

Lack of Clean Water Hurts Women and Girls:

- Women and girls get water in many places. Every day, 200 million women and girls walk miles to water and carry every drop of water their families use.
- 100 million children, mostly girls, can't go to school because they are too busy carrying water.

Lack of Clean Water Traps People in Poverty:

- People who live in poor places spend most of their money trying to get well when the water makes them sick. This means they don't have enough for other important things.
- Since so many women and girls spend most of their time carrying water, they don't have time to work or make money for their families.

On the next page you will find a map of a community that is in need of clean water. You will plan and design the work necessary to transport water from a source to the homes by drawing on your map.

Things to consider:

- Construction and materials are expensive! Can you design a system with as little pipe as possible?
- It's easier to put pipe into places that don't have buildings on them, is there a way to put pipes and other things into spots that don't already have stuff on them?
- Where is the water coming from? Is it from a lake or a stream? What about from a well?
- How will the water get through the pipes? Will it use gravity, pumps or something else?
- How will you measure where the water is going?
- How is the water going to be cleaned and treated before it goes into the community?
- How will people be able to reach all of the parts of this system to repair it when it breaks?

CASCADE WATER ALLIANCE

Nature VISION

DAY 5

Stewardship

If you have done the other packets from Nature Vision, we have spent a good amount of the last few weeks learning about how important it is to think about our entire ecosystem. We've also learned about how important taking care of our water is for everything around us. If this is the first packet that you've done, we've learned a lot about the ways that we use water, and know that it comes from nature that we share with other living things. Think about some of the big things you learned about how we interact with the world around us.

Below write down a few things from this week (or the past packets) that were interesting or surprising:

Vocabulary
Pledge: A promise
Stewardship: Taking care of something; being a protector

Main Activity

Dream for the Future

Today is about stewardship, or how we take care of the world around us. Stewardship isn't always about going outside and working in nature or helping ourselves and others make environmentally friendly choices. Sometimes stewardship is about reminding everyone why we care so much and what is so vital about a healthy and vibrant world. A lot of times, some of the best stewardship is just sharing a dream you have for the way things could be if everyone tried really hard!

Materials: Drawing and coloring utensils

For this activity, look carefully through all the work you've done this week. Imagine what your perfect world would look like where humans and nature are both healthy and happy. Take some time and draw a scene from that perfect world on the next page. When thinking about what to draw and include, ask yourself these questions:

- How are people and nature working together?
- What are people doing to help?
- Who do the humans share their homes with?
- How does water and healthy habitats play a role?

Optional Activity

We Need Water Challenge

There are so many ways to save, protect, and care for our water. At the end of every daily lesson, we will be giving a challenge to help you show off what you've learned.

Materials: (Optional) writing utensil, crayons/markers/colored pencils, computer/phone/tablet, internet connection

Using what you've learned this week, it's time to make your own #WeNeedWater challenge! Think about all of the things we learned this week. What new thing can you do to share what you now know or new ways you've learned to save water?

To share your work, post your challenge to Facebook and/or Instagram (with an adult) so other people in your community can learn, too! Don't forget to use the hashtag #WeNeedWater and tag @weneedh20 and @naturevisionorg in your post so we can see your work!

Optional Activity

Plant Pressing

It's always nice to have a reminder of what we care so much about. Sometimes being able to bring nature with you can make a space more comfortable and help you remember to think of the whole ecosystem when you make choices. One way to preserve a piece of nature to carry with you is a plant pressing.

Materials: Paper, a small plant, adult permission, writing utensil

Plant pressing is a way that everyone from scientists to artists save plants to enjoy in the future. Start by thinking about what you want to collect...

Is it a small flower or clover leaf to remind you of your ecosystem? Or is it an invasive plant to help you remember what they look like so you can be on the lookout for them in your neighborhood? Maybe it is something else altogether.

- Whatever you decide, with the help of an adult, find a **small** plant or part of a plant for your pressing. Leaves and small flowers work best. *Make sure that they can fit completely in the palm of your hand.*
- Remember, whenever we are outside we want to be *safe, responsible* and *respectful.* This means that we don't want to pick more than one flower or leaf and we don't want it to be from a place where it could hurt the ecosystem or spoil someone else's time in that space.
- Take a piece of paper and fold it width-wise "hamburger" style. With your writing tool, write somewhere on it what day it is, what you found and why you want to save it. Then, place your plant flat in between the halves of paper.
- Set the paper on a hard, flat spot and put some heavy books or other flat things on top to squish the plant flat and hold it in place. Put the entire pile into a safe place.
- Don't move it for at least two weeks! It takes a long time for a plant to dry out but once it does you will have a beautiful specimen that you can hang up or display and make sure that nature is never far from you!