Toolkit for Educators

Honoring Our Rivers, 2016

A collection of nature-based lesson plans, writing prompts, and resources for educators, revised to align with Common Core and Next Generation Science Standards, as well as the Oregon Environmental Literacy Plan.
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Honoring Our Rivers
c/o Willamette Partnership
4640 SW Macadam, Suite 50
Portland, Oregon
97239
Dear Educator,

I am excited to share the Honoring Our Rivers Toolkit for Educators with you! Honoring Our Rivers, a project of the Willamette Partnership, is a non-profit literary and arts anthology designed to help students learn about the water systems in the Pacific Northwest, culminating in the publication of their work alongside pieces by invited writers and artists, previously including Ursula K LeGuin, Kathleen Dean Moore, Ana Maria Spagna, and Lillian Pitt.

Since 2000, students from kindergarten through college have submitted thousands of poems, essays, photographs, and drawings focused on the relationship between people and their watersheds – the waters, weather, plants, animals, and habitats that connect us to nature, and ultimately to one another. For more information about our work, submission guidelines, and deadlines, please visit us at www.honoringourrivers.org.

In preparation for the revision of our Toolkit for Educators, we examined the ways in which teachers tended to use Honoring Our Rivers in the classroom. We found that teachers have predominantly used Honoring Our Rivers as a tool in English Language Arts and Art curricula as a way to get students engaged with the outdoors and to synthesize their learning in the form of creative expression. We have decided to expand on these benefits by offering materials to assist educators in directly aligning their efforts with Common Core and Next Generation Science Standards, as well as the Oregon Environmental Literacy Plan.

Through conversations with our partners with Straub Environmental Center and the Portland Metro STEM Partnership, it became clear that Honoring Our Rivers’ activities either directly align with or support a number of Common Core English and Next Generation Science standards through the unique way it connects outdoor education, the environment, and the arts.

What follows represents the collaborative effort of teachers, curriculum specialists, and many others who have dedicated their time and knowledge to ensure that all kids will have the opportunity to connect with their rivers.

Thank you.

Anna Pellissier Wilde, Project Coordinator
info@honoringourrivers.org
The Power of Practice

The Next Generation Science Standards (NGSS) and the Common Core State Standards for English both recognize the importance of engaging students in authentic experiences where they are engaged in authentic practices of science and writing. NGSS says it best: “The actual doing of science or engineering can also pique students’ curiosity, capture their interest, and motivate their continued study” (ref). The Common Core State Standards intersect nicely with NGSS, reinforcing key skill development, conceptual understanding, and critical thinking, as shown by the figure below, based on the work of Stanford University’s Understanding Language program.

NGSS Practices
1. Asking questions & defining problems
2. Developing & using models
3. Planning & carrying out investigations
4. Analyzing & interpreting data
5. Using mathematics & computational thinking
6. Constructing explanations & designing solutions
7. Arguing from evidence
8. Obtaining, evaluating, and communicating information
The Portland Metro STEM Partnership (PMSP) believes that powerful learning environments are created when we attend to **AFFECTIVE** outcomes (identity, resilience, belonging, belief in self), **PRACTICES** (teaching & learning, critical thinking), and **CONCEPTUAL** outcomes (ability to apply knowledge). Educators are able to utilize effective instructional and assessment practices and pedagogical knowledge to build strong relationships with students thereby creating powerful learning environments. Students benefit from these learning environments by developing strong academic identities, higher levels of resilience, and ability to use higher order thinking skills and apply conceptual knowledge in novel situations. These connections are shown in the figure below.

By attending to these outcomes, educators are able to create learning environments that go beyond rote memorization and other “fill in the blank” styles of learning to target the **application of conceptual knowledge**. According to PMSP, “the focus on deep understanding and the ability to apply new knowledge in novel contexts is key to success in STEM because it accurately reflects the way concepts are applied and how skills are used in the real world, across careers whether they are STEM-related or not.”
Writing Prompts

Carefully designed writing prompts, when used as a stand-alone lesson or in conjunction with other lessons, can both develop and assess student learning, demonstrate the application of conceptual knowledge (see right), and directly align with NGSS Practices (page 6).

