

RIVERS OF NORTH AMERICA

13 PART SERIES

ARKANSAS
COLORADO
COLUMBIA / SNAKE
CONNECTICUT
HUDSON
INDIAN / INLAND WATERWAY
LOWER MISSISSIPPI
UPPER MISSISSIPPI
MISSOURI
OHIO
POTOMAC
RIO GRANDE
SACRAMENTO / AMERICAN

Consider Visiting These Web Sites:

<http://www.ccrh.org/river/history.htm>
http://www.evergreen.edu/user/virtatpnw/OUT_LINK/links_body.htm
<http://www.nps.gov/rivers/snake.html>



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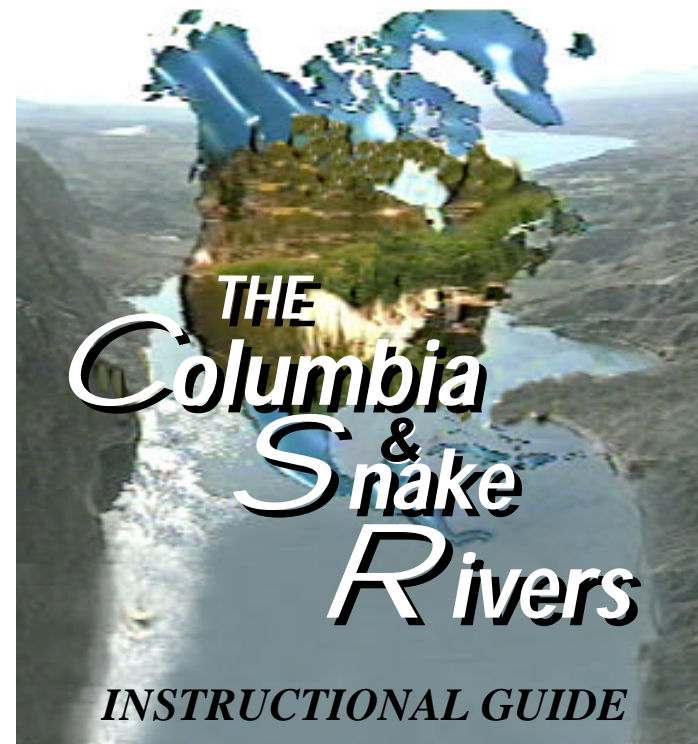
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Presents

**Rivers
of
North America**

13 Part Series



INTRODUCTION TO SERIES

Rivers of North America Series brings a unique perspective to the role great rivers have played in the early development and subsequent settlement of a region and a nation. Each river has its own unique story to tell, it's own geology, geography and history.

As a complementary device with each video, an instructional guide suggests exercises to help teachers, parents and students. These interactive exercises will reinforce and further develop a student's level of comprehension.

The instructional guide provides:

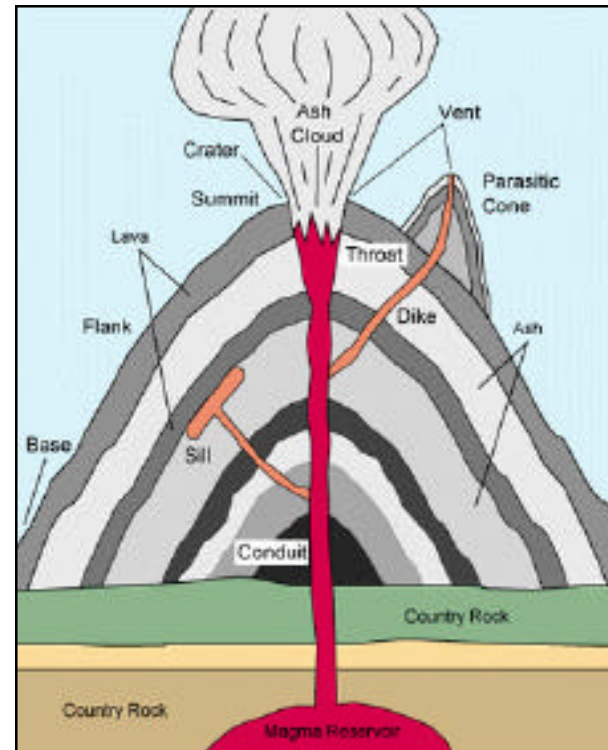
Vocabulary
Chronology / Q & A
Native People / Explorers
Discussion Points / Activities
Geography / Geology
River / Cities Development

Permission granted to copy the exercises provided in this guide. For educational use ONLY.

