

TEACHER OVERVIEW

Ecological Impacts
Kindergarten — 2nd Grade

Nature Vision Student Packet

The materials contained within 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 work from home curriculum materials packet 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 either independently, or with the help of an adult caregiver. Each day of the week offers materials building on previous days learning, offering a variety of activities including, art, writing, field exploration, and kinesthetic activities.

These materials are provided to you by City of Auburn Utilities, City of Bothell, City of Lynnwood, and grants from King County Flood Control District, and King County Wastewater Treatment Division. Learn more by visiting:

- City of Auburn Utilities: https://www.auburnwa.gov/city_hall/public_works
- City of Bothell: <http://www.bothellwa.gov/surfacewater>
- City of Lynnwood: <https://www.lynnwoodwa.gov>
- King County Flood Control District: <https://www.kingcounty.gov/services/environment/water-and-land/flooding/flood-control-zone-district.aspx>
- King County Wastewater Treatment Division: <https://www.kingcounty.gov/depts/dnrp/wtd.aspx>

Thanks to Cascade Water Alliance for providing the accompanying series of student packets: Ecosystems, Watersheds, and Humans and Water. To learn more please visit: <https://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.

In this packet, students begin with an introduction to watersheds and the stormwater that flows through them. Next, they are introduced to the idea of pollution and the issues it can cause. Students then learn about different habitats and the impact pollution can have on them, starting with salmon and river systems. They continue with activities centered on wetlands and Puget Sound. Students complete their week with a reflection on stewardship and what they can do to help keep the environment clean and healthy for all living things.

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

Grades K-2

Supports NGSS Performance Expectations: K-LS1-1, K-ESS2-2, K-ESS3-1, 1-LS1-1, 2-LS4-1, 2-ESS2-2, K-2-ETS1-1.

Grades K-2
Day 1 - Watersheds and Stormwater
Day 2 - Rivers and Salmon
Day 3 - Wetlands
Day 4 - Puget Sound
Day 5 - Stewardship

Stay connected with Nature Vision! Follow us for updates @naturevisionorg



PARENT/CAREGIVER OVERVIEW

Ecological Impacts
Kindergarten — 2nd Grade

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 City of Auburn Utilities, City of Bothell, City of Lynnwood, and grants from King County Flood Control District, and King County Wastewater Treatment Division. Learn more about caring for our water by visiting:

- City of Auburn Utilities: https://www.auburnwa.gov/city_hall/public_works
- City of Bothell: <http://www.bothellwa.gov/surfacewater>
- City of Lynnwood: <https://www.lynnwoodwa.gov>
- King County Flood Control District: <https://www.kingcounty.gov/services/environment/water-and-land/flooding/flood-control-zone-district.aspx>
- King County Wastewater Treatment Division: <https://www.kingcounty.gov/depts/dnrp/wtd.aspx>

Challenge yourself to post all the things you are doing with your friends and family to prevent pollution and protect our water!

- City of Auburn Utilities: Tag @auburnwa and include the hashtag #auburnwa
- City of Bothell: Tag @BothellWaUSA and include the hashtag #PugetSoundStartsHere
- City of Lynnwood: Tag @LynnwoodWA and include the hashtag #Lynnwood
- King County Flood Control District: Tag @KingCountyDNRP
- King County Wastewater Treatment Division: Tag @kingcountywtd

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NOTE: Students may require support in reading directions and/or completing some tasks. While many activities in this packet are creatively oriented and open ended, you may consult the answer key located at the back of the packet for additional assistance or guidance.

Unless otherwise noted, images courtesy of freepik.com

PARENT/CAREGIVER OVERVIEW: DAY 1

Watersheds and Stormwater

Background Information: Watersheds are all of the land that water falls on and then flows through into rivers, streams, lakes, wetlands, and oceans. It is important to recognize the value of having clean, unpolluted water available for every living thing in the watershed. The water that falls as rain and snow can also be called stormwater. As this stormwater flows over the land, it can often pick up unwanted bits of pollution from all around the watershed, carrying it downstream into new environments and other bodies of water.

Learning Objectives: Students will learn what a watershed is and how stormwater flows through it. They will start to identify some forms of pollution and recognize the ways in which these pollutants might be harmful to people, plants, and animals in nature.

Main Activity: Watershed Treasure Map

- **Overview:** Students draw a simple map showing how water flows through a certain environment or area while adding other elements to the map, such as living things and unwanted pollution
- **Parent/Caregiver Tasks:** None

Optional Activity: Pollution “I-Spy”

- **Overview:** Students will review an image and identify sources of water pollution before drawing their own picture of a healthy, pollution-free environment
- **Parent/Caregiver Tasks:** None

Optional Activity: Stormwater Stewardship Challenge

- **Overview:** Students complete a daily stewardship challenge related to pollution prevention
- **Parent/Caregiver Tasks:** If needed, help the student share their work on social media

PARENT/CAREGIVER OVERVIEW: DAY 2

Rivers and Salmon

Background Information: Rivers are critically important areas in nature that serve to connect different locations through the movement of water. They bring water from the mountains to the oceans and interact with countless living and non-living things along the way. In Washington, rivers are a crucial habitat, especially for the 5 species of Pacific salmon. These salmon provide food and energy for predators and scavengers and even become fertilizer for plants and trees near rivers after they die. Those plants later provide benefits for salmon by keeping soil from rushing into the river and by providing shade to keep the water cool when the salmon lay their eggs.

Learning Objectives: Students will become familiar with river systems, understanding their importance as a home or habitat for many living things. They will learn about salmon and see some of the connections between these fish and other plants and animals in nature, while also recognizing the dangers of pollution.

Main Activity: River Puzzle

- **Overview:** Students complete a river scene puzzle, while identifying different possible pollutants and avoiding the inclusion of these harmful forms of pollution
- **Parent/Caregiver Tasks:** Assist with cutting out puzzle pieces

Optional Activity: Salmon Hands

- **Overview:** Students review the 5 species of Pacific salmon by learning a memory device for recalling their names and tracing a simple hand outline to practice
- **Parent/Caregiver Tasks:** None

Optional Activity: Stormwater Stewardship Challenge

- **Overview:** Students complete a daily stewardship challenge related to pollution prevention
- **Parent/Caregiver Tasks:** If needed, help the student share their work on social media

PARENT/CAREGIVER OVERVIEW: DAY 3

Wetlands

Background Information: Wetlands are areas of land that stay wet for majority of the year. Depending on their location and vegetation, a wetland can be a pond, marsh, swamp, fen, bog, or a slough, just to name a few. While they may be called different names, wetlands all share three characteristics; wetlands contain water, saturated soil, and water-tolerant plants. A wetland is habitat for a multitude of animal and plant species, making it a vital ecosystem that provides food and nutrients. Wetlands also prevent flooding by holding excess rainwater within its soil. The soil also functions as a filter as it traps pollutants that flow into wetlands through storm drains.

Learning Objectives: Students will learn how wetlands may be known by many names, but share three defining characteristics. They will understand how to identify wetlands and each of their unique traits. Students will discover the various functions of wetlands and the impact of stormwater upon this ecosystem.