Writing prompts elicit diverse, original responses through multiple modalities:

- Picture or drawing
- Essay
- Poem
- Photograph
- Video
- Music

With help from our partners, we have compiled a set of writing prompts that are directly linked to Next Generation Science Standards, Common Core Standards, and student work from the Honoring Our Rivers Student Anthology that serve as examples of what responses might look like. They are arranged by subject area starting on page 7.
Application of Conceptual Knowledge and NGSS Practices

The application of conceptual knowledge can include the following objectives, which can align with NGSS Practices.

<table>
<thead>
<tr>
<th>PMSP Application of Conceptual Knowledge approaches with examples</th>
<th>NGSS alignment examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Rephrase concepts in one’s own words</strong></td>
<td>2-LS4-1</td>
</tr>
<tr>
<td>• Explain, in your own words, what is meant by “we all live in a watershed”</td>
<td></td>
</tr>
<tr>
<td>• Explain, in your own words, what is meant by “we all live downstream from something”</td>
<td></td>
</tr>
<tr>
<td><strong>2. Decide whether naïve explanations of phenomena are correct and explain why</strong></td>
<td></td>
</tr>
<tr>
<td>• I’ve heard that salmon live in the river, but at the store they are labeled as Atlantic and Pacific. What does that mean?</td>
<td></td>
</tr>
<tr>
<td><strong>3. Explain phenomena</strong></td>
<td>5-LS1-1</td>
</tr>
<tr>
<td>• Trees start as seeds and then grow into trees you can climb. Where did most of the matter that makes up the wood and leaves of the tree originally come from? Explain your thinking. (adapted from Keeley, et al, 2007)</td>
<td></td>
</tr>
<tr>
<td><strong>4. Predict new phenomena</strong></td>
<td>3-LS3-1</td>
</tr>
<tr>
<td>• As you explore the river banks, you notice that the same kind of tree growing in a more shaded area tend to be smaller. Why might that be?</td>
<td></td>
</tr>
<tr>
<td><strong>5. Identify phenomena that could be explained by the generalization.</strong></td>
<td>4-ESS1-1</td>
</tr>
<tr>
<td>• A river has cut through the ground exposing different layers of rock. Explain how those layers may have formed.</td>
<td></td>
</tr>
<tr>
<td><strong>6. Derive the generalization based on relevant instances</strong></td>
<td></td>
</tr>
<tr>
<td>• Using one idea, explain the following observations: (1) You placed a drop of food coloring in water and watched it spread out, (2) You smell soup that was cooking on the stove, and (3) Your mother places garlic in a sealed jar so that you can’t smell it when you enter the kitchen.</td>
<td></td>
</tr>
<tr>
<td><strong>7. Explain how certain pieces of evidence support a theory</strong></td>
<td>5-PS1-1</td>
</tr>
<tr>
<td>• What is the evidence that supports the idea that matter is made of particles too small to see?</td>
<td></td>
</tr>
<tr>
<td><strong>8. Consider the appropriateness of a representation for an idea or compare a representation with the real thing</strong></td>
<td>LS2.A</td>
</tr>
<tr>
<td>• Some people say that hatchery salmon are as important as native/wild salmon. Do you agree? Why or why not?</td>
<td></td>
</tr>
<tr>
<td>• Some people say that salmon and watersheds are “interdependent.” Do you agree? Why or why not?</td>
<td></td>
</tr>
<tr>
<td><strong>9. Represent the benchmark’s idea</strong></td>
<td></td>
</tr>
<tr>
<td>• Imagine that you are a salmon, what kind of obstacles do you face?</td>
<td></td>
</tr>
<tr>
<td><strong>10. Consider what would happen if a generalization is suddenly changed</strong></td>
<td>3-LS4-3 3-LS4-4</td>
</tr>
<tr>
<td>• What would the river be like if a new development went up on the banks?</td>
<td></td>
</tr>
<tr>
<td>• What would happen to the land and rivers if it stopped raining in Portland? What would happen to living things?</td>
<td></td>
</tr>
</tbody>
</table>
## Writing Prompts

A note: writing prompts are organized by NGSS topic categories, with grade levels within each topic. The literary and artistic examples provided are taken from the 2014 and 2015 Honoring Our Rivers Student Anthologies and marked with the fish symbol. You can access the full text of these examples by clicking on the hyperlink, or request a hard copy by contacting Honoring Our Rivers at info@honoringourrivers.org. The related standards are excerpted in each table for context; for more information on NGSS topics or a full description of each standard, visit www.nextgenscience.org.

