



Water Resource Program Guide

“bringing water education into the classroom”



Clackamas County Watersheds: Connecting Water, Land and People

This information has been provided by
The Water Education Team Members of Clackamas County (CCWET)

CREST – Center for Research in Environmental Sciences & Technologies
City of Wilsonville
Clackamas County Office of Sustainability
Clackamas County Soil & Water Conservation District
CRBC – Clackamas River Basin Council
CRWP – Clackamas River Water Providers
ELC – Clackamas Community College’s Environmental Learning Center
Oak Lodge Sanitary District
Oregon State University Extension Service
US Forest Service
WES – Water Environment Services



Dear Educator,

The Water Education Team of Clackamas County is made up of a number of organizations that are working together on water and watershed-related issues in Clackamas County. These community groups and local agencies promote programs and resources that address watershed issues such as water quality, water conservation, micro-watersheds, drinking water, salmon, enhancement, restoration, and stewardship.

The purpose of this Water Resource Program Guide is to help educators in Clackamas County provide their students with a comprehensive hands-on learning experience related to water resource issues. By working together, our agencies are able to offer complementary programs while keeping our cost down and making the most of our limited staff and resources.

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Program Overview Matrix

KEY

- 1 Properties of Water
- 2 Water Cycle
- 3 Watersheds
- 4 Wetlands
- 5 Groundwater
- 6 Water Quality
- 7 Drinking Water
- 8 Water Conservation
- 9 Salmon
- 10 Non-point Source Pollution
- 11 Solid Waste and Recycling
- 12 Technical Information and Support
- 13 Wastewater Education

Name of Agency	School Programs	Classroom Resources	Field Trips	Teacher Education	Financial Assistance
CREST	1	9, 11	4, 6, 9	X	
City of Wilsonville	11		3, 4, 6, 9, 10		
Clackamas County Office of Sustainability	11, 12	11, 12		X	
Clackamas County SWCD	11				
Clackamas River Basin Council	3, 4, 6, 7, 8, 9, 10, 12	6, 8, 9, 10, 12	3, 9	X	
Clackamas River Water Providers	2, 6, 7, 8, 9	1, 2, 6, 7, 8, 9	7	X	X
John Inskeep Env. Learning Center	3, 6, 9, 10	3, 6, 10	3, 6, 9, 10	X	X
Oak Lodge Sanitary	3, 4, 6, 9, 10				X
OSU Extension 4H/ Sea Grant Program	9	1, 2, 3, 4, 5, 6, 9, 10, 11			
Water Environment Services	3, 6, 9, 10	6, 9, 10	6, 9	X	X

CREST

CREST is an environmental education center that engages students in hands-on, minds-on science, field research, and community service projects. CREST offers outreach and on-site programs for West Linn-Wilsonville School District students K-12. The center also provides resources to teachers and the community.

To schedule a program or for more information please call 503-673-7350 or visit <http://www.wlww.k12.or.us/crest/index.htm>

These services are available to the following schools:

West Linn Schools

- Bolton Elementary
- Cedaroak Elementary
- Sunset Elementary
- Willamette Primary
- Athey Creek Middle School
- Rosemont Ridge Middle School
- West Linn High

Wilsonville Schools

- Boeckman Creek Elementary
- Boones Ferry Elementary
- Stafford Elementary
- Inza R. Wood Middle School
- Wilsonville High

School Programs

Classroom Activities/Presentations

Properties of Water

We teach lessons on the properties of water with hands-on experiments that deal with density, surface tension, states of matter and more.

After School or Non-School Day Programs

Learning on the Go

Grades: K-8

Ten days a year CREST offers trips to K-8 students to natural areas in the Portland area and beyond. Many times these include water-related activities.

Envirocamp I

Grades: 1-5

Envirocamp is a day camp program focused on environmental education activities. Includes several short day trips in the area and an all-day field trip on Friday. Many water related activities are also included.

Envirocamp II

Grades: 6-8

This is an adventure-based program, which includes hiking, rafting, and canoeing.

Classroom Resources

Technical Information and Support

STEP- Salmon Trout Enhancement Program

Grades: 2-12

We have tanks at six primary schools, one middle school and one high school. At the primary schools we provide curriculum ideas for use in conjunction with the raising of fish. This includes dissection of trout and stream monitoring activities, field trips to spawning sites and other activities. We provide technical assistance with the tank's equipment and help with getting and maintaining the equipment. We pick up the eggs at the Department of Fish and Wildlife and deliver them to the schools twice a year.

Restoration Projects

We have a native plant nursery at CREST where kids help propagate plants, which are then put in sites around the school district.

Field Trips

Community Service

Community Service projects include stormwater drain stenciling projects and invasive species removal projects.

Monitoring

We offer stream and wetland monitoring field trips at CREST or at local streams. Prior to monitoring, we offer training in the classroom on how to use the equipment.

Salmon Spawning

We offer trips in the fall to spawning sites in the gorge and in the Sandy basin where kids see spawning up close. Trips to a hatchery are usually done at the same time to compare hatchery spawning to natural spawning.

Financial Assistance

All school day activities are free to West Linn-Wilsonville Schools. After-school programs or programs on non-school days are fee based.



The City of Wilsonville is located 17 miles south of Portland and has a population of approximately 18,000 people. The City provides drinking water, stormwater and wastewater services to all its citizens.