*E-Guides available at
www.filmideas.com*

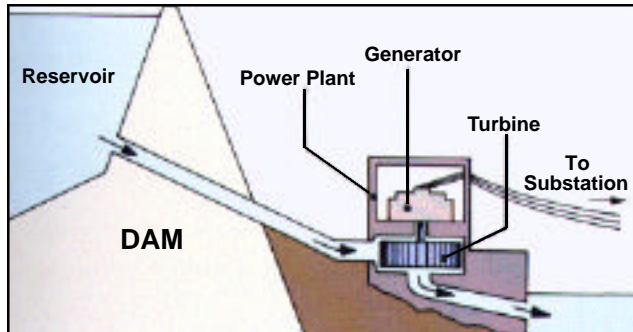
Volcanoes of *The COLUMBIA/SNAKE*

For many years volcanoes have affected the geological formations found throughout the Columbia / Snake River region. On paper or a computer, explain and illustrate what volcanoes are and how they shape and form different geological formations. If needed use the illustration below or if possible draw your own graphics (use a computer).



DAMS of The COLUMBIA/SNAKE

There are 34 dams on the main channels of the Columbia and Snake rivers. On paper or a computer, explain and illustrate what dams are and why they are built. Also mention how dams affect the environment especially salmon. If needed use the illustration below or if possible draw your own graphics (use a computer). Gather information on the internet.



NOTES:

THE Columbia & Snake Rivers

The rain soaked climate of the Pacific Northwest makes the Columbia River one of the greatest sources of hydroelectric power in the world. About 80% of all the electric power in the Northwest is generated by the Columbia River. More water flows into the Pacific Ocean by way of the Columbia River than from any other river in North America.

From its headwaters high in the Canadian Rocky Mountains of British Columbia, the Columbia River flows 1,240 miles southwest before it empties into the Pacific Ocean, between Cape Disappointment, Washington and Point Adams, Oregon. Its largest tributary the Snake River supplies the Columbia River with almost half of its total water volume. The headwaters of the Snake River rise up in Yellowstone National Park and flows 1,040 miles through Wyoming and Idaho before joining the Columbia River in southern Washington.

The first humans to inhabit the Columbia River Basin were nomadic Indian tribes who migrated to North America over the Bering Strait land bridge over 30,000 years ago. These early tribes and their later ancestors followed giant herds of animals for food and clothing. They also developed successful fishing methods mostly targeting salmon throughout the Northwest region. Afterwards, in 1579 English explorer Sir Francis Drake became the first European to sail into the area. Other Europeans soon followed. In 1803 Thomas Jefferson purchased the Louisiana Territory from France and assigned explorers Lewis and Clark to find a Northwest passage through the newly acquired territory.

As early settlers moved west the Columbia and Snake rivers served as navigational waterways into the Pacific Northwest territory. As more settlers arrived, the areas which were once mature small frontier villages became major industrial cities.

During its history, the Pacific Northwest has faithfully reflected America's adventurous pioneer spirit. Within that seeking spirit lies two rivers which continue to provide the aesthetic water route for those searching through the immense North American western frontier.

VOCABULARY of *The COLUMBIA/SNAKE*

BASALT: A hard black rock created from molten lava which is found throughout the river basin.

COLUMBIA RIVER (The): Its headwaters originate high in the Canadian Rocky Mountains of British Columbia. From there it flows 1,240 miles southwest before emptying into the Pacific Ocean. It also provides 80% of the electric power in the northwest area.

COLUMBIA RIVER PLATEAU: This geological formation was created 16 to 17 million years ago from the molten lava of volcanoes. It measures 110 thousand square miles and is over 5,000 feet thick.

CONFLUENCE: The point where two rivers join together. i.e. The Columbia & Snake Rivers.

DAMS: Barriers built on rivers to prevent the flow of water. Dams are used to store water, control floods and produce electricity. There are 34 dams on the main channels of the Snake and Columbia Rivers.

ESTUARY: The area where the fresh water from a river mixes with the salt water from an ocean. (i.e. Columbia River and Pacific Ocean).

FISSURE: A narrow opening or crack of considerable length and depth in the earth's surface.

HEADWATERS: The mixture of melting snow and rain form into the little creeks and streams which become the initial water source for larger bodies of water i.e. The Columbia and Snake Rivers.

Letters A thru C describe three **Columbia & Snake River** cities. Write the name of the city on the solid black line. Then with a Black Marker write the letter **A, B, C** to indicate where on the Northwest map each city is located.