### From Molecules to Organisms: Structures and Processes

#### Kindergarten

<table>
<thead>
<tr>
<th>Writing Prompt</th>
<th>NGSS Standard</th>
<th>CCSS-LA Standard</th>
<th>Application of Conceptual Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am a salmon. What do I need to survive?</td>
<td>K-LS1-1</td>
<td>W.K.7</td>
<td>Represent a benchmark’s idea</td>
</tr>
<tr>
<td></td>
<td>Use observations to describe patterns of what plants and animals (including humans) need to survive</td>
<td>Participate in shared research and writing projects</td>
<td></td>
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</tbody>
</table>

#### Grade 3

<table>
<thead>
<tr>
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<th>NGSS Standard</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Explain, in your own words, the life cycle of a salmon.</td>
<td>3-LS1-1</td>
<td>RI.3.7</td>
<td>Rephrase concepts in your own words</td>
</tr>
<tr>
<td></td>
<td>Develop models to describe that organisms unique and diverse life cycles but all have in common birth, growth, reproduction, and death</td>
<td>Use information gained from illustrations and the words in a text to represent understanding of the text</td>
<td></td>
</tr>
</tbody>
</table>
## Grade 5

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Describe, in your own words, the life cycle of a plant.</td>
<td>5-LS1-1 Support an argument that plants get the materials they need for growth chiefly through air and water</td>
<td>RI.5.9 Quote accurately from a text...&lt;br&gt;W.5.1 Write opinion pieces on topics or texts...</td>
<td>Rephrase concepts in your own words</td>
</tr>
</tbody>
</table>

## Middle School

<table>
<thead>
<tr>
<th>Writing Prompt</th>
<th>NGSS Standard</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Describe, in your own words, the process of photosynthesis.</td>
<td>MS-LS1-6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms</td>
<td>RST.6-8.2 Determine the central ideas or conclusion of a text...&lt;br&gt;WHST.6-8.1 Write arguments focused on discipline content...&lt;br&gt;WHST.6-8.2 Write informative/explanatory texts...&lt;br&gt;WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research...&lt;br&gt;SL.8.5 Integrate multimedia and visual displays into presentations...</td>
<td>Rephrase concepts in your own words</td>
</tr>
</tbody>
</table>

## Earth’s Systems

### Kindergarten

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>A tree falls in the river and a beaver finds it. What happens next?</td>
<td>K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs</td>
<td>W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts...</td>
<td>Predict new phenomena</td>
</tr>
</tbody>
</table>
### Grade 2

<table>
<thead>
<tr>
<th>Writing Prompt</th>
<th>NGSS Standard</th>
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</thead>
<tbody>
<tr>
<td>I’ve heard that lakes and rivers are the same. Is this true?</td>
<td>2-ESS2-2 Develop a model to represent the shapes and kinds of land and bodies of water in an area</td>
<td>W.2.8 Recall information from experiences or gather information from provided sources to answer a question...</td>
<td>Decide whether naive explanations of phenomena are true and explain why</td>
</tr>
</tbody>
</table>

### Grade 4

<table>
<thead>
<tr>
<th>Writing Prompt</th>
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</thead>
<tbody>
<tr>
<td>A river carves a path through rock. What will happen to the rock?</td>
<td>4-ESS2-1 Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation</td>
<td>RI.4.7 Interpret information presented visually, orally, or quantitatively...</td>
<td>Predict new phenomena</td>
</tr>
</tbody>
</table>

### Grade 5

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Explain, in your own words, the relationship between the biosphere and the hydrosphere</td>
<td>5-ESS2-1 Develop a model using an example to describe ways the geosphere, hydrosphere, and/or atmosphere interact</td>
<td>W.5.8 Recall relevant information from experiences or gather relevant information from print or digital sources...</td>
<td>Rephrase concepts in one’s own words</td>
</tr>
<tr>
<td>Writing Prompt</td>
<td>NGSS Standard</td>
<td>CCSS-LA Standard</td>
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<tr>
<td>How did a river create the Grand Canyon?</td>
<td><strong>MS-ESS2-2</strong> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales</td>
<td>RST.6-8.7 Integrate quantitative or technical information... with a version of that information presented visually...</td>
<td>Identify phenomena that could be explained by a generalization</td>
</tr>
<tr>
<td>Describe, in your own words, the water cycle.</td>
<td><strong>MS-ESS2-4</strong> Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity</td>
<td>RST.6-8.7 Integrate quantitative or technical information... with a version of that information presented visually...</td>
<td>Rephrase concepts in one’s own words</td>
</tr>
</tbody>
</table>