The City's Natural Resources Program provides a variety of environmental education and outreach opportunities for local citizens and schools, such as:

- **Goat Day**-interactive educational opportunity for the community with a petting area and activity workbooks for kids
- **Planting Events**-community planting events in collaboration with Friend of Trees
- **Invasive Species Control**-community park/natural area invasive plant maintenance
- **Sustainability Education Series**-education and outreach event centered on environmental and sustainability topics
- **Boeckman Creek Elementary Field Trip**- (organized by CREST) outdoor classroom aimed at educating students on the five kingdoms, fish passage and invasive plant species removal
- **W.E.R.K. Day**-a community volunteer work day
- **Stormwater Master Plan Low Impact Development**-A more sustainable approach to managing stormwater will be implemented as part of the new master plan.

CONTACT INFORMATION:

Natural Resources Program
(503) 682-4960

Check out the City's website for specific events and times: www.ci.wilsonville.or.us

These services are available to the following schools:

- Boeckman Creek Elementary
- Boones Ferry Elementary
- Stafford Elementary
- Inza R. Wood Middle School
- Wilsonville High School



Sustainability is the concept of providing for our current needs as well as for the needs of future generations. It begs the question: What kind of world are we living in and what kind of world will we leave to our children and grandchildren?

School Programs

We provide schools with a variety of resources, waste reduction education and technical assistance. The CCRP also administers the Oregon Green Schools program in Clackamas County.

The Clackamas County Recycling Partnership (CCRP) is a cooperative of local franchised garbage and recycling companies, the Clackamas County Office of Sustainability, and these cities: Barlow, Canby, Damascus, Estacada, Gladstone, Happy Valley, Lake Oswego, Milwaukie, Molalla, Oregon City, Sandy, West Linn and Wilsonville.

General Information

- Why Recycle
- Beyond Recycling
- Links for Students and Teachers
- Fast Recycling Facts
- More Recycling Opportunities
- Field Trips
- Waste Reduction Kits
- Technical Assistance

Green Schools

Several schools throughout Clackamas County have recently achieved Oregon Green School status. Special recognition goes out to **Deep Creek Elementary** and **Sunset Primary**, whose staff, students and parents have worked together to achieve **Premier Oregon Green School** status.

- Oregon Green School Program
- Clackamas County Green Schools

Activities

- Teacher's Guide to Working with Worms
- Papermaking With Recycled Paper
- The End of the School Year Recycling Guide
- Waste Sorts (Word)

Clackamas County is committed to sustainability, to "using, developing and protecting resources at a rate and in a manner enabling people to meet their current needs and also provides that future generations can meet their own needs."

The county has been engaged in sustainable practices for years and will continue to look for the most sustainable ways to serve the public.

The Clackamas County Office of Sustainability supports and coordinates sustainability activities within and throughout Clackamas County, and is a resource for the community. For more school and class room information,

Eileen Stapp, Schools Coordinator

Clackamas County Recycling Partnership
Clackamas County Office of Sustainability

150 Beaver Creek Rd

Oregon City OR 97045

503-742-4454

fax: 503-742-4453

eileens@co.clackamas.or.us

In keeping with the County's sustainability goals, our offices are open Monday through Thursday and closed on Fridays.



CLACKAMAS COUNTY SOIL AND WATER
CONSERVATION DISTRICT
www.conservationdistrict.org

Good dirt. Clean water.

Clackamas Soil and Water Conservation District plays a lead role in the locally led conservation process by working with landowners to meet their conservation objectives. One-on-one interaction with the Soil and Water Conservation District offers the landowner the information they need to change their behavior and take voluntary action to reduce their impacts to non-point source water pollution. The District provides teachers with technical information and support regarding soils, water quality, and non-point source pollution.

For more information please call 503-655-3144 or check out our website at www.conservationdistrict.org

These services are available to any school in Clackamas County.

Classroom Resources

Technical Information and Support

Clackamas Soil and Water Conservation District offers technical and teaching aid to any natural resource or biology high school teacher that is planning to take a team to the Oregon Environment. The District offers conservation classes and information tables at different locations throughout the county.

The District also has written conservation and soil materials that are available to all teachers. This material includes county soil survey and conservation practices for both urban and farming communities. The District has a quarterly email notification for small farm educational opportunities.

Clackamas River Basin Council



**Clackamas River
Basin Council**

The Clackamas River Basin Council fosters partnerships for clean water and to improve fish and wildlife habitat and the quality of life for those who live, work and recreate in the watershed.

The Clackamas River Basin Council (CRBC) is a local and voluntary non-profit watershed council with representatives elected from 21 diverse stakeholder groups. We work in the entire river drainage, and focus on the mainstem and the tributary streams that enter the Clackamas River below Estacada. Our Stream Team provides free trees and technical assistance to streamside landowners that help prevent erosion, improve water quality and fish and wildlife habitat.

The Clackamas River Basin Council meets the third Thursday of each month and has two seats for representatives of Education and Youth. These representatives help us to conduct outreach and education activities, and to involve youth and students with our projects.

The CRBC partners with other CCWET members to offer teachers' workshops, field trips and other educational programs.

Classroom Resources

Technical Information and Support

Water Quality Monitoring

Students working with the Student Watershed Research Project (SWRP) help the council to do water quality monitoring in the watershed by collecting and analyzing water samples.

If you would like to customize a program to involve your students in bio-monitoring please contact the Clackamas River Basin Council.

Clackamas Stream Team

The CRBC will assist teachers interested in adopting a creek or streamside project site in the Clackamas Watershed. Students can study its conditions and help care for it by planting trees, removing invasive species and doing other projects to help protect water quality and provide wildlife habitat.