Main Activity: Wetland Filters

- **Overview:** Students build a wetland model and observe how it functions as a natural filter by using household materials to create their own filter
- **Parent/Caregiver Tasks:** Help students acquire model materials and designate appropriate space for activity, and also provide supervision if going outside or providing an indoor alternative

Optional Activity: Cattail Craft

- **Overview:** Student makes a cattail with craft materials to help solidify their knowledge of helpful native plants in our wetlands
- **Parent/Caregiver Tasks:** Help cut out and tape materials

Optional Activity: Stormwater Stewardship Challenge

- **Overview:** Students complete a daily stewardship challenge related to pollution prevention
- **Parent/Caregiver Tasks:** If needed, help the student share their work on social media

PARENT/CAREGIVER OVERVIEW: DAY 4

Puget Sound

Background Information: Puget Sound is made up of the inland seas of Washington state. It is an estuary where freshwater rivers and streams meet saltwater coming in from the Pacific Ocean. Puget Sound also includes the land of our local region that surrounds these inland seas, from the Cascade Mountains, to Olympia, to the Olympic Mountains, and north to the Canadian border. The various waterways that flow through this watershed ultimately drain into Puget Sound, thus connecting this entire region. The land and water surrounding Puget Sound serves as a habitat to 211 fish species, 100 sea bird species, and 13 marine mammals species. Puget Sound is a biodiverse region, and is heavily impacted by stormwater runoff pollution. With many major cities inside of this region, the many storm drains found in these cities lead polluted stormwater into Puget Sound through storm drains.

Learning Objectives: Students will learn the definition of an estuary and identify Puget Sound as a large estuary in our region by understanding that many local freshwater rivers and streams drain into Puget Sound. As Puget Sound is habitat to iconic and important species, students will understand the health of our animal and plant species is tied to the health of Puget Sound. They will be introduced to the impact of stormwater runoff pollution to the water quality of Puget Sound and consequently to those that inhabit this vast body of water.

Main Activity: Who Polluted Puget Sound?

- **Overview:** Students read a story following someone who lives in the Puget Sound region before drawing or writing these pollutants on the underwater Puget Sound graphic
- **Parent/Caregiver Tasks:** None

Optional Activity: Sounds of the Salish Sea

- **Overview:** Students learn Puget Sound is part of the greater Salish Sea before listening to different animals that live underwater in Puget Sound and Salish Sea
- **Parent/Caregiver Tasks:** Help students navigate website

Optional Activity: Stormwater Stewardship Challenge

- **Overview:** Students complete a daily stewardship challenge related to pollution prevention
- **Parent/Caregiver Tasks:** If needed, help the student share their work on social media

PARENT/CAREGIVER OVERVIEW: DAY 5

Stewardship

Background Information: Stewardship is how we care for the natural resources that all living things need to survive – such as water. Stewardship can include conservation of natural resources, in addition to thinking and acting carefully about how we interact with the world around us. Humans impact their environment in many ways, where some ways are positive and some are negative. A negative impact takes the form of pollution entering our environment. Stewardship remedies this impact and ensures a positive change that will keep our environment cleaner for all.

Learning Objectives: Students will combine their knowledge gained throughout the week to consider ways they can support the environment. They will learn to focus on pollution prevention by careful consideration of their daily habits, behaviors, and usage of materials that will contribute to stormwater runoff pollution.

Main Activity: Design a Stormwater Pollution Poster

- **Overview:** Students design a poster that will outline stormwater pollution prevention to help our rivers, wetlands, and Puget Sound
- **Parent/Caregiver Tasks:** None

Optional Activity: Plant Pressing

- **Overview:** Students make a leaf pressing
- **Parent/Caregiver Tasks:** Help student find a small leaf that has already fallen on the ground and a heavy enough book to press leaf between a sheet of paper

Optional Activity: Stormwater Stewardship Challenge

- **Overview:** Students complete a daily stewardship challenge related to pollution prevention
- **Parent/Caregiver Tasks:** If needed, help the student share their work on social media

PARENT/CAREGIVER OVERVIEW: VOCABULARY

DAY 1

Pollution: Unnatural contaminants introduced to the natural environment

Stormwater: Rainwater and snowmelt that flows over our land and city surfaces

Watershed: An area of land that allows water to flow off and drain into rivers, lakes, streams, and oceans

DAY 2

Habitat: The home of a plant or animal

DAY 3

Filter: Passing through a device to remove unwanted material

Storm drain: A drain for large and excess amount of rainwater

DAY 4

None

DAY 5

Stewardship: Taking care of something; being a protector

DAY 1

Watersheds and Stormwater

When water falls from the sky, where does it go? Water is always moving downhill, flowing to a lower point. Eventually, that water falling from the sky might start to pool up and form a puddle, a pond, a lake, or even an ocean if there is enough of it! This is exactly what happens in a **watershed**, which is all of the land that water falls on and then flows over into rivers, streams, lakes, and oceans.

Let's make our own watershed with our hands! First, hold out both your hands in front of you with your palms facing up and your pinky fingers together. Next, raise your fingers tips up towards the ceiling. Your hands should look like a bowl!



Your hands are now your own personal watershed! Your fingertips are rising up like mountains, and the palms of your hands are the low point in your watershed. Imagine a tiny rain cloud floating over your fingertip/mountaintops and dropping water down on them. Where would that water go next? Would it form rivers as it slides down your fingers, then make a lake in your palms?

If you have a safe and clean space to try it out (like an empty sink or bath tub), you could even have an adult slowly drip some water over your fingertips and watch as it flows! Be careful, it's very easy to spill and make a mess this way.

A lot of that water that goes pouring through the watershed is what we call **stormwater**. Stormwater is another word for rainwater, but it also includes water that melts from snow and ice in the mountains. Many plants and animals rely on clean water from rain and snow. Can you think of 3 things that need water from rain in order to survive? Write them in the spaces below:

1. _____
2. _____
3. _____

Stormwater isn't always clean and perfect, though. Sometimes humans can make it dirty and unhealthy by adding things that don't belong. This is what we call **pollution**. This pollution comes from many different places. When the water starts to flow, it picks up all the pollution and carries it through the watershed.



This week, we will explore some different locations in nature while thinking about the water that moves through them and about what we can do to help keep every living thing safe, clean, and healthy!

Vocabulary

Pollution: Unnatural contaminants introduced to the natural environment

Stormwater: Rainwater and snowmelt that flows over our land and city surfaces

Watershed: An area of land that allows water to flow off and drain into rivers, lakes, streams, and oceans

