



Teacher Lead PRE-Activity: Language Arts Watershed Program

Subject Area: Geology, Earth Science, Language Arts

Grade Level: 5th-8th

Duration: 1 hour

Unit Title: *Watersheds: Through the Mountain to the Valley*

Lesson Title: Watershed Words

Objectives

Students will be able to:

- Reveal the meanings of at least 10 terms related to watershed science.
- Represent vocabulary using pictures and examples.
- Explain watershed concepts using key vocabulary.

Materials/Resources

- Blank unlined paper cut into ½ sheets (folded the “short” way)
- Pencils
- Colored pencils
- Index cards
- Tape
- Overhead projector or black board
- Vocabulary list for each student

Anticipatory Set

Ask students:

- Have you heard the term watershed?
- Can you define the term watershed in your own words?
- Where does water go after it rains? In our region, does water travel to the Pacific Ocean? If yes, can anyone describe a part of that journey?

Objective/Purpose

Watersheds represent the connection of all places through water. In order to study this incredible connection, we must first understand the language of watersheds. Explain to students that they will study watershed words which they will use during their watershed studies at Oregon Caves National Monument (OCNM) and Deer Creek Center (DCC).

Input

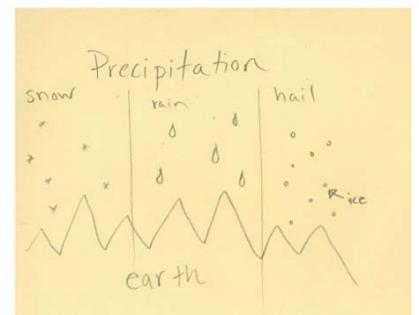
The water cycle is the largest physical process on Earth and is necessary for maintaining and supporting life! Watersheds portray a path in the water cycle. A watershed is an area of land where all of the water drains to a stream, lake, or ocean. Along its journey through a watershed, water alters the surface of the Earth. When rain falls onto the Earth many things can happen to that water (precipitation). It may continue moving along the surface of the earth, due to gravity, and enter a stream (runoff). Some water may be absorbed into the ground (percolation) and may become part of a larger body of water within particles of soil (groundwater). Some water may fall into the center of a fast moving section of a stream (channel) and make its way to the ocean. Water can then evaporate and the cycle repeats. The ability to describe the journey of water is key to understanding watershed science and key to comprehending the most precious substance on Earth, water.

Model

1. Inform the students they will be making a mini picture dictionary about watersheds. Students will use drawings or written examples to represent the meaning of 10 watershed words.
2. Hand out five ½ sheets of paper to each student.
3. Each sheet of paper will have one word and drawing per side. Each student's mini dictionary will contain 10 words.
4. Allow students to select 10 words from the vocabulary list to include in their watershed dictionary.
5. As a class, select one word to illustrate together. Draw a picture of that term on the board. Key information from the definition must be represented in the drawing.
6. Students must label the drawing with the vocabulary term.

Check for Understanding

- Which words were challenging to represent? How did you overcome that challenge?
- Did any drawings include more than one watershed word? Which ones?
- Which parts of a watershed do we typically see? Which parts do we typically not see?



Closure

1. Allow students to trade watershed mini dictionaries with a partner. Ask each student to read a new dictionary.
2. Take a poll: read each watershed word from the vocabulary list and ask students to raise a hand if they used that word. Make a list of any words which were not used in any of

the students' dictionaries. Create a pictorial representation of these words as a class on the black board.

Independent practice

1. Write each watershed vocabulary word on an index card. Place a piece of tape on the other side of the index cards. Make enough cards for the number of students in your class.
2. Ask students to get into groups of two.
3. Hand one card to each student. Tell students that they should not let their partner see the word on their card.
4. Each student will tape their card onto their **partners back**, so that the student wearing the card does not know what word they have.
5. Ask students to find a new partner.
6. Students may ask YES or NO questions to determine the word on their back.
7. Students may then circulate around the room asking YES or NO questions of others to "guess" the word on their back.
8. When a student determines the word, they should report to the teacher to switch cards with the next person to complete the task.

Oregon State Standards 5th-8th Grades: English Language Arts

5th Grade

EL.05.RE.01

Read aloud grade-level narrative text and informational text fluently and accurately with effective pacing, intonation, and expression.

EL.05.RE.05

Demonstrate listening comprehension of more complex text through class and/or small group interpretive discussions across the subject areas.

