



Watersheds

4th-6th Grade Lesson Plan, BLM Campbell Creek Science Center

Big Ideas: Systems, Interconnectedness

Enduring Understandings:

- A watershed is an area of land that drains rainwater or snow melt into a river or other body of water.
- Water shapes the landscape.
- There are different parts to a watershed, and all the parts are interconnected.
- Everyone lives in a watershed.

Module Questions:

- What is a watershed?
- How does water shape the landscape?
- How are the parts of a watershed connected?
- Which watershed do you live in?

Standards:

Science

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.

4-ESS2-2 Analyze and interpret data from maps to describe patterns of Earth's features.

5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere (water), cryosphere (ice), and/or atmosphere interact.

English Language Arts

CCSS.ELA-LITERACY.RI.4.5

Describe the overall structure of events, ideas, concepts, or information in a text or part of a text.

CCSS.ELA-LITERACY.RI.4.7



Interpret information presented visually, orally, or quantitatively and explain how the information contributes to an understanding of the text in which it appears.

CCSS.ELA-LITERACY.W.4.8

Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

CCSS.ELA-LITERACY.RI.5.3

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.

Activities:

- I. Unit Introduction: Watershed Wonders
- II. Module Introduction: What Is a Watershed?
- III. Lesson 1: Paper Watershed Model
- IV. Lesson 2: Mapping Watersheds
- V. Lesson 3: Erosion
- VI. Lesson 4: The Campbell Creek Watershed
- VII. Module Reflection: Your Watershed

Assessments:

- Lesson reflections
- Module reflection
- Module pre- and post-assessment

Learning Activities:

Unit Introduction (10 min.)

Objective: During the unit introduction, students will be introduced to the Watershed Wonders unit, including the unit essential questions and the focus of each module.

Procedure:

Watch the unit introduction video and read the unit essential questions.

Module Introduction: What Is a Watershed? (20 min.):

Objective: During the introduction, students will review the water cycle and learn the definition of a watershed.

Procedure:

Read the information on the slides to learn about watersheds.

Reflection:

Write down or record everything you already know about watersheds.



Lesson 1: Paper Watershed Model (60 min.):

Objective: After creating a paper watershed model during the lesson, students will accurately describe the features of their models and explain how water moves through the landscape.

Materials:

- 1 piece of paper
- 1 washable marker
- spray bottle or glass of water
 - You can use the sprayer top from a different bottle and place it in a cup of water.
- cookie sheet or pan to catch water
- paper towel or rag for clean up

Procedure:

Follow the directions on the slides to create a crumpled paper watershed model. A video of the full activity is included on the last slide.

Reflection:

Describe how water moves through your landscape.

Why do you think mountain ridges and other high points are the boundaries of watersheds?

How many watersheds can you find in your model?

Lesson 2: Mapping Watersheds: (60 min.)

Objective: After using maps to identify watershed features during the lesson, students will accurately interpret a map to determine at least two key features within a watershed.

Procedure:

Follow the directions on the slides to examine features of watersheds on various maps.

Reflection:

Using the map at the end of this lesson, answer the following questions.

What do the colors in the map legend represent?

Where do the watersheds you see on the map start? Where do they end?

Extension Activity:

Paint a watercolor map of a watershed. Include mountains, ridges, valleys, lakes, creeks, and other features.

Lesson 3: Erosion: (60 min.)



Objective: After making observations of water erosion during the lesson, students will make logical predictions about an erosion scenario and accurately explain why rivers change shape.

Materials:

- science journal or a piece of paper
- pencil (or something to write with)

Procedure:

Read through the information on the slides and watch the videos to learn about and make observations of erosion.

Reflection:

At the end of the lesson, you watched a video about a tree growing in a strange way near the creek.

What do you think caused the tree to grow like that? What might happen to that tree in the future?

Why are rivers constantly changing shape?

Extension Activity:

Can you find examples of erosion in rivers or creeks near your home?

Lesson 4: The Campbell Creek Watershed (60 min.):

Objective: After exploring and making observations about the Campbell Creek Watershed on Google Earth, students will accurately describe how parts of the watershed are connected by using their observations to write about the journey of a raindrop from the mountains to the ocean.

Materials:

- science journal or a piece of paper
- pencil (or something to write with)

Procedure:

Read through the lesson slides to take a virtual tour of Campbell Creek Watershed. Students will answer the questions as they go in their science journal.

Reflection:

Imagine you are a raindrop that just fell in the Chugach Mountains at the top of the Campbell Creek Watershed.

Describe your journey from the mountains to the ocean.

Use the observations you made during the tour to help you describe your journey.

Extension Activity:



People are connected to watersheds and give them meaningful place names. The Dena'ina name for Campbell Creek is Qin Cheghitnu, which means "Crying Ridge Creek." Explore more Dena'ina history and other interesting facts about the watershed on the [Municipality of Anchorage Virtual Campbell Creek Interpretive Trail](#).

Module Reflection: Your Watershed (15 min.):

Objective: After completing the lessons in Module 1, students will access information on the [EPA My Waterways website](#) to correctly identify the watershed they live in.

Procedure:

To learn which watershed you live in, follow the link and enter your full address or zip code. The website shows the smallest watershed you live in. For some watersheds, the website also provides water monitoring data.

Reflection:

Which watershed do you live in?

What questions do you have about your watershed? Brainstorm at least three.