Main Activity

Watershed Treasure Map

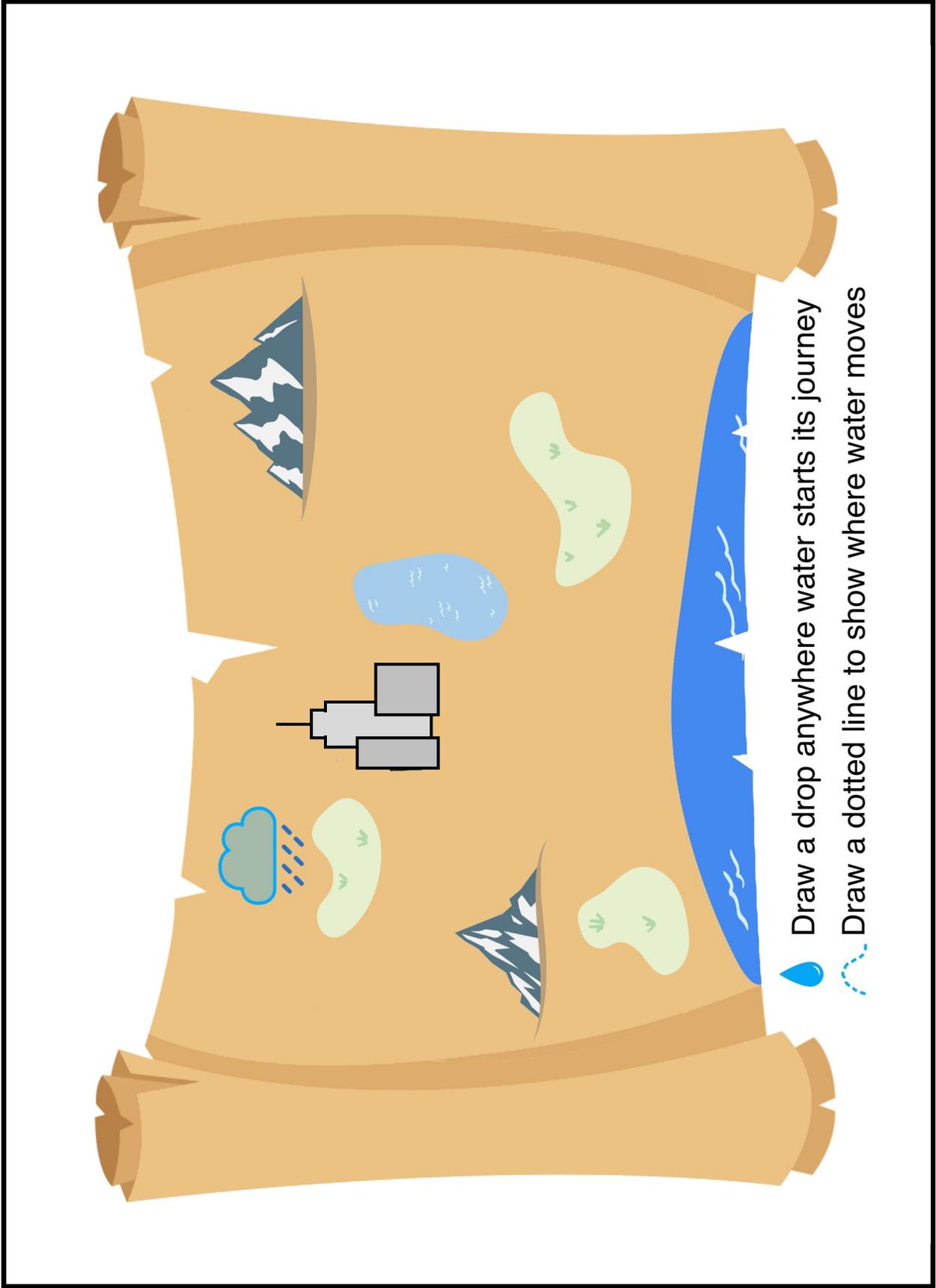
You know that water is always on the move, but where is it actually going? Today you will draw a map showing where water is going. Think of it like a reverse treasure map where 'X' marks the starting place instead of the end!

Materials: Writing utensil, markers/crayons/colored pencils

Water is a very important and valuable resource for people, plants, and animals. To help us understand where our water is going, you must draw a map that shows where water in nature starts and stops.

Using the blank map on the next page, you will draw the path that water takes as it flows and moves around in nature.

1. Draw a water drop where your water begins its journey (there may be more than one starting point if your water is coming from different places).
2. Using a blue pencil, crayon, or marker, draw a dotted line to show where your water will go next.
 - Remember, water can never move up a hill!
3. Make sure to show:
 - How water gets from mountains to lakes
 - How water gets from lakes to oceans
 - How water flows around any other things in its way
4. Once you have finished drawing the path of your water, draw at least 3 living things that might use that water.
 - For example, you could draw a deer taking a drink from a river or lake.



Draw a drop anywhere water starts its journey

Draw a dotted line to show where water moves

Optional Activity

Pollution "I-Spy"

Your town needs your help to find all of the things that are polluting its rivers! Look out for anything that might make water dirty. Using this poster designed by the United States Geological Survey, you can search for all different kinds of pollution.

Materials: Computer/phone/tablet, internet access, writing utensil

Make sure you have adult supervision and permission to visit this website!

Visit the following page to find an image of a town just like yours, complete with homes, businesses, water, trees, and more:

<https://www.usgs.gov/media/images/water-quality-water-education-poster>

What kinds of pollution can you find? If you see anything on the picture that might end up washing into the rivers, write it here:
If you cannot visit the website, imagine your town and what things might end up washing into rivers.

Once you have finished, draw a picture of your own town, and make sure it is completely free from any pollution!

Optional Activity

Stormwater Stewardship Challenge for Day 1

The water that moves over the surface of the earth does amazing things. It keeps plants and animals alive, and it helps provide humans with recreation and exercise. But, when there is too much water where it shouldn't be, or if that water gets dirty, then it becomes a problem. Maybe you have noticed litter by a storm drain, or your back yard or school playground has gotten flooded.

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

Think about a time that you've seen a problem with stormwater in your neighborhood and draw a picture of it in the space below. Do you have any ideas to solve this problem?

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 tag @naturevisionorg in your post! Do you live in Auburn, Bothell, Lynnwood, or King County? Use the hashtags and tag the city or county group below. They want to see all the work you are doing to keep our water clean:

- If you live in City of Auburn: Tag @auburnwa and include the hashtag #auburnwa
- If you live in City of Bothell: Tag @BothellWaUSA and include the hashtag #PugetSoundStartsHere
- If you live in City of Lynnwood: Tag @LynnwoodWA and include the hashtag #Lynnwood
- If you live in King County: Tag @KingCountyDNRP and @kingcountywtd

DAY 2

Rivers and Salmon

When you think about the word “nature”, what do you imagine? In the space below, write or draw a picture of what nature means to you:



Today we will be learning all about one very important place in nature: the river! Rivers are like nature’s highways and roads, connecting different places from the mountains to the forests to the oceans. They provide a home, or habitat, not just for animals like frogs, fish, otters, and beavers but for lots of water-loving plants as well.



One of the most important creatures around is the salmon! Salmon rely on the same water sources that we do, and when they start to suffer, it can lead to lots of problems for all kinds of plants and animals, including ourselves.



Salmon are connected to all of the other living things around the river. They are a food source for birds and bears, they eat the bugs that swim around the water, and even after they die their bodies provide food and energy to help the trees and plants grow big and tall!



Plants around the river are also helping salmon in return. The roots of trees and plants hold soil in place, keeping the rivers clear and free from mud so the salmon can safely lay their eggs. The leaves and branches hanging over the water also provide shade and keep the water cool for the salmon!



Vocabulary

Habitat: The home of a plant or animal

Main Activity

River Puzzle

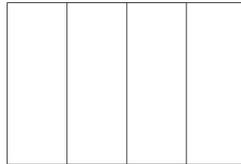
Salmon need clean, fresh water in order to live. Can you help piece together this river picture puzzle, making sure to avoid any pollution that might make these salmon sick?

Materials: Writing utensil, scissors

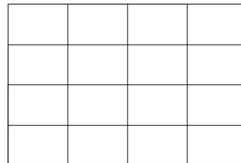
1. With an adult, cut along the dotted lines in the picture on the next page.
2. Using your cut-out squares as puzzle pieces, make a picture of a clean and healthy river
3. **Watch out for pollution!** Some of the squares show examples of bad things that might get into the water. Those are extra pieces and will *NOT* fit into the completed puzzle.
4. When you are done, you should have 4 puzzle pieces left over that show pollution. Can you figure out what kind of pollution each of those pieces is showing? Write them here:

If you are not able to print and cut out the puzzle pieces, follow these instructions to create your own puzzle at home!