EL.05.RE.09

Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas.

EL.05.RE.10

Develop vocabulary by listening to and discussing both familiar and conceptually challenging selections read aloud across the subject areas.

EL.05.RE.15

Know less-common roots (graph = writing, logos = the study of) and word parts (auto = self, bio = life) from Greek and Latin, and use this knowledge to analyze the meaning of complex words (autograph, autobiography, biography, biology).

EL.05.WR.01

Use a variety of strategies to prepare for writing, such as brainstorming, making lists, mapping, outlining, grouping related ideas, using graphic organizers, and taking notes.

6th Grade

EL.06.RE.01

Read aloud grade-level narrative text and informational text fluently and accurately with effective pacing, intonation, and expression.

EL.06.RE.05

Demonstrate listening comprehension of more complex text through class and/or small group interpretive discussions across the subject areas.

EL.06.RE.09

Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas.

EL.06.RE.10

Develop vocabulary by listening to and discussing both familiar and conceptually challenging selections read aloud across the subject areas.

7th Grade

EL.07.RE.01

Read or demonstrate progress toward reading at an independent and instructional reading level appropriate to grade level.

EL.07.RE.04

Demonstrate listening comprehension of more complex text through class and/or small group interpretive discussions across the subject areas.

EL.07.RE.08

Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas.

EL.07.RE.09

Develop vocabulary by listening to and discussing both familiar and conceptually challenging selections read aloud across the subject areas.

8th Grade

EL.08.RE.01

Read or demonstrate progress toward reading at an independent and instructional reading level appropriate to grade level.

EL.08.RE.04

Demonstrate listening comprehension of more complex text through class and/or small group interpretive discussions across the subject areas.

EL.08.RE.08

Understand, learn, and use new vocabulary that is introduced and taught directly through informational text, literary text, and instruction across the subject areas.

EL.08.RE.09

Develop vocabulary by listening to and discussing both familiar and conceptually challenging selections read aloud across the subject areas.

References

Salmon Watch Curriculum Guide Ninth Edition. 2005. Oregon Trout Salmon Watch Staff. Portland, OR.

Project WET Curriculum and Activity Guide. 2005. The Watercourse/ Project WET International Foundation and the Council for Environmental Education. Bozeman, MT

The Stream Scene: Watersheds, Wildlife and People. Farthing, Patty et al. Oregon Department of Fish and Wildlife. 1992.

Watershed Words

1. **Watershed**- the land area from which surface runoff drains into a stream channel, lake, reservoir or other body of water.
2. **Precipitation**- water falling, in liquid or solid state, from the atmosphere to the earth.
3. **Runoff**- precipitation that flows over land into surface streams, rivers and lakes.
4. **Tributary**- a stream that contributes to another stream or river.
5. **Topographic map**- a map which shows the elevation of land features such as mountains and valleys, usually by use of contour lines.
6. **Ridge lines**- points of higher elevation that separate adjacent watersheds, also known as divides.
7. **Channel**- the deep, fast moving part of a stream or river.
8. **Percolate**-water entering the air spaces between soil particles.
9. **Leaching**- The movement of particles, dissolved in water, through soil.
10. **Slope**- a measure of a degree of incline; steepness.
11. **Erosion**- the wearing down and washing away of soil and land surface by action of wind, water, waves, and ice.
12. **Sediment**- small, solid pieces of material that come from the break down of rocks or living things.
13. **Anadromous fish**- fish that migrate from saltwater to freshwater for spawning. Examples in southern Oregon: Chinook salmon, coho salmon and steelhead.
14. **Indicator species**- a species whose presence, absence, or relative well-being in a given environment can help determine the health of its ecosystem as a whole
15. **Fen**- boggy land, covered at least in part by water. Characterized by sedges, grasses and aquatic plants.
16. **Karst** – a geology term for an area of limestone or marble terrain characterized by sinks, ravines, and underground streams.

17. **Hydrology**- the study of water, including its properties, principles and distribution
18. **Ground water**- water found in spaces between soil particles underground (located in the zone of saturation).
19. **Collection point** – a stream, lake or ocean, any place where water is collected within a watershed.
20. **Macro-invertebrate**- spineless animals which can be seen with the naked eye. Snails, crayfish, aquatic insects.
21. **Riparian area**- the transitional area between the terrestrial (dry) and aquatic (wet) ecosystems. Typical examples would include floodplains, stream banks, lakeshores, and wetlands.