**Honoring Our Rivers**

- *Falling Rain*, Maranda Rogers, Grade 4 (2015, p. 21)
- *Raindrops*, Austin Gurnee, Grade 4 (2015, p. 21)
- *Cycles*, Anna Fuss, Grade 5 (2015, p. 23)
## Earth and Human Activity

### Kindergarten

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>I am a bird. What do I need? Where should I live to get the things I need?</td>
<td>K-ESS3-1 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live</td>
<td>W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts... SL.K.5 Add drawings or other displays to to descriptions...</td>
<td>Represent a benchmark’s idea</td>
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<tbody>
<tr>
<td>What are some things that you can do to protect our rivers?</td>
<td>K-ESS3-3 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment</td>
<td>W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts... SL.K.5 Add drawings or other displays to to descriptions...</td>
<td>Rephrase concepts in one’s own words</td>
</tr>
</tbody>
</table>

*The River*, Saghaley Lewis, Grade 1 (2015, p. 29)

*Please Don’t*, Tramanh Best, Grade 3 (2014, p. 23)

*River*, Celia Conor-Smith, Grade 5 (2014, p. 25)

### Grade 5

*Honoring Our Rivers*
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>After a river is polluted, a group decides to clean it up. What can they do?</td>
<td><strong>5-ESS3-1</strong> Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment</td>
<td><strong>RI.5.7</strong> Quote accurately from a text... <strong>RI.5.9</strong> Integrate information from several texts... <strong>W.5.8</strong> Recall relevant information from experiences or gather relevant information from print and digital sources...</td>
<td>Predict new phenomena</td>
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</table>

### Middle School

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<tr>
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<tbody>
<tr>
<td>Describe, in your own words, one way we can meet our water needs while making sure there is enough water in the river for salmon and other species.</td>
<td><strong>MS-ESS3-3</strong> Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment</td>
<td></td>
<td>Rephrase concepts in your own words</td>
</tr>
</tbody>
</table>

### Ecosystems: Interactions, Energy, and Dynamics

#### Grade 2

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>I heard that plants can grow without sunlight and water. Is this true?</td>
<td><strong>2-LS2-1</strong> Plan and conduct an investigation to determine if plants need sunlight and water to grow</td>
<td><strong>W.2.7</strong> Participate in shared research and writing projects... <strong>SL.2.5</strong> Create audio recordings of stories or poems; add drawings and other visual displays...</td>
<td>Decide whether naïve explanations of phenomena are true and explain why</td>
</tr>
</tbody>
</table>

### Grade 3

[Honoring Our Rivers]
<table>
<thead>
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<tbody>
<tr>
<td>Why do some animals form groups? How does it help them survive?</td>
<td>3-LS2-1 Construct an argument that some animals form groups that help members survive</td>
<td>W.3.1 Write opinion pieces on topics or texts...</td>
<td>Explain phenomena</td>
</tr>
</tbody>
</table>

**Grade 5**

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<tbody>
<tr>
<td>Ivy grows up tree trunks. How is it using air, water, and decomposed materials? Is this an example of a cycle?</td>
<td>5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment</td>
<td>SL.5.5 Include multimedia components... and visual displays...</td>
<td>Identify phenomena that could be explained by a generalization</td>
</tr>
</tbody>
</table>

**Middle School**

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<tbody>
<tr>
<td>What happens when a forest next to a river is clear-cut?</td>
<td>MS-LS2-4 Construct an argument supported by empirical evidence that changes to biological or physical components of an ecosystem affect populations</td>
<td>WHST.6-8.1 Write argument to support claims... WHST.6-8.2 Write informative/explanatory texts... SL.8.5 Integrate multimedia and visual displays...</td>
<td>Predict new phenomena</td>
</tr>
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<tbody>
<tr>
<td>Is the water cycle an ecosystem service? What would happen if we had to create clean water on our own?</td>
<td>MS-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services</td>
<td>WHST.6-8.1 Write arguments to support claims... WHST.6-8.2 Write informative/explanatory texts... SL.8.5 Integrate multimedia and visual displays...</td>
<td>Decide whether certain phenomena are instances of a generalization</td>
</tr>
</tbody>
</table>