1. On an empty piece of paper, draw a picture of a clean and healthy river that is surrounded by plants and animals (don't forget to include salmon!)
2. Fold your paper in half (from left to right). Fold it in half the same way again, then unfold it completely. Your picture should now be split into 4 parts! Count them to make sure. It should look like this:



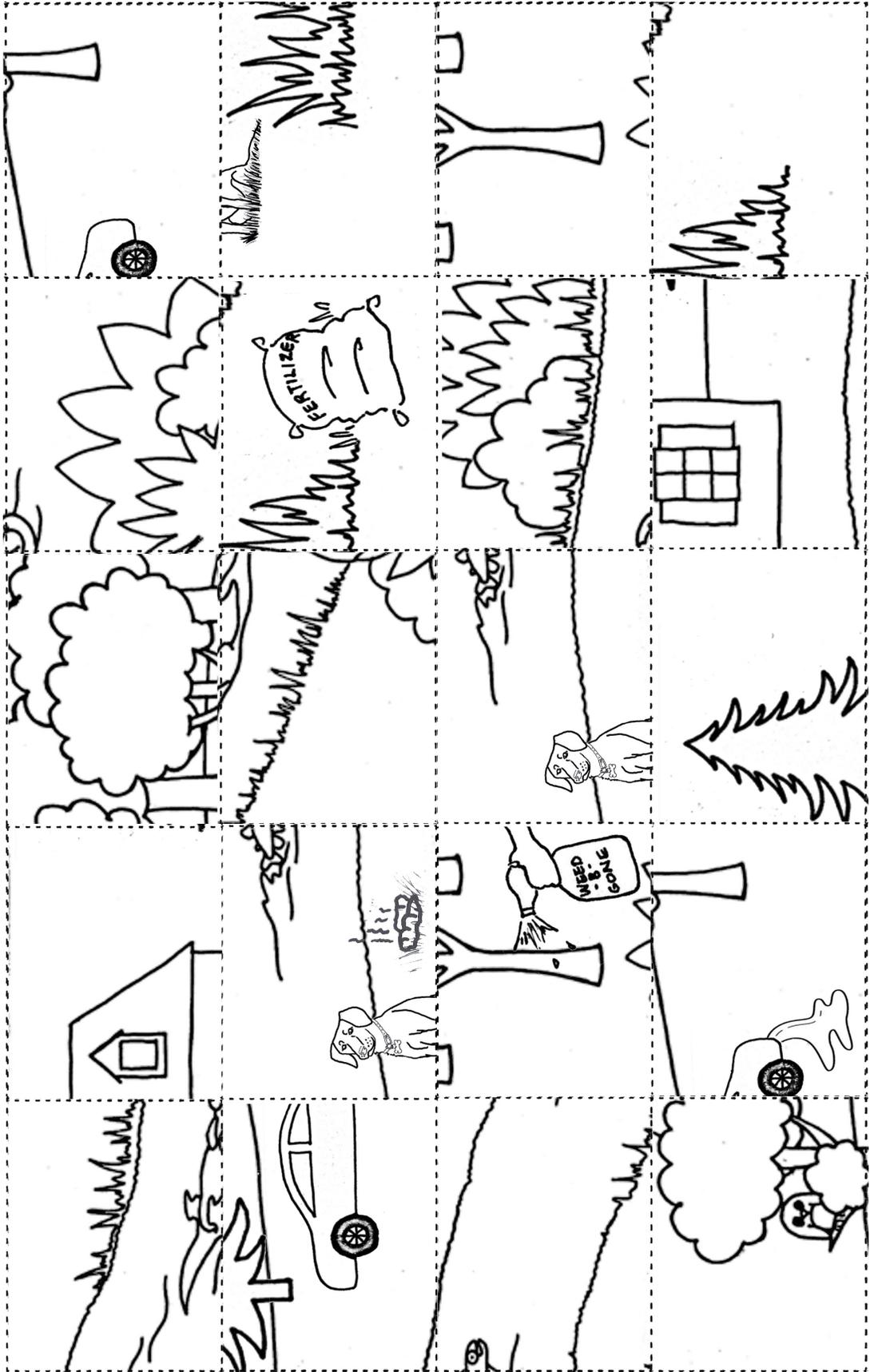
3. Fold your paper in half (from top to bottom). Fold it in half the same way again, then unfold it completely. Your picture should now be split into 16 parts! Count them to make sure. It should look like this:



4. With an adult, cut along the folds in your picture.
5. Using your cut-out squares as puzzle pieces, make a picture of a clean and healthy river!

PAGE LEFT BLANK INTENTIONALLY





PAGE LEFT BLANK INTENTIONALLY



Optional Activity

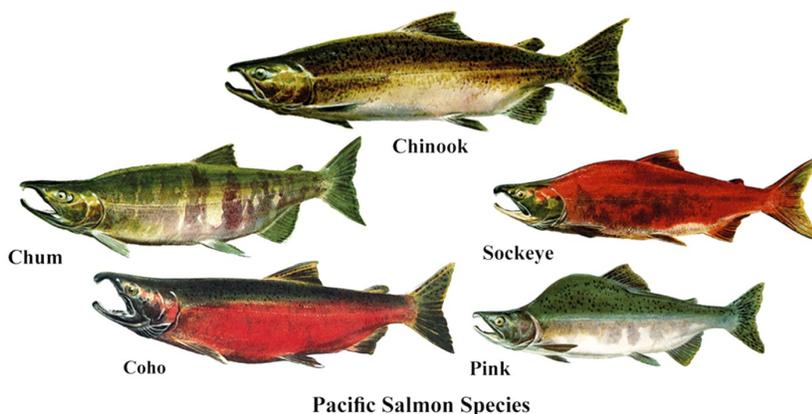
Salmon Hands

There are 5 kinds of salmon that live in Washington, and there is a *handy* trick to remember each of them. You will learn the names of each of the salmon and use your own hand to draw and remember them!

Materials: Writing utensil, markers/crayons/colored pencils

Salmon are connected to almost every living thing in Washington. If all of the salmon were to disappear, it would cause HUGE problems in nature. Other animals would go hungry, insects would spread out of control, and even the trees in the forest would not grow as tall and strong. We need to pay attention to the salmon that share our water with us. To help us learn more about the salmon, we can use our fingers to remind us of the 5 kinds of salmon found in Washington. Hold up your hand and follow along as each finger teaches you the name of one kind of salmon:

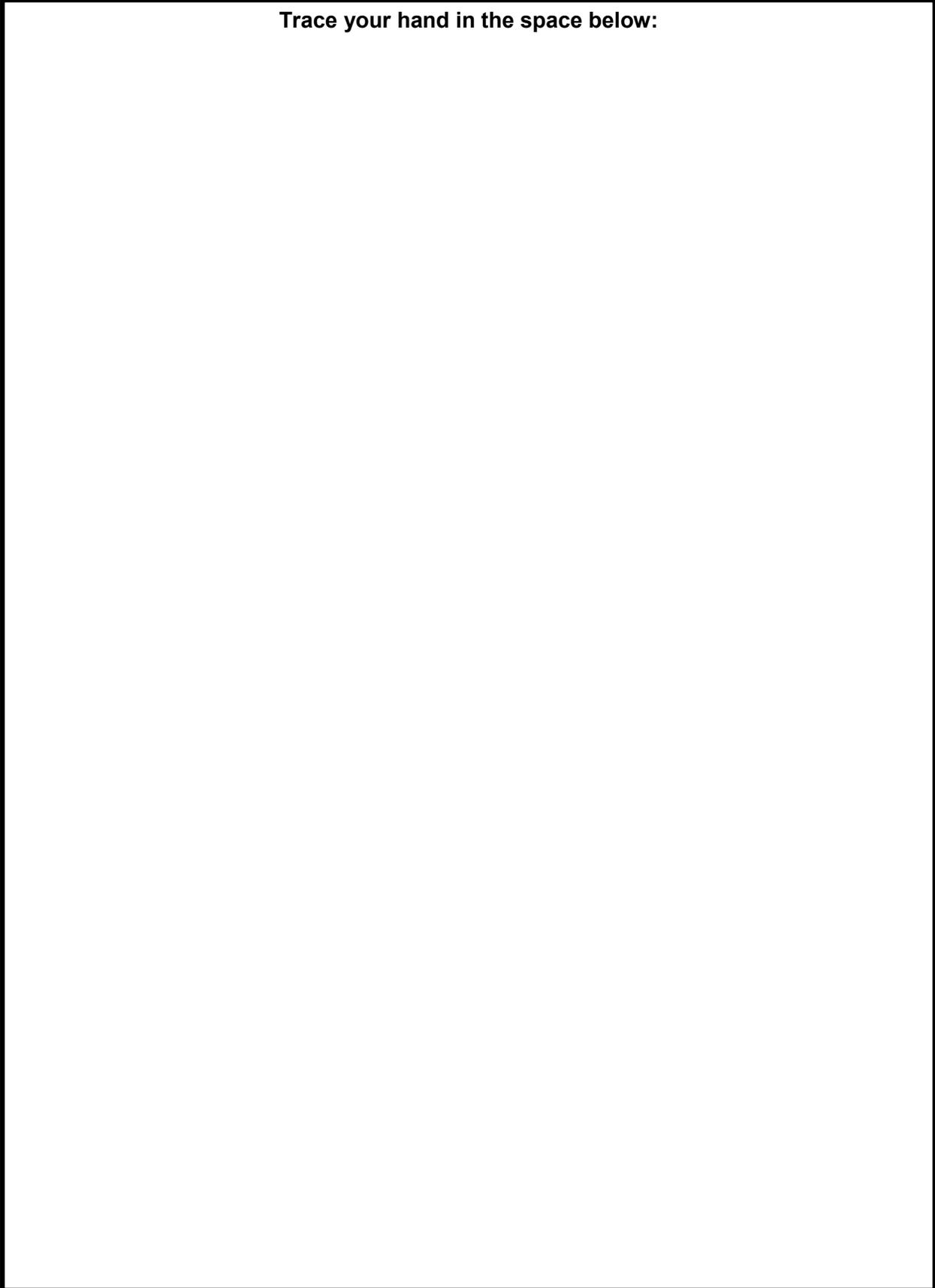
- Thumb – rhymes with **Chum**, the first kind of salmon
- Pointer/poker finger – you might accidentally poke your eye, reminding us of the **Sockeye** salmon
- Middle finger – the tallest of all the fingers, it stands above the rest like a king. This reminds of us the largest salmon, known as the **King** or **Chinook** salmon
- Ring finger – people wear rings that might be made of silver, reminding us of the **Silver** salmon
- Pinkie – reminds us of the **Pink** salmon



On the next page, place one hand on the paper and trace the outline of your hand. Then label each finger with the correct salmon name for that finger.

For an extra challenge, try to write the salmon names without peeking at the list above!

Trace your hand in the space below:



Optional Activity

Stormwater Stewardship Challenge for Day 2

We call the Orca or Killer whales that live in Puget Sound the Southern Resident Orca whales. The families of the Resident Orca whales are called pods. There are three pods of Orca whales in Puget Sound called J, K, and L pod. When you count every Orca whale in all three pods, there are only 73 whales. The numbers for the Southern Resident Orca whales are very low! The Southern Resident Orca whales are hurt by pollution from stormwater going down storm drains and into Puget Sound. Our Resident Orca whales need clean water to survive! Can you help the Southern Resident Orca whales?

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

Use a few key words to make a short rhyme that helps people remember to keep our stormwater clean and not to let pollution go into storm drains for our Southern Resident Orca whales. An example of a short rhyme that you might have seen before: "Only Rain Down the Storm Drain!"

Your rhyme to help Southern Resident Orca Whales in Puget Sound:

Some key words to rhyme: *you can use others too!*

- Whale
- Pods
- J, K, L Pod
- Puget Sound
- Pollution
- Stormwater
- Storm drain
- Solution
- Clean

With an adult, you can learn more about our Southern Resident Orca Whales at:

whaleresearch.com

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 tag @naturevisionorg in your post! Do you live in Auburn, Bothell, Lynnwood, or King County? Use the hashtags and tag the city or county group below. They want to see all the work you are doing to keep our water clean:

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DAY 3

Wetlands

Wetlands are places with lots of water for most of the year. You can find wetlands all over our watershed - in cities, your neighborhood, at your school, or in the forest! There are different types of wetlands, too. To name a few, some are called ponds, swamps, or creeks. Also, all wetlands have three parts and they need to have all three parts to be a true wetland.

All wetlands need to have water! It's no surprise that all wetlands have water. It can be a lot or little bit of water, but the water needs to be in the wetland most of the time.



All wetlands have plants! Not just any kind of plant, too. Plants that love water are going to do well in wetlands. Plants like cattail, skunk cabbage, or duckweed. These are great examples of plants that love water and living in a wetland.



CATTAILS



SKUNK CABBAGE



DUCK WEED

All wetlands have soil that is soaked with water! The soil needs to be wet to help the water-loving plants to grow. The soil in a wetland acts like a sponge! Think about what happens to a dry sponge that you put into water – it soaks it up! The wetland soil makes sure there is not too much water, which is when flooding happens.



Soaking up extra water is an important job for wetlands. **Storm drains** from our streets, sidewalks, and parking lots take stormwater that might be mixed with pollution and drains the stormwater into the closest wetland. The pollution can make the wetland unhealthy for the many animals and plants that live there because the spongy soil in the wetland will soak up the extra water. The soil and plants will then trap the pollution as the stormwater moves through the wetland. This means the stormwater is **filtered** or cleaned by the wetland! Wetlands are filters in nature. They help to clean out pollution from the water even when, at first, that pollution can make the wetland unhealthy. Next time you see a pond, creek, or swamp, remember they are filters working to keep our water healthy.

Vocabulary

Filter: Passing through a device to remove unwanted material

Storm drain: A drain for large and excess amount of rainwater

Main Activity

Wetland Filters

Wetlands help filter pollution in stormwater. The soil and plants in a wetland trap the pollution and clean the water. Let's make our own model of a wetland and investigate how they are great filters.

Materials:

- 2 small clear container – like a cup, plastic container, jar, or bowl
- 1 small container (does not have to be clear) – like a cup, plastic container, can, jar, or bowl
- 1 tablespoon of soy sauce (or any dark liquid)
- 1 tablespoon of oil
- 1 sponge
- ½ cup of water
- 1 tablespoon of soil
- 1 small stick or leaf

Please ask an adult for permission first to help gather materials and to help you find a place to do this activity. A great place to do this activity would be right outside your home with an adult since you are working with water and other materials that can spill. A bathtub or sink are not good places as the drains can clog from the materials. DO NOT drink anything.

