The Columbia River as a Resource

Overview:
The purpose of this lesson is to help students understand the changes that humans have made to the Columbia River and what effect those changes have had on people, animals, and the environment.

Geographic Question:
How has the Columbia River's role as a resource changed over time?

Connection to the Curriculum:
Learning Level (6-8) History, Language Arts, Geography, and Science

Objectives:
- Identify the location of the Columbia River and its main tributaries.
- Discuss how the Columbia River has been used as a resource (i.e. hydroelectric power, transportation).
- Describe the effect that human use of the Columbia River has had on people, animals, and the environment.

National Geography Standards:
#14 - How human actions modify the physical environment.
#15 - How physical systems affect human systems.
#16 - The changes that occur in the meaning, use, distribution, and importance of resources.

Oregon Geography Standards:
6.11. Distinguish among different types of maps and use them to analyze an issue in the Western Hemisphere.
6.14. Identify physical features of the Western Hemisphere and explain their effects on people and events.
6.15. Explain how people have adapted to or changed the physical environment in the Western Hemisphere.
6.16. Explain how technological developments, societal decisions, and personal practices influence sustainability in the Western Hemisphere.

English Language Proficiency Standards for ELD:
Cause and Effect - Verb Forms

Language Objectives:
Function: Cause and Effect
Form: Verb Forms
   Beginning: Not Applicable
   Intermediate: Descriptive sentences with past tense verbs.
   Advanced: If ___ had/hadn’t__, ___would/wouldn’t have ___.


Targeted Language Skills:

Reading: Students will read a book as a class and will refer to it for comprehension questions and discussion. Students will read a map and refer to it for comprehension questions and discussion. Students will choose another book to read, and read it on their own.

Writing: Students will write answers to comprehension questions. Students will write a first-person narrative. Students will write lists of various features from the maps.

Speaking: Students will discuss the book and the answers to the comprehension questions. Students will use their notes from reading their own book and discuss it with the class.

Listening: Students will listen to the book they read as a class and answer comprehension questions. Students will listen to, and discuss, the information about water resources in the Atlas.

Vocabulary:

river  transportation  economics (shipping, transportation, fishing, manufacturing, hydroelectricity, irrigation, recreation)
tributary  watershed  human-environment interaction
Columbia River  resource  interaction
resource  interaction
dam  tribal treaty

Materials:

Internet Access:

- Bonneville Power Administration
  www.bpa.gov/Power/pl/columbia/Stories/ or download the PDF files and print out the following stories: Voyage to the Pacific or The Magnificent Journey
- Student Atlas of Oregon (http://studentatlasoforegon.pdx.edu/index.html)
  (Maps from the Atlas: Rivers and Lakes, Pacific Northwest Watersheds, Dams of the Pacific Northwest, Oregon Dams, Transportation, Ports, and other maps)

Books:


DVD:


Video:

Presentation Steps:

Part One:
Begin with a reading of the book, "Paddle to the Sea," or show the video/DVD of the same name. As you read, use a map to trace the journey of Paddle through the St. Lawrence Seaway to the ocean. The map in the back of the book could be used in large format.

Discussion questions:
1. What are some of the obstacles and/or difficulties that Paddle faced? (Dams, ships, storms, waterfalls, wildlife, humans, pollution)
2. What conclusions can we draw about the uses of the St. Lawrence Seaway through the book "Paddle to the Sea"? (Important to shipping, used to transport goods from the interior Midwest to the Atlantic, fishing, manufacturing, hydroelectricity, recreation)

Part Two:
Direct students to use the Water Resources section of the Student Atlas of Oregon to answer the following questions on a piece of paper:
1. What river in the Pacific Northwest might be considered similarly valued as the St. Lawrence Seaway? Why? (The Columbia. Looking at the atlas, you can see that the river travels from Canada through both Washington and Oregon to the Pacific Ocean. It has tributaries from Idaho, as well.)
2. List all the tributaries of the Columbia River as it flows through the Pacific Northwest to the Pacific Ocean.
3. List the names of the dams found on the Columbia River.
4. The dams that are along the Columbia River on the Washington/Oregon border all share a common characteristic. Use the Student Atlas of Oregon to find this common characteristic.