Biological Evolution: Unity and Diversity

Honoring Our Rivers
### Grade 2

<table>
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</thead>
<tbody>
<tr>
<td>Explain, in your own words, what a river habitat is.</td>
<td>2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats</td>
<td><strong>W.2.7</strong> Participate in shared research and writing projects... <strong>W.2.8</strong> Recall information from experiences and gather information from provided sources...</td>
<td>Rephrase concepts in your own words</td>
</tr>
</tbody>
</table>

### Grade 3

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</thead>
<tbody>
<tr>
<td>What happens to plants and animals when water levels go down in a river? What happens when they go back up?</td>
<td>3-LS4-4 Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change</td>
<td><strong>W.3.2</strong> Write informative/explanatory texts... <strong>W.3.8</strong> Recall information from experiences or gather information from print and digital sources... <strong>SL.3.4</strong> Report on a topic or text, tell a story, or recount an experience...</td>
<td>Consider what would happen if a generalization is suddenly changed</td>
</tr>
</tbody>
</table>
Lesson Plans

At the heart of our Toolkit for Educators is our goal to make environmental education easy, fun, and collaborative. The lesson plans below represent the hard work of our partner teachers from across the state.

Lesson plans are organized by grade and subject matter, and describe activities and materials with corresponding standards included. All identifying information has been omitted.

Note: this section would not exist without the work of teachers who participated in the 2015 Teacher Professional Development Nature Writing and Art Workshops at Straub Environmental Center. Thanks to the hard work of the inaugural group of teachers who have allowed us to feature their work here, we are able to provide concrete examples of the relationship between outdoor education, the Honoring Our Rivers Student Anthology, and Common Core and Next Generation Science Standards.

Would you consider adding your lesson plan to future editions of the Toolkit for Educators? Please contact Honoring Our Rivers at info@honoringourrivers.org to learn more. Thank you!
Honoring Our Rivers Unit Framework

<table>
<thead>
<tr>
<th>TEACHER NAME</th>
<th>GRADE</th>
<th>SUBJECT AREA(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG</td>
<td>2</td>
<td>Science/Writing</td>
</tr>
</tbody>
</table>

UNIT TITLE
Honoring Our Rivers

TOPIC/CONCEPTS
Characteristics and functions of a river

LEARNING TARGETS / OUTCOMES / OBJECTIVES
Statements that describe what students will learn and to what depth, as well as how they will demonstrate their learning.

Students will be able to describe a river through a form of poetry and produce an art piece using multiple mediums.

STANDARDS

SCIENCE (NGSS)

2-ESS2-3
2-E5S2-2

ENGLISH LANGUAGE ARTS (READING, WRITING, SPEAKING)

RI 2.4     2.W.4
RI 2.5     SL 2.2
RI 2.6

SOCIAL STUDIES
**VOCABULARY**

- Riverbank
- Flood(ing)
- Narrow
- Erosion
- Habitats
- Trickled
- Swelling
- Meandering

**LESSONS/ACTIVITIES (Needs to include using the Honoring Our Rivers publication)**

- Reading/discussing Honoring Our Rivers Anthology
- View Bill Nye video
- Read/discuss river books
- Model poetry piece
- Students produce poetry piece
- Model art piece
- Students produce art piece
- Students share work
- Special speaker Clark Bray
- Field trip to Oregon Gardens

**MATERIALS/RESOURCES/TEXTS (Needs to include the Honoring Our Rivers publication)**

**Books:**
- Honoring Our Rivers Anthology
- Where the River Begins, Thomas Locker
- The River, Gallimard Jeunesse and Laura Bour
- The Woman Who Outshone the Sun, Alejandro Cruz Martinez
- The Important Book, Margaret Wise Brown

**Videos:**
- Lakes and Ponds, Bill Nye

**COMMUNITY PARTNERS (Individuals that support the opportunities and experiences of students outside the classroom – agencies, informal educators, etc.)**

- Oregon Garden (field trip)
- Special Speaker Clark Bray, "All About Trees"

**ASSESSMENT**

- The form of poetry with descriptive words
- Completed art piece
# Honoring Our Rivers
## Lesson Plan Framework

<table>
<thead>
<tr>
<th>Teacher Name</th>
<th>Grade</th>
<th>Subject Area(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>3</td>
<td>Science</td>
</tr>
</tbody>
</table>

**Unit Title**
Forces and Interactions

**Topic/Concepts**
Pushes and Pulls, Balanced and Unbalanced Forces, and Patterns of Motion

**Learning Targets / Outcomes / Objectives**

- Students will be able to describe a force as a push or a pull and state several examples.
- Students will be able to describe Balanced and Unbalanced forces and state several examples.
- Students will be able to describe a regular Pattern of motion and state several examples.
- Students will be able to observe the water in the Little Pudding River and describe the Forces and Patterns of motion that they observe.
- Students will be able to draw a picture of the Little Pudding River.
- Students will be able to write about their own water experience.

