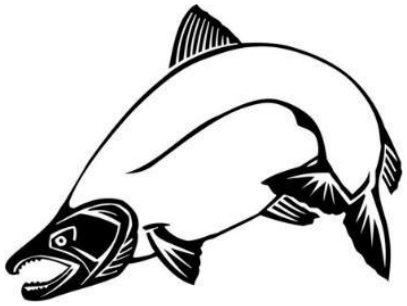
The Life Cycle Game

(Indoors)



Purpose:

- Students play an adapted game of rock-paper-scissors while role-playing each stage of a Pacific Salmon's Life.

Objectives:

- Students will read, synthesize, and orally present information about one stage in the life cycle of Pacific Salmon to their peers.
- Students will create a movement or signal that represents their assigned salmon life stage.
- Students will model the salmon's life cycle in a modified rock-paper-scissors game

Materials:

- Life Cycle cards (4 sets of 8 small cards)
- Life Cycle station pictures (1 set of 8 large cards)
- Life Cycle PowerPoint (on thumb drive)
- Tape

Time Required: 30-45 minutes
Appropriate grades: 5th-8th
NGSS and Common Core Standards:

CCSS.ELA-LITERACY.RI.5.2
Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

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

CCSS.ELA-LITERACY.RI.6.7
Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

ENVIRONMENTAL EDUCATION GRADUATE PROGRAM
SOUTHERN OREGON UNIVERSITY

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Activity:

Introduction	Anadromous fish begin their life in freshwater streams and tributaries, migrate to the ocean, and then return to their birth place to spawn. Here in the Rogue Valley, students can witness the migration of a number of species of anadromous fish at different times of the year. In the spring or fall you may be able to observe the run of the Chinook or Coho Salmon through Bear Creek in Ashland. Travelling around 200 miles from the ocean to the Rogue Valley, migratory fish are vulnerable to a variety of threats, both human and natural, along the way. Of the 3,000 to 7,000 eggs in a nest, only **one** spawning pair will likely make it back to its original spawning habitat. **Activity/Lesson:** I. Introduce the vocabulary term "anadromous" and ask the students to think about why these fish do this? What is the advantage of migrating habitats for Salmon? (There are more resources in the ocean that support a higher growth rate) II. Break students into 8 groups by giving each student a "life-stage card." Each group will also be given a large picture of their life-stage to use when presenting to the class. The groups have 5 minutes to come up with a brief presentation of their salmon life-stage for their peers as well as a pose/action that represents that stage. (examples: Alevin will put their hands in a circle in front of their belly to represent the yolk sac. Fry will have little fins, spawners will make big tail fins with their legs and jump up and down) -Student groups will present their stage by: 1. Presenting a pose/action that represents the life-stage (to be used in the rock-paper-scissors game) 2. Taping their large card on the board in the appropriate place to create a life stage circle 3. Specifying one challenge faced by salmon during that life-stage Example: escaping predators or jumping up fish ladders.

Body	III. Students play progressive rock-paper-scissors ● Everyone starts as an "egg" stage (displaying the egg pose) and hops around the room looking for other eggs to play in rock-paper-scissors ● Winners of that round will progress to alevin (striking the pose/action) and look for other alevins to play. Eggs will play other eggs until they win. ● Alevins that win against other alevins will progress to the Fry/Parr stage and look for other Fry/Parr to play. The winner will then become a smolt. Continue playing until someone reaches the final stage.
Closure	IV. Back in their groups, ask the students to discuss the question you began with: ● How many fish in the group made it to the final stage? ● Why do salmon go through the trouble of migrating from freshwater to the ocean and back? ● What is the advantage of being anadromous? ● What are the disadvantages? ● What obstacles and challenges do the fish experience during their lifecycle? V. Assessment: ● Have students go through the game with the life stages written on the board. Then, erase each step and see if they can remember what comes next in the game. ● Observe the discussion following the lead question. What part of the life cycle is not understood? Are there gaps in knowledge of the freshwater and marine ecosystems so the need for food and habitat is not connecting?

Differentiation:

For any students with a physical challenge, the students can play the game wearing a card with written life stages instead of using body movements or poses. For ESL students or challenged readers, walk through the stages using stations around the room instead of having them read and synthesize the information.

Modifications:

- Elementary: Students can develop a movement for each life stage and play the game, but it is not necessary for them to read or use the cards other than to see the pictures. Life stages can be discusses as a class

- High School: In addition to providing life cycle cards, students can research further information about each life stage before presenting to their class, finding several obstacles or challenges that is present during their lifecycle stage and calculating survival rates.