PART 1 – Make Your Wetland

1. Take one small clear container and place it on a solid surface
2. Pour the ½ cup of water into the container – ***This is your first part of a wetland!***
3. ***The second part of a wetland is soil.*** Add your 1 tablespoon of soil into the water
4. ***Time to add your third part of a wetland – plants!*** Take your one small container (not the clear one) and go look for one small stick or leaf that is already on the ground.

Go with an adult and don't pick living plants

5. Add the one small stick or leaf into your small container. Make sure you picked one that fits in your container.
6. Add the stick or leaf into the clear container with water and soil. ***You have made a wetland!***

Does your wetland have all three parts: water, soil, and plants?

PART 2 – Filter Your Wetland

1. Take your wetland in the small clear container and add 1 tablespoon of soy sauce. ***This is pollution going into a wetland!***
2. Add in 1 tablespoon of oil. ***This is more pollution!***

What does your wetland water look like? Is it clean? Is it dirty?

3. ***Time to filter the wetland water!*** Take your second clear container (that has no water or anything in it) and put the sponge over the top.
4. Make sure the sponge stays on top of the container. Don't let it drop to the bottom of the container.
5. Slowly and carefully pour the wetland water with pollution over the sponge. ***This like the wetland soaking up the stormwater!***
6. Don't squeeze out the sponge but watch the water drip out of the sponge. ***A wetland also slowly filters water!***
7. Look at the water that drips out of the sponge. ***DO NOT drink this water!***

Is the water that went through the sponge and dripped into the second clear container clean or dirty? Does it look cleaner than after you added the pollution to the wetland?

8. Take all the water you used and pour it over the soil and plants outside to not waste water. ***Go with an adult to find a spot not far from home.***

Optional Activity

Cattail Craft

Cattails are a common wetland plant. They are often seen in wetlands in our watersheds.

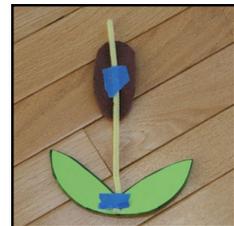


Materials:

- Brown paper or felt
- Green paper or craft foam
- Green/yellow pipe cleaners
- Tape
- Scissors

Instructions: Activity modified from allkidsnetwork.com

1. Cut the brown paper or felt into an oval, hot dog shape, to make the cattail seed pod
2. Cut the green paper or craft foam into two ovals, leaf shape, to make two leaves
3. Tape one tip of a green leaf to the end of the other green leaf's tip
4. Tape one end of the pipe cleaner to the back of the leaves where the tips meet
5. Tape the other end of the pipe cleaner to the back of the brown oval piece, cattail seed pod.



Make as many cattails as you would like!

Optional Activity

Stormwater Stewardship Challenge for Day 3

People can have a very big impact on nature, sometimes in good ways and sometimes in bad ways! Today we will think about how items around the house might end up affecting other parts of nature, especially the salmon swimming in our rivers.

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

For today's stormwater challenge, look around your home and try to find anything that could hurt salmon if it somehow ends up in the river. Think about any items that might wash away with stormwater when it rains.

Write down anything you found that could hurt salmon:

- 1.
- 2.
- 3.
- 4.
- 5.

Can you help protect salmon and make sure that none of those items ever end up in stormwater? How?

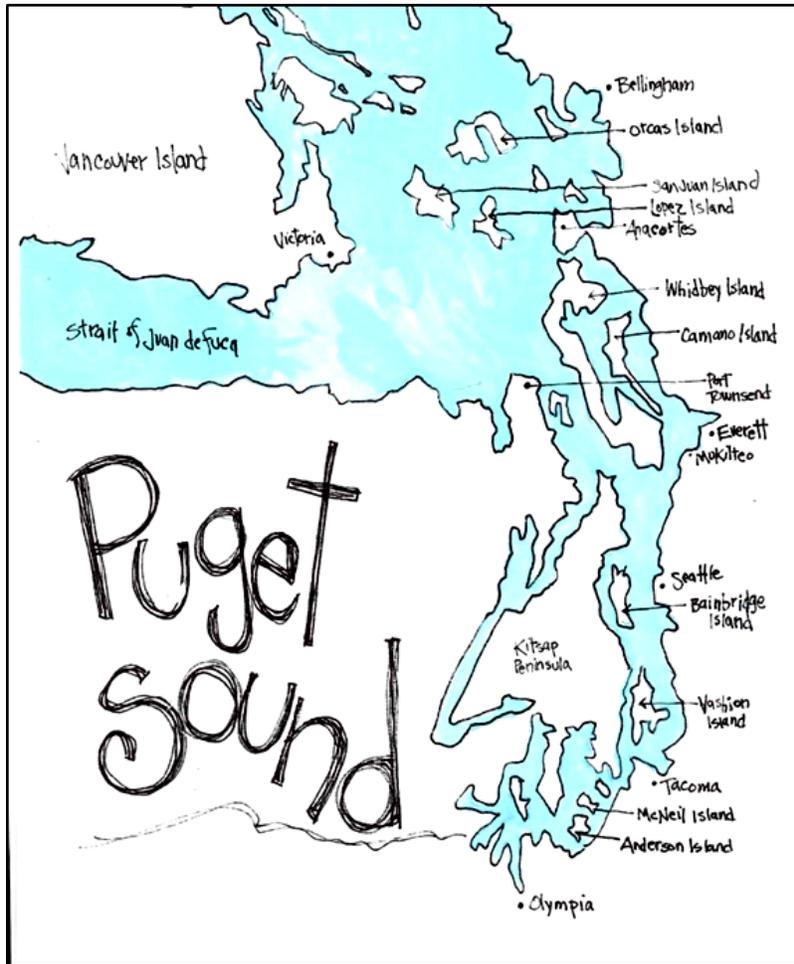
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DAY 4

Puget Sound

Puget Sound is a large body of water in Washington where freshwater connects with saltwater. We learned how water is always moving through a watershed. Puget Sound is a watershed where many rivers and streams drain into in our area. Rivers, streams, and wetlands are freshwater, but Puget Sound is different because it also is saltwater! Many cities can be found in Puget Sound. If you've been to Seattle, and you saw the water next to this city, you saw Puget Sound! Humans, plants, and animals live in Puget Sound.





Puget Sound is home to animals that can live in saltwater. Some of these animals travel out to the Pacific Ocean and back to Puget Sound. We learned about salmon on our second day and how they are an important animal that lives in our rivers and streams. Salmon also live in Puget Sound as adults! They live in Puget Sound before travelling to the Pacific Ocean.

Another animal we learned about that lives in Puget Sound is the orca whale. Orca whales that live in Puget Sound only eat salmon! If there are few salmon in Puget Sound, Orca whales have less food to eat. Healthy Puget Sound means healthy salmon and orcas!



Salmon and orcas are only two animals that live in Puget Sound. There are many more! All living things in Puget Sound need healthy water. Every time it rains — and it rains a lot in Washington — pollution goes into Puget Sound through storm drains. There is a lot of pollution that drains into Puget Sound, which makes the water very unhealthy for all living organisms in Puget Sound.