**Standards**

**Science (NGSS)**
Each force acts on one particular object and has both strength and direction. (3-PS2-1)
Objects in contact exert forces on each other. (3-PS2-1) The patterns of an object’s motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (3-PS2-2)

**Oregon Environmental Literacy Plan (OELP) – Strand**
3. Interconnectedness of people to the environment.

**English Language Arts (Reading, Writing, Speaking)**
3W3 Write narratives to develop real or imagined experiences or events using effective techniques describing details and clear event sequences.
3W6 With guidance and support from adults, use technology to produce and publish writing.
SOCIAL STUDIES

VOCABULARY

*force
*balanced force
*unbalanced force
*push
*pull
*pattern of motion
*exert
*net force

LESSONS/ACTIVITIES (Needs to include using the Honoring Our Rivers publication)

*Show students the Honoring Our river publication and show them elementary students work
*Review vocabulary
*Send home field trip permission slip for a walking filed trip to the Little Pudding River, and inform parents of HOR magazine and that 6 students will have their work chosen to send in for possible publication
*Do worksheet about predictions about the river and talk about sketching a picture
*Go over field trip guidelines
Go on field trip to the Little Pudding River and observe the water, answer questions, and make a sketch
*Discuss various water experiences and make an anchor chart
*Teach how to write an acrostic * students write a personal narrative or acrostic about a water experience
*Draw and water color a picture to go with your writing.
*Let students do a gallery walk and see artwork and listen to writing pieces of students who would like to be published
*Have a class vote to choose pieces to send for possible publication
*Send home permission slips
*Students use their computer time to type their water stories

MATERIALS/RESOURCES/TEXTS (Needs to include the Honoring Our Rivers publication)

*Honoring Our Rivers
*National Geographic Learning- Exploring Science Grade 3
<table>
<thead>
<tr>
<th><strong>COMMUNITY PARTNERS</strong> (Individuals that support the opportunities and experiences of students outside the classroom – agencies, informal educators, etc.)</th>
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<table>
<thead>
<tr>
<th><strong>ASSESSMENT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Students completed a writing piece and artwork to accompany their writing.</td>
</tr>
</tbody>
</table>
HONORING OUR RIVERS
LESSON PLAN FRAMEWORK

<table>
<thead>
<tr>
<th>TEACHER NAME</th>
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<th>SUBJECT AREA(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC</td>
<td>5</td>
<td>ELA/Science/Social Studies</td>
</tr>
</tbody>
</table>

UNIT TITLE
Sharing the Planet (Sustainability)

TOPIC/CONCEPTS

Central Idea: People can establish practices in order to sustain and maintain the Earth's resources.

Key Concepts: Connection, Responsibility, Perspective

LEARNING TARGETS / OUTCOMES / OBJECTIVES
Statements that describe what students will learn and to what depth, as well as how they will demonstrate their learning.

Students will consider different perspectives on the uses of our waterways. Small groups of students will give presentations about rivers, and the importance of protecting them.

Extension: Pairs of students will debate the issues to further demonstrate their knowledge of the topic.

STANDARDS

SCIENCE (NGSS)

5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

OREGON ENVIRONMENTAL LITERACY PLAN (OELP) – strand

Interconnectedness of people and the environment
ENGLISH LANGUAGE ARTS (READING, WRITING, SPEAKING)

5.RI.3 Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

5.RI.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeable.

SOCIAL STUDIES

5.11. Describe how technological developments, societal decisions, and personal practices influence sustainability in the United States.

5.19. Analyze two accounts of the same event or topic and describe important similarities and differences.

5.20. Gather, use and document information from multiple sources (e.g., print, electronic, human, primary, secondary) to examine an event, issue, or problem through inquiry and research.