A) Known as the city of roses, _____ is the largest city in Oregon.

B) The tri-cities of _____ are located in Washington State along the confluence of the Snake and Columbia Rivers.

C) Originally an old mining town established in 1860 called Taylor's Crossing, today _____ is an agricultural area and is the largest city located on the Snake River.



GEOGRAPHY of *The COLUMBIA/SNAKE*

The **Columbia & Snake Rivers** journey through four states and one Canadian province before emptying into a body of water. On the solid black line name each of these areas.

STATES:

① _____

② _____

③ _____

④ _____

PROVINCE:

⑤ _____

BODY OF WATER:

⑥ _____



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HELL'S CANYON: Located along the Idaho and Oregon border this 100 mile rift valley at 7,900 ft. deep is the deepest Gorge in the entire United States. The rocks of this canyon were formed underwater.

LEWIS & CLARK: After Thomas Jefferson purchased the Louisiana Territory from France, these two American explorers were assigned to navigate the newly acquired area and search for a northwest passage to the Pacific Ocean.

LOCKS: A structure built to alter the height of water in canals to allow the passage and navigation of boats. For a lock animation visit:

http://www.mvp.usace.army.mil/navigation/locks_and_dams/animated_lock/

OREGON TRAIL (The): The land route many early pioneers used to travel 2,000 miles west from St. Louis, Missouri to the new Oregon territory. After 1849 more than 11,500 new settlers arrived into the western territory every year.

PILLOW LAVA: Volcanic molten rock which forms into the shape of pillows during a cooling effect while it moves underwater.

SIR FRANCIS DRAKE: English explorer who was the first European to sail into the Columbia River region.

SNAKE RIVER (The): Is the largest tributary of the Columbia River and its headwaters originate in Yellowstone National Park. From there it flows 1,040 miles through Wyoming and Idaho before joining the Columbia River in southern Washington.

SNAKE RIVER PLAIN (The): A flat layer of lava located in the southern part of Idaho.

3

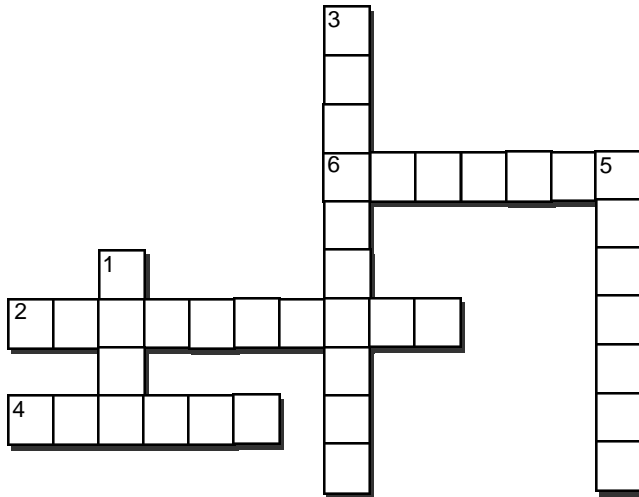
CHRONOLOGY of *The COLUMBIA/SNAKE*

- **16-17 million years ago:** The Columbia River Plateau is created from the molten rock of volcanoes.
- **30,000 years ago:** Nomadic tribes migrate into the Columbia River Basin by crossing over the Bering Strait land bridge.
- **1579:** English explorer Sir Francis Drake becomes the first European to sail into the Columbia River area.
- **1788-89:** John Kendrick is the first American to explore the river region.
- **1803-1806:** Thomas Jefferson purchased the Louisiana Territory from France and assigns Lewis and Clark to organize an expedition to explore the newly acquired area.
- **1811:** John Jacob Astor builds Fort Astoria for fur trappers working for the Pacific Fur Company. Fort Astoria becomes the first American settlement west of the Mississippi River.
- **1844:** Portland, Oregon is founded by Asa Lovejoy and Francis Pettygrove.
- **1849:** 11,500 new settlers use the Oregon Trail to travel into the northwest territory every year.
- **1859:** Oregon becomes the 33rd state of the Union.
- **1889:** Washington becomes the 42nd state of the Union.
- **1860:** Idaho becomes the 43rd state of the Union. Idaho Falls, the largest city on the Snake River, is established.
- **1930:** The Bonneville and Grand Coulee Dams initiate the massive northwest hydroelectric industry. For about 30 years a total of 34 dams are built on the main channels of both the Snake and Columbia rivers.
- **1944:** Richland, Washington is selected as a development center for the atomic bomb project during World War 2.
- **1986:** Congress passes legislation to protect the Columbia River Gorge National Scenic Area.