One of the best ways to keep Puget Sound healthy is to make sure we have no pollution going into it with the stormwater that goes down storm drains. Since pollution comes from things that humans use, it is our responsibility to make sure we don't leave pollution on our streets, sidewalks, driveways, and parking lots that might be picked up with stormwater and go down into a storm drain. It is our responsibility to keep Puget Sound healthy!

Main Activity

Who Polluted Puget Sound?

Puget Sound is a watershed home to many people. Sometimes the things we use every day become pollution when it is left behind on our city's streets, sidewalks, driveways, and parking lots. Pollution goes down storm drains with stormwater after it rains. This then drains into Puget Sound making the water unhealthy for animals like salmon and orca whales.

Materials: Writing utensil

Instructions:

1. Read the "Who Polluted Puget Sound?" story below.
2. Draw or write the pollution mentioned in the story into the underwater Puget Sound image on the next page. You can draw the pollution next to the storm drain, salmon, or the Orca whale.
3. After you finish the story, answer the question: Who polluted Puget Sound?

"Who Polluted Puget Sound" Story

It is a cloudy morning at home near Puget Sound. You take your dog on a walk. Your dog poops on the street but you forgot a bag so you leave it there.

Pollution! Write or draw a picture of dog poop into Puget Sound

You and your dog rush back home. You see your neighbor putting fertilizer on their garden. They have used too much and there is extra on their plants.

Pollution! Write or draw a picture of fertilizer into Puget Sound

You are almost back home and pass by your school. You notice there is an empty chip bag that was left behind on the field.

Pollution! Write or draw a picture of a chip bag into Puget Sound

You finally get home and your adult is washing their car on the driveway. The soap is washing away and into the street.

Pollution! Write or draw a picture of soap bubbles into Puget Sound

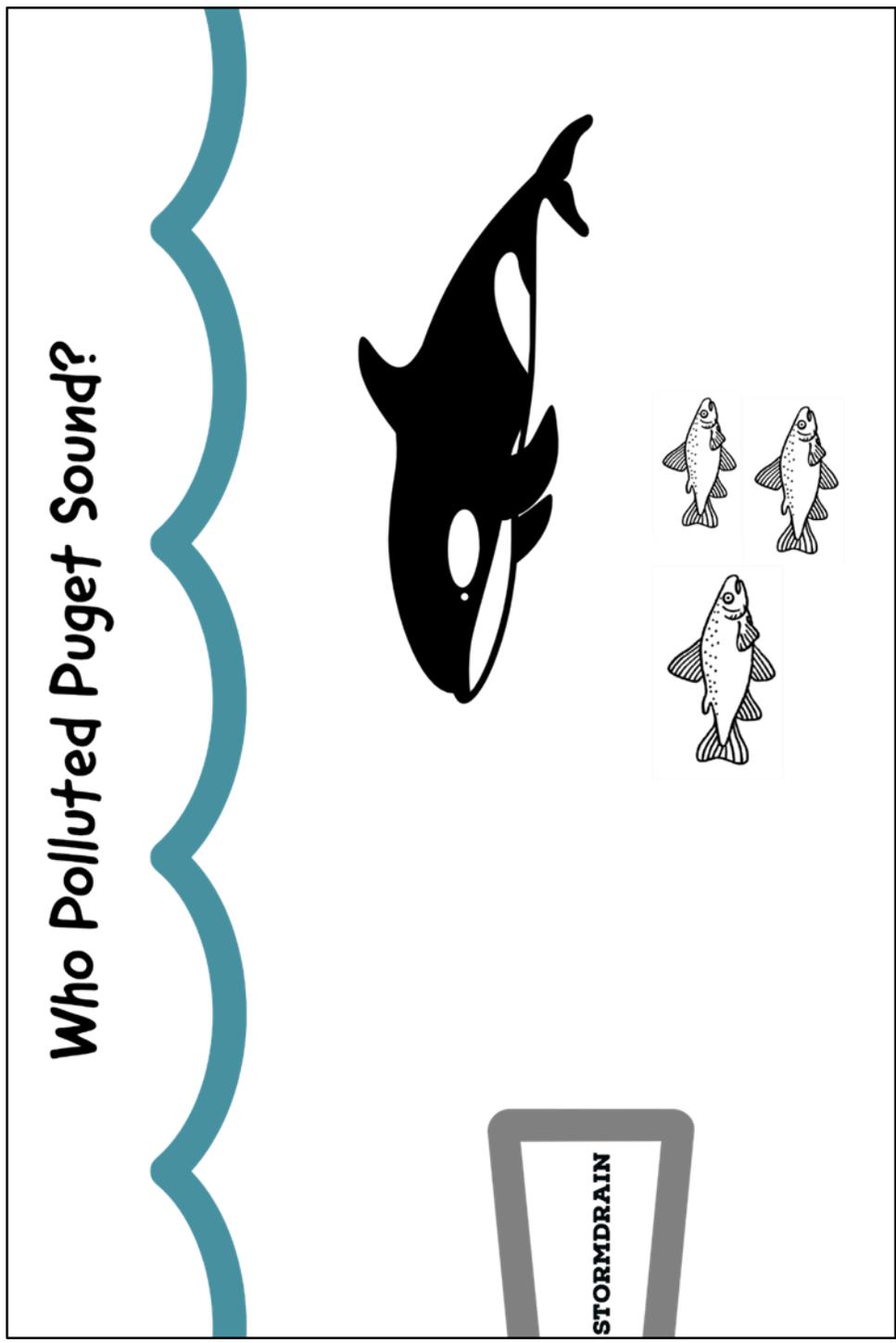
You notice your adult's car is gone later and on their parking spot is a rainbow oil circle spot. The car must have a leak!

Pollution! Write or draw a picture of an oil leak into Puget Sound

It has started to rain. All the different pollution you saw washes away and goes into storm drains that connect to Puget Sound.

Who Polluted Puget Sound?

Underwater Puget Sound Image



Who Polluted Puget Sound?

STORMDRAIN

Optional Activity

Sounds of the Salish Sea

Puget Sound is part of the even bigger Salish Sea. The Salish Sea connects to the great Pacific Ocean. Salmon and Orcas are only two of the many animals that live in Puget Sound and Salish Sea. There are many underwater animals that live in these large bodies of saltwater.

Materials: Computer/phone/tablet, internet connection, writing utensil

The animals that live in Puget Sound and Salish Sea communicate underwater. Let's listen to some of them!

1. **With an adult**, visit this website: <http://orcasound.net/ed/booth/local.html?learn>
2. Click on their picture to listen to the different animals' calls, clicks, whistles, and sounds.
3. Put a check mark next to the animal name if you listened to their sounds:
 - Bigg's Orca Whale
 - California Sea Lion
 - Gray Whale
 - Harbor Porpoise
 - Harbor Seal
 - Humpback Whale
 - Minke Whale
 - Pacific Herring Fish
 - Seagull
 - Southern Resident Orca Whales
4. Did you hear any sounds that are not from animals but are found in Puget Sound and Salish Sea? Write one of them here:

Optional Activity

Stormwater Stewardship Challenge for Day 4

One of the most important parts of how we deal with stormwater is our system of storm drains. When they work right, these drains help to prevent flooding, direct pollution away from our freshwater lakes and streams, and prevent damage to our homes and community.

Materials: Computer/phone/tablet, internet connection, gloves, trash bags, gardening tools

To help your community keep storm drains working well, you can volunteer to adopt a storm drain!

You don't need to volunteer officially to do your part though! Anyone can help to keep a drain near them clear of leaves, sticks and other things that could clog the drain.