Events

First Saturday Work Parties

9am - 1pm

Free, open to the public

Locations vary

The CRBC organizes parties to remove invasive species and plant native trees and shrubs on the first Saturday of each month (check our website for location details). These parties are a great way to help the watershed and meet fellow community members at the same time. All tools and materials are provided.

Salmon Carcass Tosses

Each rainy season

Free, open to the public

Locations vary

Would you like to spend a Saturday tossing fish into local tributaries to improve water quality? If you're not afraid to get a bit smelly and dirty, this could be a perfect opportunity for you and your service group. Contact the Basin Council to schedule an event.

Nature Hikes

Every summer

Free, open to public

Locations vary

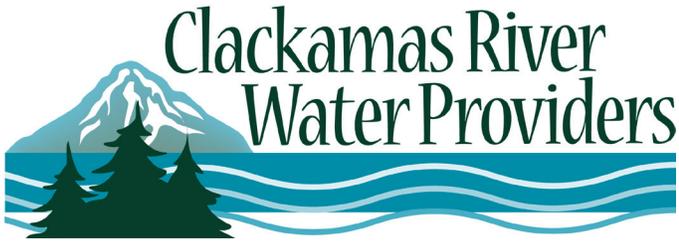
Join CRBC board member Bryon Boyce on walking tours that are sure to broaden your knowledge of local flora and fauna while providing you with outstanding views of the watershed. RSVP to the Council to reserve a spot in the tour group.

If you would like to involve your students or youth group in projects that help with the council's mission please call 503-558-0550. You can also follow us on Twitter and Facebook.

For upcoming events and council projects, please visit
www.clackamasriver.org and become involved in:

Tree Planting • Fish Carcass Toss • Nature Hikes • Tours • Community Celebrations

Clackamas River Water Providers



The Clackamas River Water Providers (CRWP) are made up of representatives from the City of Lake Oswego*, Clackamas River Water, the North Clackamas County Water Commission (City of Gladstone, Oak Lodge Water District, Sunrise Water Authority), and South Fork Water Board (Oregon City, West Linn), and the City of Estacada. The CRWP's Conservation Program was developed to implement local water and water conservation programs for all of its members.

**City of Lake Oswego and Clackamas River Water do not participate in the water conservation public outreach and education program.*

All of the following assembly programs, classroom presentations, videos and resources are offered at no cost to schools. To schedule a program, presentation, to check out any of the resources, or for more information about the Clackamas River Water Providers Conservation Program please contact Christine Hollenbeck at (503)723-3511 or via e-mail at christine@clackamasproviders.org / www.clackamasproviders.org

These services are available to the following schools:

City of Estacada

- Clackamas River Elementary
- River Mill Elementary
- Estacada Junior High School
- Estacada High school

City of Gladstone Schools

- John Wetten Elementary
- Kraxberger Middle School
- Gladstone High school

Oak Lodge Water District Schools

- Oak Grove Elementary
- Riverside Elementary
- Concord Elementary
- Candy Lane elementary
- Jennings Lodge Elementary
- View Acres Elementary
- Sojourner Elementary
- New Urban High School
- Rex Putnam High School

South Fork - Oregon City Schools

- Gaffney Lane Elementary
- Holcomb Elementary
- King Elementary
- John McLoughlin Elementary
- Mt. Pleasant Elementary
- Park Place Elementary
- Gardiner Middle School
- Odgen Middle School
- Oregon City High School

South Fork - West Linn Schools

- Bolton Elementary
- Cedaroak Elementary
- Sunset Elementary
- Willamette Elementary
- Athey Creek Middle School
- Rosemont Ridge Middle School
- West Linn High School

Sunrise Water Authority Schools

- Happy Valley Elementary
- Mt. Scott Elementary
- Deep Creek Elementary
- Oregon Trail Elementary
- Scouters Mountain Elementary
- Spring Mountain Elementary
- Verne A. Duncan Elementary
- Damascus Middle School
- Happy Valley Middle School
- Sunrise Middle School
- Clackamas High School

All of the following assembly programs, classroom presentations, videos and resources are offered at **no cost**. To schedule a program, presentation, to check out any of the resources or for more information **please contact Christine Hollenbeck at (503)723-3511 or via email at christine@clackamasproviders.org**

School Programs

Assembly Programs

Where's Rosie?

Grade: K - 2nd

Program length: 30 minutes.

"Where's Rosie?" is an interactive environmental puppet show about water performed by Ladybug Theater. Students learn about watersheds, the value of water, the many uses for water, and how they can help conserve water.

What Do You Know About H2O?

Grade: 4th – 6th

Program length: 30 minutes

Mad Science brings to you **"What do you know about H2O?"** This 30 minute show provides a high-energy, interactive learning experience focusing the students on *what* they can do to conserve water and *why* it is important.

Rockin' Water Road Show

Grade: 4th – 6th

Program length: 25 –35 minutes

Recycleman and the Dumpster Divers continue to bring schools this exciting water concert. This concert features lots of audience participation as kids learn about how important water conservation is through Recycleman's songs.

Classroom Activities and Presentations

Water Cycle Play

Grades: 1st – 2nd

Program length: 30 –40 minutes.

Students learn about the properties of water and how the water cycle works through this role playing activity. Students become actors in their own play as they become water drops and "act out" the water cycle.

The Incredible Journey

Grades: 1st – 5th

Program length: 30- 45 minutes. With the roll of a die, students simulate the movement of water within the water cycle. Role-playing a water molecule helps students to conceptualize the water cycle as more than a predictable two-dimensional path.

From the Source to the Tap

Grades: 1st - adult

Program length: 30- 45 minutes.