5.21. Identify and study two or more points of view of an event, issue or problem.

5.22. Identify characteristics of an event, issue, or problem, suggesting possible causes and results.

5.23. Propose a response or solution to an issue or problem and support why it makes sense, using support from research.

VOCABULARY

Sustainability, estuary, effluent, delta, riparian, sediment, tributary, watershed, water cycle

LESSONS/ACTIVITIES (Needs to include using the Honoring Our Rivers publication)
Class Read-Aloud: *A Long Walk to Water*, Linda Sue Park (Began reading in September, as an introduction to the idea of the importance of water)

Class Read-Aloud: *A River Ran Wild*, Lynne Cherry

K-W-L: How do humans benefit from rivers? Student brainstorm included many things that fell into the general categories of Drinking water, Food, Transportation, Irrigation and Recreation. After further research, they added Hydroelectric Power and Facilitation of Trade.

**Discovery Education Videos:** Students will view several short videos about rivers, take notes and synthesize the information

Students will perform a Close Reading activity with the article Rivers and Stories by Robert Hass (Global Oneness Project). They will be provided questions to listen for as the teacher reads. Small groups of students will be assigned portions of the article to read again. Through class discussion we will ensure answers have been obtained for each question.

**Honoring Our Rivers Anthology Jigsaw:** Groups of three students will be assigned a range of pages within the anthology. Students will browse those pages, reading and enjoying the artwork, noting pieces that catch their attention. When the class comes back together, each group will share those pieces they liked best under the document camera for the rest of the class to see.

**Honoring Our Rivers Anthology Free Read:** During reading time students can choose to read from the HOR Anthology.

**Honoring Our Rivers Creation:** Students will be provided with time, as well as paper and different mediums (crayons, colored pencils, water colors, oil crayons) with which to create. During work time, Students will enjoy a Johnnie Lawson Nature Video, that may help to inspire those students who haven’t already decided what they want to write, paint, draw...

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**MATERIALS/RESOURCES/TEXTS (Needs to include the Honoring Our Rivers publication)**

**Honoring Our Rivers Publication**

*A Long Walk to Water*, Linda Sue Park

*A River Ran Wild*, Lynne Cherry

Project Wet

Articles:  Rivers and Stories, Robert Hass

YouTube: Relax 8 Hours-Relaxing Nature Sounds-Study-Sleep-Meditation-Water Sounds-Bird Song

COMMUNITY PARTNERS (Individuals that support the opportunities and experiences of students outside the classroom – agencies, informal educators, etc.)

Nina Bassett-Smith (Informal Educator) will do a few activities from Project Wet with students.

ASSESSMENT

Small groups of students will give an oral presentation that includes a visual (poster, PowerPoint, etc.) that explores a topic related to preservation of rivers. Topics may include Hydroelectric Power, Recreation (the human impact), Industrial Pollution, Irrigation, Endangered Species, Invasive Species, River Restoration, Climate Change, Drought, Flood Management, Stormwater, Wastewater
Honoring Our Rivers and Next Generation Science Standards: Tie-In Opportunities

*Courtesy of teachers at the Nature Writing Workshop, Straub Environmental Center, August 2015*

**Elementary**
Where water is found on Earth
Observe river bottom with flashlight for light standards
Develop a tool for gathering litter without getting wet
Observations and measurement

**Middle School**
W3D and Working with Water (Claggett Creek Middle School, Salem)
Worth of land and water from a human and animal perspective
History of Willamette River Valley, local history
Nature of Science
  - Observation, data collection

**High School**
Science Practices
  - Observational practices, sketching
Ecology and Biology

For more resources, check our website, [www.honoringourrivers.org](http://www.honoringourrivers.org).
Honoring Our Rivers and STEAM: Tie-In Opportunities
Courtesy of Laurie Aguirre, Forest Ridge Elementary/OLE, Keizer

Reading
Realistic Informational Fiction text samples relating to nature with focus on watersheds and including reader’s response (e.g. compare/contrast fiction-nonfiction)
Reading poetry and analysis (e.g. “Haiku Hike”)
Close reading passages with examination questions eliciting higher level thinking
Narrative about observations, drawing images and asking questions (e.g. “Ellie’s Log”)

Writing
Poetry writing, standard or non-standard forms
Imagery
Acrostic poetry
Narrative writing about personal experiences with nature and watersheds, or re-told stories of exploration or experimentation with water (e.g. redirecting a small water flow, examining the wildlife, etc.)
Realistic information fiction writing (e.g. life cycle of a salmon, osprey, or beaver in first person)
Opinion writing based on experience and/or learning with text evidence to convince others to be responsible for our actions that affect waters and local habitats

Math
Measurements and data
Number operations in base ten
Math problem solving (word problems that incorporate project/unit concepts)
Geometry and technical work
Visual connections with art

Art
Artist Study (e.g. Monet, van Gogh, O'Keefe) to study application of techniques in personal expression and production that result in written connections to artist and self
HONORING OUR RIVERS LESSON PLAN (ALTERNATE)

This template can be used to more clearly map the alignment between a particular activity or writing prompt and the accompanying standards, with examples from the Honoring Our Rivers Student Anthology.