Discussion Points / Activities

1. If possible visit some of the locations along the Columbia / Snake Rivers as discussed in the video. SEE Pg. 5 of this guide. Also checkout the internet for web sites about the rivers rich heritage. SEE Back Page.
2. Like a science project, build a model river using paper mache', clay, dirt / mud etc. to illustrate the characteristics of the Columbia / Snake Rivers. Perhaps use charts and maps to explain what happens to the river region during volcanoes or the building of dams etc.
3. Discuss how each of the following events have affected the past and present-day conditions of the Columbia / Snake River:
 - 1) Building of dams
 - 2) Volcanoes
 - 3) The arrival of Indian cultures & European explorers
 - 4) Development of cities
4. The ecosystems along rivers and other bodies of water sustain many different life forms. If possible visit a river (the Columbia / Snake River) and imagine you are an ecologist. Study these different life forms and document their relationships with the river environment. i.e. bring binoculars, take photographs, paint a river scene, write a poem, sample various vegetation to view under a microscope etc.

Use the words described in this guide on pgs. 2, 3, 4 & 5 to complete the crossword.



DOWN:

- 1) Barriers built on rivers to prevent the flow of water.
- 3) Point where two rivers join together.
- 5) Area where fresh water mixes with salt water.

ACROSS:

- 2) Name of water source where rivers begin.
- 4) Hard black rock created from molten lava.
- 6) A deep or lengthy crack in the earth's surface.

ANSWERS:
Down-1) Dams, 3) Confluence, 5) Estuary
Across - 2) Headwaters, 4) Basalt, 6) Fissure

EXPLORERS of The COLUMBIA/SNAKE

LEWIS & CLARK: After Thomas Jefferson purchased the Louisiana Territory from France, these two American explorers were assigned to navigate the newly acquired area and search for a northwest passage to the Pacific Ocean.

SIR FRANCIS DRAKE: English explorer who in 1579 became the first European to sail into the Columbia River region.

JOHN KENDRICK: The first American explorer to visit the Columbia River Basin in 1788-89.

PLACES OF THE COLUMBIA / SNAKE RIVER REGION:

YELLOWSTONE NATIONAL PARK: This is the largest U.S. national park located in Northwest Wyoming and where the headwaters of the Snake River begin.

HELL'S CANYON: At 100 miles long and 7,900 feet deep this rift valley is the deepest gorge in the United States.

COLUMBIA RIVER GORGE: Located in the Cascade Mountains, at 80 miles long and 4,000 feet deep this gorge offers some of the most scenic views in the Pacific northwest area.

CITIES OF THE COLUMBIA / SNAKE RIVER REGION:

Oregon: Portland, The Dalles

Washington: Kennewick, Richland & Pasco

Idaho: Idaho Falls

Q & A for *The COLUMBIA/SNAKE*

1. The headwaters of the Snake River begin in what National Park? In what mountain range do the headwaters of the Columbia River begin?
2. What is the name of the point at which two rivers join together?
3. The Columbia / Snake Rivers end their journey by emptying into what body of water?
4. What river is one of the greatest sources of hydro-electric power in the world and what is its main tributary?
5. Over 30,000 years ago nomadic Indian tribes became the first known humans to inhabit the Columbia River region. What was the name of the land bridge they used to enter into North America?
6. In 1803, President Thomas Jefferson purchased the Louisiana Territory from France. Who were the two explorers assigned by Jefferson to navigate the newly acquired northwest territory?
7. Volcanoes are responsible for many geological formations found throughout the river region. What are volcanoes and how do they create geological formations like the Columbia River Plateau and Hell's Canyon?

Fill in the blank by selecting the words from the answers list:

ANSWERS LIST :

Francis Blake • Trail West • Border Canyon
Oregon Trail • Log Lava • Hell's Canyon • Blocks
Pillow Lava • Locks • Sir Francis Drake • Western Route

8. **A)** English explorer _____ became the first European to sail into the Columbia River region.
- B)** The land route known as the _____ was used by many early pioneers to travel 2,000 miles west from St. Louis, Missouri to the Pacific Northwest.
- C)** Located along the Idaho / Oregon border is a 100 mile deep rift valley called _____ which is the deepest gorge in the United States.
- D)** Volcanic molten rock known as _____ cools and then forms while moving underwater.
- E)** _____ are built to alter the height of water in canals to allow the passage and navigation of boats.