Where does our water come from when we turn on the tap? How does the water get to the house? How do we keep it safe to drink? Why is conservation important? See how we teach people about conservation and learn what easy thing you can do to save water.

A Drop in the Bucket

Grades: 3rd - adult

Program length: 10 – 20 minutes

Students learn how old our water is, and just how much water is available for humans, while learning to appreciate that we need to keep our water clean through this visual demonstration.

Raven returns the WATER

Grades: 1st – 5th

Program length: 20 – 30 minutes.

A Native American myth is read about the day all the water in the world disappears and Raven goes searching for it. Students discuss how they and their families use water, how they are part of the water cycle, and ways they can conserve water so that there is enough for everyone in the future.

Water Jeopardy.

Grades: 3rd - 8th

Program length: 20 minutes.

Just like the game show, the class is broken into teams that try to see how many water questions they can answer. Overhead projector is needed.

So You Want to be a Salmon?

Grades: 3rd – 6th

Program length: 45 minutes

Role-play the life-cycle of local salmon and steel-head in order to understand the difficulties that they encounter during their migration.

continued

***New - Enviroscope® Watershed/Nonpoint Source Model**

Grades: 4th – 8th

Program length: 40 minutes

Learn how watershed pollution can come from many different sources. Nonpoint sources pollution contributes a great deal to the pollution in our water bodies. The combined affect of pollution from many small sources can have a real impact on the quality of our shared water resources.

The Tapwater Tour

Grades: 4th - 8th

Program length: 2 – 3 class sessions.

This program introduces students to scientific thought while stimulating curiosity and enthusiasm. “Hands-on” active participation in this lab leads to students discovering their drinking water for what it really is as they test it.

Taste-imony to Tap Water

Grades: 4th – 12th

Program length: 30 minutes.

Learn how to set up an experiment and then take a blind taste test to see if you can tell bottle water from tap water. Students learn more about where their drinking water comes from and the process that it goes through to get to their faucets.

Common Water

Grades: 4th – 8th

Program length: 50 minutes.

Students analyze the results of a simulation to understand that water is a shared resource and is managed. They will illustrate how multiple users can affect water quality and quantity. *(This activity may involve spilled water and is best done in an outdoor activity area or an area with non-slippery floors).*

The Long Haul

Grades: K - 12th

Program length: 30 minutes.

Students work together in teams to compete in a water hauling game. Students will develop an awareness of various volumes of water; appreciate today's readily available water supplies; and relates how easy access to water can encourage people to use large amounts of water. *(Outdoor activity with access to a water source)*

Videos

Water: A First look

Grades: 1st – 3rd

Video Length: 17 minutes

This program illustrates the differences between salt water and fresh water; shows how living things need water to survive; describes how water can have different forms; and how water can change form through evaporation, condensation, and freezing.

***New - All About the Water Cycle**

Grades: K-4th

DVD length: 23 minutes

Even though nearly 3/4 of the world's surface is covered by water, only a very small portion of it is fresh water. So what happens when it's all used up? It won't, which is just one of the amazing facts children will learn in *All About the Water Cycle*. Discover the amazing process by which Earth's water supply has been recycled over millions of years.

***New - Magic School Bus: Catches a wave**

Grades: K-5th

DVD Series Length: 78 minutes

Ms. Frizzle takes her class on a rainy ride through the life cycle of a water drop, on a rough 'n' tumble journey of a boulder subject to water erosion and on a bubbly trip to the bottom of Walkerville Lake in three animated episodes of the *Magic School Bus* series, including *Magic School Bus Wet All Over*, *Magic School Bus Rocks and Rolls* and *Magic School Bus Ups and Downs*.

Water the Lost Treasure

Grades: 2nd – 5th

Video Length: 10 minutes

This video takes students to visit a museum, set sometime in the future. Dino Sorrus, the museum's curator, explains how all the earth's water, except for one small vial, has been wasted or polluted beyond use. Through computer graphics and animation students learn what they can do today to save the earth's water.

Science Court Water Cycle

Grades: 3rd – 5th

Video Length: 22 minutes

Students learn about scientific concepts and sound methods through a combination of courtroom drama, animation, and humor. Through demonstration and experiments, kids will learn about the water cycle, condensation, evaporation, and states of matter.

Down the Drain

Grades: 3rd – 7th

Video Length: 30 minutes

In this video from the Children's Television Workshop, teenage host Stephanie Yu examines the science behind water: the water cycle, the properties of water, water conservation, wastewater treatment, and water quality testing.

The Hydrologic Cycle: Water in Motion

Grades: 3rd – adult

Video Length: 20 minutes

Excellent live action video and computer graphics, gives an understanding of how water moves through the hydrologic cycle. Discover how natural events affect evaporation, condensation, precipitation, runoff, and storage. With increasing demand for usable fresh water, learn why the use and misuse of this precious resource is a global environmental concern.

What do you know about H2O?

Grades: 3rd – adult

Video Length: 20 minutes

A 10 minute pre-test is given before watching this video that answers all the questions on the quiz. Students learn just how much water everyday things use.

Professor Water and the Amazing Water Cycle

Grades: 4th – 6th

Video Length: 26 minutes

Join Professor Water and his wily sidekicks as they take viewers from Niagara Falls to the South Pole to Death Valley to the O.K. Coral. Students will pick up a world of information on the water cycle, water treatment, and water wonders. A Teacher's Guide with real science experiments, and outcome based learning lessons can be borrowed along with the video.

Geography Basics: Climate, Water, and Living Patterns

Grades: 4th – 8th

Video Length: 24 minutes

This video explains the water cycle, El Nino and La Nina as well as the role water plays in a region's transportation, food production, population growth, folklore, and industry.

