



Salmon in Alaska

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

Big Ideas: Systems, Interconnectedness

Enduring Understandings:

- Salmon have adaptations that help them survive and enable them to move from fresh water to ocean and back again.
- Salmon depend on different habitats during different parts of their life cycle.
- Salmon play an important role in riparian ecosystems (e.g., nutrient cycling, predator/prey relationships, etc.).
- Salmon encounter many challenges throughout their life cycle.

Module Questions:

- How are salmon adaptations important for their survival?
- Why do salmon need different habitats during different parts of their life?
- What are some challenges salmon face during their life cycle?
- Why are riparian ecosystems important for salmon?
- Why are salmon important for riparian ecosystems?

Standards:

Science

4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-LS1-2 Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.



5-LS2-1 Develop and describe a model that describes the movement of matter among plants, animals, decomposers, and the environment.

MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

English Language Arts

CCSS.ELA-LITERACY.W.4.4

Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

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.

CCSS.ELA-LITERACY.W.5.4

Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.W.6.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Activities:

- I. Module Introduction: Salmon in Alaska
- II. Lesson 1: Salmon Adaptations
- III. Lesson 2: Salmon Habitats
- IV. Lesson 3: The Salmon Forest
- V. Lesson 4: Salmon Life Cycle
- VI. Module Reflection: Salmon Game

Assessments:

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



Learning Activities:

Module Introduction: Salmon in Alaska (30 min.):

Objective: After creating a hand diagram with the five types of salmon in Alaska in the introduction, students will use their diagram to write down five relevant questions about salmon, one on each finger.

Materials:

- blank piece of paper
- pencil (or something to write with)
- coloring supplies (optional)

Procedure:

Read the slides to relate background knowledge to salmon and then learn the five species of salmon in Alaska by making a salmon hand diagram.

1. Trace your hand on a piece of paper.
2. On the outline of the thumb, write Chum. “Thumb” rhymes with “chum” for chum salmon.
3. On the outline of the pointer finger, write Sockeye. Use your pointer finger to point to your eye and say “sockeye” for sockeye salmon.
4. On the outline of the middle finger, write King. The longest finger stands for the biggest salmon: king salmon.
5. On the fourth finger, write Silver. You might wear a silver ring on your fourth finger, which can help you remember silver salmon.
6. On the pinky finger, write Pink. Your smallest finger, the pinky, represents pink salmon.

Reflection:

- Use the back side of your hand drawing for the following reflection:
 - On each finger, write one question you have about salmon.

Lesson 1: Salmon Adaptations (60 min.):

Objective: After exploring salmon adaptations during the lesson, students will write a haiku poem and a song or rap that accurately describe the form and function of two salmon adaptations.

Materials:

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



Procedure:

Learn about adaptations by exploring seven different salmon body parts. Then, complete two writing prompts: haiku poem and song/rap. For each writing prompt, choose one of the seven featured adaptations to focus on.

- A haiku is a short poem with five syllables in the first line, seven syllables in the second line, and five syllables in the third line.
- Song and rap lyrics contain describing words, sometimes rhyme, and are often written to argue a point in an entertaining way.

Reflection:

- Write down or record yourself reading your haiku poem and your song or rap.
- Which writing style was the most enjoyable for you? Why?
- What would you share about salmon adaptations with someone who is new to the topic?
- Why might scientists use art and music to share information with the public?

Lesson 2: Salmon Habitats (60 min.):

Objective: After learning about freshwater, estuary, and ocean habitats during the lesson, students will correctly answer three questions about salmon habitats and accurately describe at least two examples of abiotic and biotic factors in one salmon habitat of their choosing.

Materials:

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

Procedure:

Explore three habitats salmon need during different parts of their life cycle: freshwater streams and lakes, estuaries, and the ocean.

1. Record observations for each salmon habitat in your science journal or on a piece of paper, using the table shown in the slides.
 - a. The table categories include: habitat, salmon life cycle stage, abiotic things, and biotic things.
2. At the end of the lesson, use the completed table to compare the similarities and differences between the three salmon habitats.



Reflection:

In which stages of their life cycle do salmon need freshwater streams and lakes?

In which stage of their life cycle do salmon need estuaries?

In which stage of their life cycle do salmon need ocean?

Choose one of the salmon habitats (freshwater streams and lakes, estuaries, or ocean).

- Describe some of the abiotic and biotic things you might find in that habitat.
 - Give at least two examples of abiotic things and two examples of biotic things.

Lesson 3: The Salmon Forest (60 min.):

Objective: After creating a model riparian ecosystem during the lesson, students will use the model to accurately describe at least three connections between salmon and riparian ecosystems.

Materials:

- something to draw with
- art supplies (optional). Some ideas:
 - cardboard
 - paper towel rolls or toilet paper rolls
 - recycled paper
 - clean food containers
 - aluminum and tin cans
 - sticks, rocks, leaves, or other natural objects
- scissors (optional)

Procedure:

Follow the lesson slides to create a model of a riparian ecosystem that includes biotic and abiotic elements. The model shows salmon at different stages of their life cycle and how they are connected to the riparian ecosystem.

1. To build a 3-D model, gather recycled art supplies or natural objects.
2. If you prefer, you can draw all parts of the model in your science journal or on a piece of paper.
3. Use the example model in the lesson slides to help guide you.

Reflection:

Describe your model. How is the salmon forest connected?

- Give at least three examples of connections between salmon and other parts of the riparian ecosystem.



Lesson 4: Salmon Life Cycle (60 min.):

Objective: After playing the salmon life cycle game in the lesson, students will accurately synthesize their experiences from the life cycle game in a narrative story about the challenges salmon face as they grow, develop, and reproduce.

Materials:

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

Procedure:

Explore each phase of the salmon life cycle, and then play an interactive game in which you assume the role of a salmon trying to survive long enough to spawn.

1. As you navigate through the slides, click on an image in the box to make a decision about what to do next.
2. For slides without multiple options, click on the blue underlined text to navigate to the next slide.
3. Continue moving through the slides until you complete the salmon life cycle and reach the end. You may have to restart the game several times before you complete a full life cycle.

Reflection:

Use your experiences from the salmon life cycle game to tell the story of a salmon's life from the perspective of the fish.

- What dangers did you face? What helped you survive and grow?
- Were you able to survive long enough to spawn?
- What happened at the end of your life?

Module Reflection: Salmon Game (60 min.):

Objective: After completing the lessons in Module 4, students will design a salmon-themed game that includes accurate information about the salmon life cycle and salmon habitats.

Note: If students play the games, this activity will take longer than 60 minutes.

Materials:

- paper (or something to write on)
- pencil (or something to write with)
- coloring supplies (optional)
- art supplies (optional)



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Procedure:

Design a game that includes the parts of the salmon life cycle, different salmon habitats, and some of the challenges salmon might face. Games can be designed as board games, card games, video games, trivia games, obstacle courses, or other unique ideas.

Reflection:

Describe your game. Give specific instructions so anyone could play it. If possible, upload a picture of your game design.