Part Three:
● Have students go to the website, www.bpa.gov/Power/pl/columbia/Stories/. Students should then choose either the story, Voyage to the Pacific or The Magnificent Journey. These stories are also available as PDF downloads that can be printed.
● Have students answer the following questions as they read:
  1. Write down specific ways in which humans have used or changed the Columbia River.
  2. Write down what effects these changes have had on humans, animals, and the environment. Remember to be specific.
  3. Make a list of all the people and animals that use the river, for example, fishermen, salmon, Native Americans for a food source, and tourists.
● Use these notes for class discussions.
Assessment:
Write a first-person story from the perspective of one of the users of the river that you listed in #3 above. The story should show knowledge of the Columbia River's location, its tributaries, human involvement with the river, and both the positive and negative effects that involvement has had on people, animals, and the environment.

Students may need additional help in getting started with the writing process. Books that might give them some more ideas are included in the materials list.

Adaptations:
- For younger students, use the story Journey of the Oncorhynchus: A Story of the Pacific Northwest Salmon, from the Bonneville Power Administration website (see materials list). It has been specifically designed for younger students with pictures that can be colored, etc. Change the assessment to successfully complete the booklet.
- For older students, there are many issues surrounding the use of the Columbia River as a resource in current events. Examples include: the effect of dams on the salmon population, the Native American tribal connections to the river, etc. Have students look for a current news article that addresses one of these issues. Have students write about the two sides of the issue and share with the class or in small groups.

Adaptations for ELL:
Presentation Steps:
Part One:
Show the video/DVD/YouTube, "Paddle to the Sea". Use a map to trace the journey of Paddle through the St. Lawrence Seaway to the ocean. The map in the back of the book could be used in large format.
Discussion questions (form cooperative groups for discussion and then reform as a large group):

1. What are some of the obstacles and/or difficulties that Paddle faced? (Dams, ships, storms, waterfalls, wildlife, humans, pollution)
2. What conclusions can we draw about the uses of the St. Lawrence Seaway through the book "Paddle to the Sea"? (Important to shipping, used to transport goods from the interior Midwest to the Atlantic, fishing, manufacturing, hydroelectricity, recreation)

Possible sentence frame: The St. Lawrence is a transportation route from the Midwest to the Atlantic because...

Part Two:
Direct students to use the Water Resources section of the Student Atlas of Oregon to answer the following questions on a piece of paper (before you do this, you must make students familiar with the various maps p. 30-33):
Jigsaw four maps, then each student becomes an “expert” on one map. They come back together and explain their maps.

Be prepared for questions and needed definitions afterwards.

1. What river in the Pacific Northwest might be considered to be of the same importance as the St. Lawrence Seaway? Why? – Or, discuss as group/class. Answer: The Columbia. Looking at the atlas you can see that the river travels from Canada, through both Washington and Oregon, to the Pacific Ocean. It has tributaries from Idaho as well.

2. List all the tributaries of the Columbia River as it flows through the Pacific.

3. Northwest to the Pacific Ocean. – Give meaning of tributaries and watershed. Compare list with neighbor.

4. List the names of the dams found on the Columbia River. Compare list with neighbor.

Part Three:
Give and read PDF *Voyage to the Pacific* or *The Magnificent Journey*. Read the text aloud to class. Students follow along to improve fluency. Have students answer the following questions as they read (students are to focus and highlight text on ONE question only. Assign questions based on students’ ELD level, i.e. #3 is easy and #2 is more sophisticated):

1. Write down specific ways in which humans have used or changed the Columbia River.

2. Write down what effects these changes have had on humans, animals, and the environment. Remember to be specific. Why have these changes occurred?

3. Make a list of all the people and animals that use the river. For example, fishermen, salmon, Native Americans for a food source, tourists. Use these for class discussion.

Assessment:
- Write, draw a diagram, create a skit, etc. a story from the perspective of one of the users of the River that you listed in #3 above. The story should show knowledge of the Columbia River’s location, its tributaries, human involvement with the river and both the positive and negative effects that involvement has had on people, animals and the environment.
- Writing – at least 3 paragraphs
- Diagram – at least 3 positive affects
- Skit – at least 3 separate events or locations

Original Authors: Aimee Saddler
Lesson adapted by: Nick Clawson and Tony Ramos
The final editing and adaptations for an ELL classroom were completed by the OGA Spanish Student Atlas of Oregon Task Force 2011.