Source of Life: Water in our Environment

Grades: 4th – 8th

Video Length: 24 minutes

This video explains where water is found and how it's used in homes, industry, and agriculture. The fact that we cannot increase the amount of available water is explored as well as how water pollution affects humans and other forms of life.

The Oregon Story: Water

Grades: 4th - adult

Video Length: 60 minutes

This public television documentary explores both the history of water allocations around the state and how society's demands upon it have changed over time. You'll see examples of water-based problems and conflicts and meet some of the people who are leading the way in efficient usage and water conservation. A teacher's guide and activities accompany the video.

Living on a Drop . . . a global view of water

Grades: 4th - adult

Video Length: 55 minutes

This video looks at the true cost of preserving water quality and quantity, through education and understanding. This video follows both rural and urban water users and focuses primarily on water quality issues.

Water

Grades: 4th – adult

Video Length: 60 minutes

This public television program hosted by James Earl Jones explores the major issues involving our insatiable thirst for water, and provides a global perspective on problems involving water quantity. The video is broken up into four major segments: California Water Merchants, Australian Water Wasters, Mexican Water Rationing, and New Zealand Water and Wildlife.

continued

Water to the Last Drop

Grades: 4th – adult

Video Length: 52 minutes

This Discovery Channel video travels to Canada, the United States, Mexico and the Middle East to study the natural history of water and to investigate the latest technologies used to make the water we do have safe.

*New - Liquid Assets

Grades: 7th – adult

DVD Length: 90 minutes

“Liquid Assets” tells the story of essential infrastructure systems: drinking water, wastewater, and stormwater. These complex and aging systems—some in the ground for more than 100 years—are critical for basic sanitation, public safety, economic development, and a host of other necessities of life. The documentary highlights communities from across the United States, providing an understanding of hidden water infrastructure assets, demonstrating watershed protection approaches, and illustrating twenty-first century solutions.

*New - Flow

Grades: 7th-adult

DVD Length: 84 minutes

“Flow” is an award-winning documentary investigation into what experts label the most important political and environmental issue of the 21st century – The World Water Crisis. A case is built against the growing privatization of the world's dwindling fresh water supply with an unflinching focus on politics, pollution, human rights and the emergence of a domineering world water cartel.

Other Resources

In addition to the resources listed below **Clackamas River Water Providers** also has an extensive water curriculum library that is available to teachers.

Water Treatment Plant Tours

Grades: All ages

Come see how your water provider takes water from the Clackamas River and treats it so it is ready for you to use at your tap.

Water Audit Kits

Grades: 4th – adult

By using water audit kits students will become aware of how much water they use each day. Then identify ways they can save water and see if these would change the amount of water they use. Each student receives a kit to help them measure water use.

Dripial Pursuit and Puddle Pictures

Grades: 3rd - adult

Like the popular games Trivial Pursuit Pictionary these games help students understand important water concepts by answering question related to water, natural resources, and geography. Can you draw the word recharge? Both these games are available for classrooms to keep.

Water Education Posters

Grades: K – 6th

We have three different posters available for you to use in your classroom. Each of them are two sided – full color on one side, and black and white ready for coloring on the other. These colorful posters illustrate basic water processes and answer common water supply questions. The posters describe: A Water System, A Water Treatment Plant, and the Water Cycle. Chose one or take all three.

The Wonders of Water Board Game

Grades: 4th – 8th

Play this fun board game and learn more about the properties of water, forms of water, precipitation, water usage and conservation.

Science Seekers – Safe Water CD- Rom

Grades: 4th – 6th grade

Through this multi-media presentation, students get to use the same kinds of data and methods that real scientist use to gather information, conduct experiments, and come up with the answer about the source of water contamination in Fairview. Students will learn how to: work in groups to research science concepts, conduct lab experiments, and apply technology to help solve scientific problems. Teachers will need either an in-focus machine or a computer screen that the whole class can see.

continued

Science Court – Water Cycle CD-Rom

Grades: 4th – 6th

In this multi-media presentation a humorous courtroom drama provides the vehicle for demonstrations and explanation of the water cycle. Students working in cooperative teams act as courtside commentators. At the end of the trial students predict how the jury will vote. Teachers will need either an in-focus machine or a computer screen that the whole class can see.

Aqua Venture CD-Rom

Grades: 3rd - adult

Students will learn about the story of water, its treatment, and use throughout history, and its importance to life on Earth. With a click of the mouse, you can browse through more than 10,000 years of history with interesting anecdotes, colorful photos, video clips, and music.

Financial Assistance

Clackamas River Water Providers has funding to offer mini-water grants of up to \$250 each year for our teachers. The mini-grants are intended to provide supplemental funding for water related projects. The grants may fund the entire project, or be used to supplement a project. The funding can be used to buy materials for water related activities, bussing for water related field trips, or to pay for water related training or courses for teachers or students. For more information on how to apply for a grant please contact Christine Hollenbeck at (503) 723-3511 or via e-mail at Christine@clackamasproviders.org.

For more information on teacher resources and mini-water grants go to <http://www.clackamasproviders.org/water-conservation/teacher-resources.html>.

John Inskeep Environmental Learning Center



The John Inskeep Environmental Learning Center (ELC), a program within the Horticulture Department at Clackamas Community College, offers your students an exciting opportunity to learn about watersheds through hands-on interactive activities that are both educational and fun. The ELC offers both field trips and in-school programs, any of which can be modified to match your needs. All program materials are provided and content is aligned with Oregon science standards. Discounts are offered when you select multiple programs and financial assistance is available. The ELC is your best resource for quality watershed education.