With an adult, find a storm drain right in front of your home and remove any debris that might be clogging up the drain opening! Use a broom to sweep away any leaves, sticks, or small rocks on top of drain.

Important things to remember:

- **Never use your bare hands to pick up anything. Always work with an adult to stay safe.**
- **Do not go into the street.**
- **Be careful when walking and always watch out for cars, bikes, and other traffic.**
- **Whenever you are outside it is important to be safe, responsible and respectful.**

If you aren't able to make it outside, you can still help! Make a poster reminding people to keep storm drains clear and how to do it safely that you can display in a window. Take a picture and send to friends and family or post on social media.

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 tag @naturevisionorg in your post! Do you live in Auburn, Bothell, Lynnwood, or King County? Use the hashtags and tag the city or county group below. They want to see all the work you are doing to keep our water clean:

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DAY 5

Stewardship

A lot has been covered this week on watersheds, rivers, streams, wetlands, and Puget Sound. These places are home to many different plants and animals, including you! Now is the time to combine everything we learned on how these places are damaged by stormwater pollution going down storm drains. It is important to put all we learned into action and learn about **stewardship**.

Stewardship means to take care of something. A steward is someone who is responsible for the care. If you care for our watershed and the rivers, streams, wetlands, and Puget Sound, you are a steward! There are many things you can do to help keep stormwater pollution from going down storm drains and into our watershed. One of the best ways to be a steward is to think of the materials we use every day and how we can make sure to not leave it behind to become pollution.

Clean water is something that humans, animals, plants, and all living things need to survive. We become stewards of our watershed when we make sure to keep rivers, streams, wetlands, and Puget Sound clean!



Vocabulary

Stewardship: Taking care of something; being a protector

Main Activity

Design a Stormwater Pollution Poster

The health of our watershed depends on clean rivers, wetlands, and Puget Sound. There are many solutions to the stormwater pollution problem.

Stormwater Pollution Solutions:

- Fix your car oil leaks
- Pick up your dog poop and throw it away in the garbage can
- Don't use too much fertilizer or pesticides on your gardens
- Take your car to a commercial car wash
- Don't litter

Materials: Writing utensil, markers/crayons/colored pencils, art materials, paper

Instructions:

1. Create a poster to share with your friends, family, and neighbors.
2. You can create a poster from a blank piece of paper or use the poster example on the next page to color and draw.
3. If you chose to create a poster from a blank piece of paper: write the title "Keep Rivers, Wetlands, and Puget Sound Healthy" at the top of the paper.
4. If you chose the poster example below: color the title "Keep Rivers, Wetlands, and Puget Sound Healthy".
5. Draw pictures or write words to share one or many solutions to the stormwater pollution problem in our watershed.
6. You can choose the solutions above or draw and write ones of your own design.
7. Place it on your window for people passing by to see and learn how they can help the stormwater pollution problem.

**KEEP RIVERS,
WETLANDS, AND
PUGET SOUND
HEALTHY!**

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 help you remember to take care of our environment. One way to save a piece of nature to carry with you is a plant pressing. Plant pressing is a way that everyone from scientists to artists save plants to enjoy in the future.

More plants in our cities, forests, and watershed is a great stormwater pollution solution! Plants and soil are able to trap pollution that is in stormwater.

Materials: Paper, writing utensil, a small leaf, heavy book

Instructions:

1. With the help of an adult, find a small leaf for your pressing. Remember, whenever we are outside we want to be safe, responsible and respectful. Try to find a small leaf that has already fallen on the ground.
2. Make sure that the leaf can fit completely in the palm of your hand.
3. Take a piece of paper and fold it in half, "hamburger" style.
4. With your writing tool: write somewhere on the paper what day it is, what you found and why you want to save it.
5. Then, place your plant flat in between the halves of paper.
6. 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.
7. Put the entire pile into a safe place.
8. Don't move it for at least two weeks!
9. It takes a long time for a plant to dry out.

Once your plant is dry you will have a beautiful leaf pressing that you can hang up or display. This will help remind you that plants are helpful in cleaning stormwater pollution!

Optional Activity

Stormwater Stewardship Challenge for Day 5

There are so many ways to protect and care for our water. At the end of every daily lesson, we will be giving a stormwater 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 on stormwater pollution, it's time to make your own Stormwater Challenge! Think about all of the things we learned this week. What new thing can you do to share what you know or new ways you've learned to keep our waterways clean?

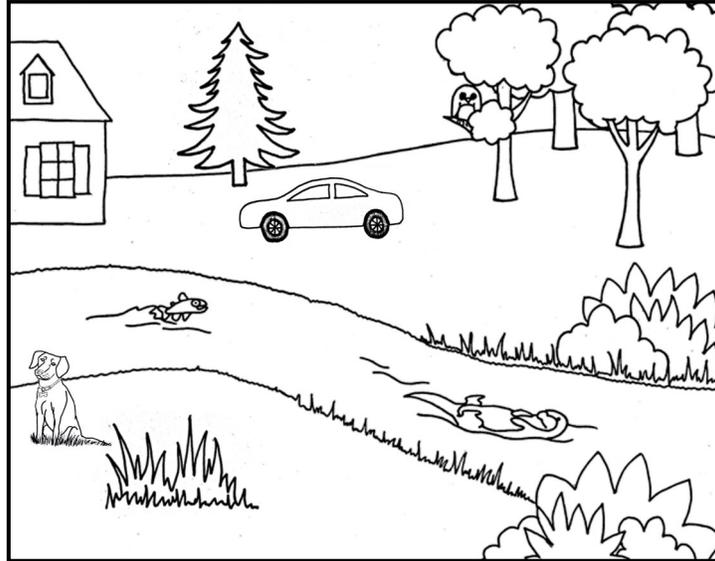
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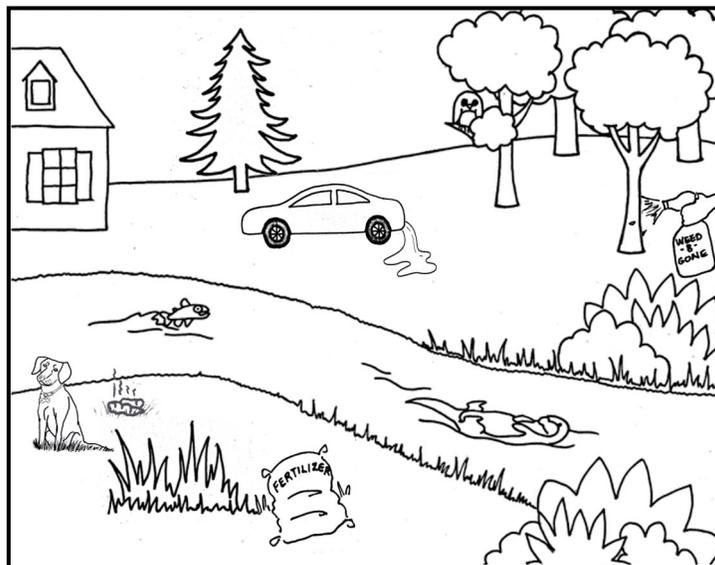
Answer Key

Day 2 Main Activity: River Puzzle

The completed puzzle should look like this:



This is what it looks like with the pollution included:



The 4 kinds of pollution in the picture are:

1. Oil leaks from cars
2. Dog poop
3. Fertilizer (plant food)
4. Weed-killer