



Science Unit: *The Journey of the Pacific Salmon*

Lesson 6: *Salmon in the Stream and Fishing*

School year: 2008/2009

Developed for: Grenfell Elementary School, Vancouver School District

Developed by: Jean Marcus (scientist), Jane Hughes and Gary Loong (teachers)

Grade level: Presented to grade 3; appropriate for grades 2 – 5 with age appropriate modifications.

Duration of lesson: 1 hour and 30 minutes

Objectives

1. Learn from a professional salmon fishing guide about salmon streams, salmon behaviour, fishing and salmon stewardship.
2. Explore in detail the stream habitat, discovering the many microhabitats that salmon use and linking microhabitats to specific salmon behaviors.

Background Information

For this class we brought the expert to us, instead of going to the expert. Ken Beatty, a salmon fisherman and professional fly fishing guide, spoke to the class about understanding salmon streams and salmon stewardship. Ken explained how a fisherman “reads the water”, by using visual cues to identify different stream microhabitats. Ken introduced the students to four microhabitats (pools, runs, riffles and bends) and explained how salmon use these microhabitats in different ways. For example, a pool is a deep area of still water with a sandy bottom where spawners go to rest, whereas a riffle is an area with shallow fast-running water with many pebbles and rocks where spawners lay their eggs.

Ken explained the details of a river by drawing a large rendition of a part of his favorite river, with the four microhabitats easily identifiable. Students were then divided into four groups, and each group was given a picture of one of the microhabitats. In groups the students examined their picture, filled out Worksheet 1, and guessed which microhabitat was represented by their picture. They then pasted the picture in the appropriate place on the mock salmon stream and explained to the class why they made their decision. After this, each student was given a cut out of a salmon and created their own story of a salmon entering a stream to spawn. A few students volunteered to come up to the mock stream and explain their story.

Ken's lesson ended with him explaining the anatomy of a real stuffed Chinook salmon (40+ pounds) and all the students were given the opportunity to taste a few different types of salmon. The lesson was summed up by finishing the Journey of the Pacific Salmon board game developed by Jean Marcus.

Vocabulary

<u>Word:</u>	Brief definition.
Microhabitat	A smaller part of a habitat (e.g. a riffle) that has physical and ecological characteristics that distinguish it from its larger habitat (e.g. a stream).
Pool	An area in a stream or river with still, deep water and a sandy bottom.
Run	An area in a stream that is straight and narrow with fast flowing, shallow water. It typically has trees on one side and rocks on the other (exposed stream bed as it



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	moves laterally).
Riffle	An area in a stream that has fast, “bumpy” water that travels over a shallow, gravelly bottom.
Bend	An area in a stream that bends, with varying characteristics.

Materials

Stream Microhabitat Activity

- Large mock drawing of a salmon stream
- Salmon cut outs (1 per student)
- Worksheet 1
- Pictures of 4 stream microhabitats: pool, run, riffle and bend

Journey of the Pacific Salmon Board Game

- game board (see lesson 2)
- Stream In question cards (Worksheet 2)
- 4 magnets
- dice

In the Classroom

Introductory Discussion

1. Discuss recreational salmon stream fishing.
 - Has anyone ever gone fishing? Where? How?
 - Why do people fish?
 - Do you like to fish?
 - What is the difference between commercial and recreational fishing?
2. Explore the salmon stream and learn about four microhabitats: pools, runs, riffles and bends.
 - What is a pool? What is a run? What is a riffle? What is a bend?
 - Would people and bears fish in the same place for salmon?
 - Where in the river would you find a resting/moving/spawning/dead salmon?
3. Brief description of the activities:
 - Activity 1: Salmon Stream Activity
 - .Activity 2: The Journey of the Pacific Salmon board game

Science Activity

Activity #1: Stream habitat description

Purpose of Activity: To identify 4 different stream microhabitats using visual observations.

Methods and Instructions:

Set-up prior to activity:

Assemble all materials (see Stream Microhabitat Materials above) and photocopy Worksheet1, one per student.

In class activity, divide the class into 4 groups:



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1. Each group gets a microhabitat picture (not included here) and discusses within their group what the picture looks like, paying close attention to details. As they discuss the photo, each student fills out Worksheet 1, and the group decides which of the 4 microhabitats (pool, run, riffle, bend) their picture represents.
2. Each group pastes their photo on the mock salmon stream in the appropriate location, and they explain to the class why they think their microhabitat is X.
3. Scientist/Fisherman finishes the activity with leading a discussion on the different microhabitats (corrects any mistakes) and explains that salmon act differently in the different microhabitats.

Activity #2: The Journey of the Pacific Salmon board game (Stream In).

Purpose of Activity: To review the day's lesson in a fun and engaging way.

Methods and Instructions:

Set-up prior to activity:

Print and cut out the Stream In questions (Worksheet 2) and place them in an envelope.

In class activity:

1. Start the game with the team whose turn it is (from last lesson).
2. Explain that today we will play the STREAM IN section and finish the game. The game questions reflect what we have explored and learnt in today's lesson. The rules of the game are as follows:
 - a. The first team rolls the die and moves forward X squares by the number rolled. A volunteer from the team then picks a estuary question from the envelope and reads the question to the class. The team has 1 minute to decide how they will answer the question. If their answer is correct, they roll again. If incorrect, the scientist asks the rest of the class if they know the answer. Either a student or the scientist explains the correct answer to the class, and then the next team goes. Each team stops playing when they reach the end of the estuary section.
 - b. When a team lands on the END square, they must answer a final question correctly in order to win.

Closure Discussion

The board game is an effective way to review the lesson. After the board game, the students were given the opportunity to taste different types of wild Pacific salmon.

References

1. Ken Beatty, 'A River Runs By – Guided Fly Fishing Experiences'. See <http://www.ariverrunsby.com/>.

Name: _____

Stream Microhabitat Description

Habitats are complex. Describe these 7 features of the stream microhabitat from your photo.

1. Light (on and below the surface of the water)	2. Water Depth
3. Water Speed	4. Type of Stream Bottom
5. Stream Cover	6. Stream Shape
7. Structures in the Stream	Describe any other observations:

What is the name of Ken's favourite river for fishing?	In what type of microhabitat would you find a dead salmon?
Explain one microhabitat you would find in a salmon stream. Pick one that hasn't been explained yet in the game.	Where is the best place in the stream for people to catch salmon? Why?
Explain one microhabitat you would find in a salmon stream. Pick one that hasn't been explained yet in the game.	Where is the best place in the stream for a bear to catch salmon? Why?
Explain one thing a salmon might be doing in the stream. <i>Hint: think about its behavior.</i>	Name 2 features of a stream habitat. (Which have not yet been named) <i>Hint: water depth is one feature</i>
Explain one thing a salmon might be doing in the stream.	Name 2 features of a stream habitat. (Which have not yet been named) <i>Hint: water depth is one feature</i>
In what type of microhabitat does a spawner live?	What is a microhabitat? How is it different from a habitat? Hint: remember that the stream is a habitat...
In what type of microhabitat does a resting salmon live?	What is "reading the water"?
In what type of microhabitat does a moving salmon live?	Explain the difference between a lure and a fly.

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(coming back from sea)**

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