Call 503-594-3696 for more information or to schedule a program or visit <http://depts.clackamas.edu/elc/index.asp>

These services are available to any school in Clackamas County.

School Programs

Classroom Activities/Presentations

On Our Site or Yours

Now you can experience the wonder of watersheds either in your classroom or at the ELC.

It's For the Birds

Grades: K-2

Program length: 2 hours

Cost: \$100

What makes a bird a bird and what do they need in their habitat to survive? Students will learn about the birds that can be found in their backyard, dissect owl pellets, make a bird feeder to take home, go on a bird walk, and much, much more.

I Am Salmon...Salmon I Am

Grades: 4-6

Program length: 1 hour, 45 minutes

Cost: \$95

What separates salmon from other fish and why are they in so much trouble? Learn about their fascinating journey between stream and sea and the challenges they face along the way. Students will experience the salmon's life cycle as they play a group survival game and attempt to sniff out their spawning grounds. This is the ultimate "school" of fish!

Note: Program requires use of dry field or gym for group survival game.

Go with the Flow

Grades: 4-6

Program length: 1 hour, 30 minutes

Cost: \$90

What happens to a drop of rainwater after it hits your rooftop? Students will use a watershed model, and hands-on experiments to explore how stormwater affects the health of their local watersheds.

Field Trips

Take a trip to the ELC and let your students explore the wonders of our ponds, creek and plants. Please plan to provide at least one chaperone for every five students for your ELC visit.

Clean Water — Healthy Fish: Basic Water Quality Monitoring

Grades: 4-6

Program length: 2 hours, 15 minutes

Cost: \$110

How do we know if a creek is "healthy" or "unhealthy" for fish living in the water?

At the ELC, students learn how to run simple water quality tests and what makes "good" water quality. Then, they head outdoors to test the quality of our creek and pond water. Students also learn about the tiny critters — from insects to worms — that live in the water.

Classroom option: Unable to go on a field trip? The ELC can bring a hands-on interactive classroom version to you! (Program length: 2 hours and 15 minutes; Cost: \$110)

continued

Branching Out: Classifying and Identifying Trees and Shrubs

Grades: 5-6

Program length: 2 hours

Cost: \$100

What's the difference between a pine cone and a fir cone? In this activity, students learn how to classify and identify common trees and shrubs by looking at needles, twigs and leaves. They'll also learn how to observe and describe plant characteristics and use a simplified key to identify common plants at the ELC.

Financial Assistance

A limited amount of financial assistance is available on a first-come, first-served basis through partnerships between the ELC, CCC Foundation and the Clackamas River Water Providers. Read below to see if you qualify.

- Clackamas River Water Providers will cover the cost for "Clean Water - Healthy Fish". A list of schools that qualify for this special offer are listed on page 7.

The participating class must also schedule a FREE program from Clackamas River Water Providers. Program information is listed on page 7. For more information call Danielle Folliard at 503-594-3696 or e-mail at Danielle@clackamas.edu

- CCC Foundation through the Cone Endowment will cover the cost of one program for any school in the Portland metro area.

Special Offers

- Receive a 10 percent discount when scheduling two or more classroom programs on the same day.
- Schedule "When It Rains, It Pollutes," "I Am Salmon...Salmon I Am," and "Clean Water-Healthy Fish" and receive a 10 percent discount off the cost of all three.

Oak Lodge Sanitary District



Oak Lodge Sanitary District provides surface water management and sanitary sewer services to 32,000 people in Oak Grove, Jennings Lodge, Oatfield Ridge, and portions of Gladstone and Milwaukie. The District strives to be an environmental leader in the community it serves and is committed to educating the public about the importance and value of a clean water environment. It is imperative that we work together as a community to protect our precious water resource.

The District offers the River Ranger Program to elementary schools. River Rangers is a program designed for 3rd and 4th grade students to teach them about the water cycle, water conservation, wastewater treatment, stormwater runoff, water habitat, and the local watershed. This program helps to foster "clean water attitudes" in our children that will help protect our water resources for future generations. The presentations give students initiative to share the lessons learned with their families so behavioral changes in water protection and conservation can also occur on a broader level.

Oak Lodge Sanitary District is eager to provide presentations to any group (school, youth club, senior center, civic, neighborhood, etc.) that is interested in learning about the water environment. Groups are also invited to schedule a tour of the treatment plant facility. All presentations and tours are free of charge. Call 503-653-1653 or email kakoellermeier@olsd.net for more information.

Schools included in the Oak Lodge Sanitary District service area:

- Candy Lane Elementary
- Concord Elementary
- Jennings Lodge Elementary
- Oak Grove Elementary
- Riverside Elementary
- Sojourner Elementary
- View Acres Elementary
- New Urban High School
- Rex Putnam High School



Extension Service
Clackamas County

The OSU Extension Service is the off-campus educational arm of Oregon State University. We provide non-formal education to meet the needs of Clackamas County citizens as they search for solutions to the many challenges of growth, economic development, environmental quality, and youth and family development. The 4-H Youth Development Program is the youth educational component of the OSU Extension Service.

For information or to schedule a program please call 503-650-3125 or visit <http://extension.oregonstate.edu/clackamas/>

These services are available to any school in Clackamas County.

School Programs

Summer and After-School Science Enrichment Programs

Cost of programs and topics vary and are negotiable..

After-school and summer school natural science programs are available to Clackamas County schools on a limited basis. Programs focus on developing youth awareness and understanding natural science concepts, related issues and stewardship. Lessons are conducted with hands-on activities and field studies/trips that address Oregon State educational standards for science.