<table>
<thead>
<tr>
<th>OBJECTIVE</th>
<th>EXAMPLES FROM HONORING OUR RIVERS</th>
</tr>
</thead>
</table>
| “Describe the water cycle in your own words” OR “Create a representation of the water cycle” | Raindrops, Austin Gurnee, 2015, pg. 21  
Cycles, Anna Fuss, 2015, pg. 23  
The Journey, Gabrielle Kroepfl, 2015, pg. 24  
The Water Molecule..., Aliza Ellenby, 2015, pg. 28  
Where the River Flows, Greg Jang, 2015, p. 39  
Gavriel Mendez, 2015, pg. 58 |

NGSS ALIGNMENTS:

**PERFORMANCE EXPECTATIONS:**

MS-ESS2-4 Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.

**SCIENCE AND ENGINEERING PRACTICES:**

Strong connection: MS-ESS2-1 Develop and use a model to describe phenomena...

Supporting connection:  

**DISCIPLINARY CORE IDEAS:**

Strong connection: MS-ESS2-4 Water continually cycles among land, ocean, and atmosphere...

Supporting connection:  

**CROSSCUTTING CONCEPTS:**

Strong connection: MS-ESS2-6 Models can be used to represent systems and their interactions...

Supporting connection:  

DESCRIPTION OF ALIGNMENT(S):  

Coupled with a water cycle-related activity, this writing prompt could be an assessment of this standard.

ADDITIONAL INFORMATION:

Common Core alignment:  

RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually...  
WHST.6-8.2 Write informative or explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes...  
SL.8.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest...
Outdoor Education: Field Trip Project and Site Considerations

_Courtesy of Jon Yoder, Straub Environmental Center_

Field trips are an important part of science and environmental education; however, many teachers do not always feel equipped to take their students on a site visit. The following checklist can help with the planning process for any field trip, from a day-long excursion outside of town to a short examination of the field next door.

**Pre-site visit considerations:**
- Understand reason for doing the project and community context. How does this visit meet a need for students, partners, and the community?
- Process for selecting project – student involvement and ownership
- Content/standards taught (there are opportunities here to use the frameworks and lesson plans in this Toolkit)
- Partner training - practice protocols and use of equipment
- Permission secured – school and parents
- Transportation arranged
- Funding secured
- Student expectations and details of travel clear – dress, times, locations
- Organize equipment for transport – assign students
- Arranged material needed – data sheets, clipboards, journals, field guides
- Visit site with partner before taking students - Check for necessary permits Inform chaperones of role and responsibilities
- Notify office, lunch room and other teachers if classes missed
- Have student list with emergency numbers and medical needs
- First aid kit
- Plan for food and drink if needed
- Back-up plans – anticipate bad weather and changing circumstances
- Notify media – student release forms may be needed
- Procedures for exiting and returning to classroom
- Second driver
- Agenda - teams and the work needed with times for completing tasks
- Communication and behavior expectations – signals, walkie talkies
- Partner communication – dates, times, place to meet, roles and responsibilities
- Camera
- Bathroom needs addressed

**On-site considerations**
- Monitoring student work and behavior
- Organizing work site
- Staying on task and on time
- Taking pictures
- Directing drop off and pick up sites and times
- Serving as a resource and support for students and partner
- Find teachable moments to refer back to content/standards or other skills and attitudes
- Check for all students and equipment before leaving site

### Post-site visit considerations

- Reflection by students and teacher – include what else to do or know
- Reinforce content connections
- Plan and begin product development – for partner and for community
  - Displays and slide shows for class and for new year
  - Practice presentations
  - Peer review of journals and reports
- Check in all equipment and materials – students clean and organize
- Students send out a thank you to partner, volunteers, others
- Assess students learning
- Evaluate project with students and partner
All photos by Dinni Fabiani. Used with permission.

Honoring Our Rivers 2016