Classroom Resources

Materials and Curriculum

Teaching kits are available for loan at a charge of \$10 to Clackamas County Schools. 4-H Wildlife Steward member schools have preference and pay no cost. All curricula addresses Oregon Educational Benchmarks. Kits and curricula include the following:

Wetland Wonders

Grades: 4-5

A water quality curriculum that explores the wetland environment. Kit contains materials for hands-on activities and lessons.

Ridges To Rivers

Grades: 4-6

Curricula and kit that explore watershed principles and concepts through hands-on activities. Kit contains most materials and equipment for lessons.

Oregon Earth Science

Grades: 4-12

Include curricula with hands-on activities related to Oregon geology. Kit contains materials/equipment needed for lessons.

Water Quality Test Kits

Grades: 2-12

Kits include equipment for measuring temperature, dissolved oxygen, and pH of aquatic systems. Also included are tools for sampling macro-invertebrates. The kit comes with written background material for teachers.

Of People and Fish

Grades: 4-8

The curriculum and accompanying teaching kit (contains videos, posters, publications, and materials listed for each activity) help students to understand the complex cultural and scientific history that has led to the "salmon crises" and to become active citizens in the search for solutions within their communities.

continued

What Can We Learn at the Habitat Around Ponds

Grades: K-8

Curriculum addresses educational benchmarks and inquiry skills through hands-on pond habitat activities. Activities focus on water cycle, water quality, pond plants, invertebrates, fish, and interdependence. Water test kits and invertebrate study equipment is available for loan.

Fish Stewards

Grades: 4-12

Raise native fish in the classroom while students study life cycles, fish biology, water quality and habitat requirements. Kit includes hands-on curriculum lessons, volunteer/teacher training, aquarium and chiller, and salmon or trout eggs.

Energy Sleuths and Engineers

Grades: 3-6

This energy education program focuses on understanding energy, how it is captured for human use, renewable sources and conservation, and sustainability through engineering. Curriculum and activity kits address Oregon's new science engineering benchmarks.

Technical Information and Support

4-H Wildlife Stewards Program

4-H Wildlife Stewards are trained volunteers working in partnership with public and private organizations to assist students and teachers in developing, using and sustaining wildlife habitat sites on school grounds. Through the program, students experience "real science" by using scientific concepts, practices, and equipment to create and use their wildlife habitat site. Member schools also have the option of participating in the 4-H Fish Stewards program (an extension of Wildlife Stewards) in which students raise salmon or trout fry in the classroom for release into the wild. Curriculum is provided through Oregon State University for both programs. For Clackamas County schools interested in after-school 4-H Wildlife Steward programs, the OSU/Clackamas County Extension Service will assist in volunteer recruitment, train volunteers, and serve as a resource to volunteers and schools to implement and sustain the program. Scholarships are available for volunteer training. Scholarships for low-income students to attend the 4-H Junior Wildlife Stewards summer residential camp in Salem will also be provided on a limited basis. See brochures for more information on the 4-H Wildlife Stewards Program and volunteer training dates or click on our Web site at www.wildlifestewards.4h.oregonstate.edu

Corroboree — 4-H Across the Seas International Science Web Site Program

Grades: 4-8

Cost: Free

Using dynamic data bases, Discussion Board, and Frog Blogs students exchange information with students in schools in Oregon and Australia that expands their understanding of natural, built, and "reclaimed" wildlife communities. Students will recognize that their local environmental quality issues are similar to global issues; develop computer skills through applied, real-world technology, and develop a new view of global sustainability and cultural diversity.

Workshop participants will use computers to access the site, including the secure members-only section to view and practice use of the natural science study data bases, data comparison, data entry, discussion board, participating school home pages and Frog Blogs.

Water Environment Services



Beyond clean water. www.clackamas.us/wes

Water Quality Protection • Surface Water Management • Wastewater Collection & Treatment

Clackamas County Water Environment Services (WES) is committed to informing its customers about the services they receive and about the vital role WES plays in protecting Clackamas County's valuable water resources.

All groups (civic, neighborhood, youth clubs, schools, etc.) are encouraged to learn more about wastewater treatment and surface water management by requesting a speaker to come out to your organization. All presentations are free of charge. Please call 503-353-4561 or via e-mail at akyle@co.clackamas.or.us

These services are available to the following schools:

Clackamas County Service District (CCSD#1)

Elementary School

- Mt. Scott
- Whitcomb
- View Acres
- Bilquist
- Clackamas
- Sunnyside
- Spring Mountain
- Oregon Trail
- Happy Valley
- Christ the King
- Sojourner

Middle School

- McLoughlin
- Sunrise
- Aldercreek
- Rowe

High School

- Clackamas
- La Salle
- Oregon Institute of Technology
- Milwaukie
- Putnam
- New Urban

Surface Water Management Agency of Clackamas County (SWMACC)

Elementary School

- Stafford

Middle School

- Athey Creek

WES will work one-on-one with any interested school in Clackamas County to provide as much support as possible when requested.

School Programs

Classroom Activities/Presentations

WES is working to bring these interactive programs to the classroom.

Classroom Resources

Materials and Curriculum

Seed Paper Bookmarks – these are non-invasive seeds that students can plant in the classroom.

Biosolids Teacher Resources CD

A movie and visual aid on how biosolids are treated and used.

Free Posters

- Native Plant Poster – full color poster of some of the most popular Oregon native plants and resources on where to obtain them
- Invasive plant poster – full color poster of some of Oregon's invasive plants that should be removed..

continued

Native Tree Planting Adventure on School Grounds

Grades: All levels

Water Environment Services will work with your school to help a class modify their school yard or detention ponds. Native plants may be included.

Speakers Bureau

Water Environment Services will provide knowledgeable speakers for individual classes. These speakers can convey messages on an array of topics such as wastewater, watershed health, environmental quality of water, wetlands, river health, and careers in wastewater and surface water management.

Community Events

Water Environment Services is available to staff a booth at your school's annual festival.

Pledge for watershed health curriculum focused on community outreach, chemistry, biology and environmental science.

Field Trips

Wastewater Treatment Plant Tours

Small and large groups

Water Environment Services welcomes classrooms or other groups to our wastewater treatment facilities. Learn how wastewater is cleaned and treated.

Good for Fish – Good For Us Stream Restoration Tour

Grades: All levels

Why are trees and plants good for our fish? Learn why native vegetation is good for our environment and good for us. Visit a stream restoration site and see how our streams are being restored to bring endangered fish back to our local streams and tributaries.

For detailed information please visit www.RiverHealth.org or www.TRI-City ServiceDistrict.org

Field Trips for Teachers in Clackamas County

Water Treatment

Clackamas River Water Providers (CRWP), Water Treatment Plant Tour

Grades: All ages

Come see how CRWP members, take water from the Clackamas River and treat it so it is ready for you to use at your tap. To schedule a tour contact Christine at 503-723-3511 or via e-mail at Christine@clackamasproviders.org.

Note to educators: Transportation funding is available on a limited basis.

Wastewater Treatment Plant Tours

Tri-City Wastewater Treatment Plant

Recommended for small and large groups

Water Environment Services welcomes classrooms or other groups to our wastewater treatment facilities. Learn how wastewater is cleaned and treated. To schedule a tour please call 503-353-4561 or e-mail akyle@co.clackamas.or.us.

Salmon

The Clackamas River Hatchery, state owned, is located at McIver Park and raises over 1.7 million spring Chinook smolts and 60,000 winter steelhead. Drop by for a visit or call at 503-630-7210. Open to visitors during daylight hours.

The Eagle Creek National Fish Hatchery is located at 3488 Rainbow RD in Estacada. Be sure not to miss the world's longest working fish ladder — 1.7 miles — which allows fish to pass both Faraday and North Fork Dams. Call 503-630-6270 for more information, or contact the Dept. of Fish and Wildlife at 503-657-2000.

PGE Clackamas River Hyrdo Project. Learn about hydro projects and salmon and steelhead runs on the Clackamas and efforts to boost wild fish and sport fishing opportunities. For more information call 503-630-8234.

Water Fairs or Festivals

Annual Children's Clean Water Festival, Late April each year at PCC Sylvania. Each year, the Children's Clean Water Festival hosts between 1300 and 2000 4th and 5th grade students at this one day event that teaches the environmental and scientific impacts we have on water and water has on us. Water experts from Oregon and

Washington will work with your students to explore water science and watershed ecology. The Festival is FREE and open to any school from the Tri-County area. For more information about the Festival or to register you class please go to www.cleanwaterfestival.org/school_groups/htm. The deadline to register class is December each year.

Celebrating Water: Connecting Water, Land and People, typically in April each year at Clackamas Community College. Through this one day event students will learn more about where their water comes from, why buffers along streams are important, how groundwater get polluted and what water resource agencies in Clackamas County are doing to protect our resources. Classes will be rotated through and exhibit hall with hands-on activities and to other water related stations. This event is open to all 4th grade teachers in Clackamas County. For more information on how you class can participate please contact Christine at 503-723-3511 or via e-mail at Christine@clackamasproviders.org.

Other Water Resources

KEY

- 1 Properties of Water
- 2 Water Cycle
- 3 Watersheds
- 4 Wetlands
- 5 Groundwater
- 6 Water Quality
- 7 Drinking Water
- 8 Water Conservation
- 9 Salmon
- 10 Non-point Source Pollution

Name of Agency	School Programs	Classroom Resources	Field Trips	Teacher Education	Financial Assistance	Technical Information & Support
Freshwater Trust			3, 6, 9	X	X	X
Educational Recreation Adventures	3, 6, 10		3, 6			
Estacada Forestry & Natural History School		3, 9	3, 9			
Clackamas River Hatchery			9			
Eagle Creek National Fish Hatchery			9			
PGE Clackamas River Hydro Project			6, 9			
Children's Clean Water Festival			All			
Celebrating Water Event			All			

Other Water Resources, continued

The Freshwater Trust. The Freshwater Trust Institute provides support for educators first by asking what they need, then by working with the community to fill that need. For more information please call 503-222-9091, e-mail info@thefreshwatertrust.org or go to <http://www.freshwatertrust.org>

Education Recreation Adventures. ERA works closely with teachers in grades K-12 to design and conduct field trips to meet specific learning goals in ecology, biology, ecology, fisheries and wildlife and forestry. Field trips range from one-day outings to multi-day expeditions. We also offer outdoor skills training in wilderness backpacking, fly fishing, and archery. For more information about ERA's Aquatic Education programs please call 503-246-8916 or mail era@gottfried.net.

Estacada Forestry & Natural History School. The Estacada Forestry & Natural History School provides free forestry and local natural history classes to children and adults. By providing hands-on work experiences including, but not limited to, tree planting, tree thinning, trail conservation and maintenance, riparian restoration, and fish and wildlife surveying. For more information please call 503-630-6871 x2904 or e-mail at jan_jaqua@sandynet.org

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