Nine Short Plays
About Salmon
for Intermediate Grades

Harvesting with Rocks?

First Nations People - A Trilogy

How Raven, Eagle, Mink and Coyote
Brought the Salmon Back

The Breakfast Club

What's Recess?

Ripple River Five

A Tale of Two Sockeye

Antifreeze; Anti Fish

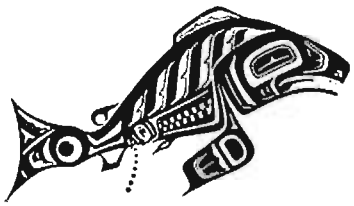
Fisheries and Oceans Pêches et Océans

Canada

For Intermediate Grades

"Fish in the Floodlights" presents nine short dramas about salmon, including scripts, teaching suggestions, and ideas for integration with Science, Social Studies, and the Arts.

This package has been prepared by the Salmonid Enhancement Program (federal Department of Fisheries and Oceans). The materials have been designed, developed, and field tested in cooperation with educators throughout British Columbia.



For further information about curriculum resources please contact

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Salmonid Education Resources and Curriculum Materials
are available through
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Introduction

The Salmonid Enhancement Program, (S.E.P.), which began in 1977, is a multi-million dollar Federal Provincial project designed to increase salmon stocks (as well as steelhead and cutthroat trout) in British Columbia. The S.E.P. program uses many techniques to rehabilitate salmonid habitat and to increase salmonid populations. Funds are allotted to inform and educate the public about the salmon resource, the reasons for its decline and the ways in which S.E.P. is attempting to improve productivity. The SEP program stresses, among its goals, the importance of involving the citizens of British Columbia, generally, and school children in particular, in meaningful and interactive ways with the valuable salmon resource.

The educational components of the S.E.P. program are varied and include: curriculum packages (Salmonids in the Classroom - Primary & Intermediate versions), field trip guides (Gently Down the Stream), classroom incubation programs, Storm Drain Marking Projects, videos, posters and supplementary support materials (puppets, stickers, fact sheets and games).

The development of curriculum materials is responsive and ongoing. All components have been developed and field tested in cooperation with practising educators and subsequently evaluated by the B.C. Ministry of Education. Local S.E.P. resource personnel actively provide support to all aspects of the salmonid program.

Rationale

There are many opportunities to integrate the study of salmon throughout all subject areas of the curriculum. Drama is a powerful teaching tool and offers yet another venue through which several aspects of the study of the salmon and its habitat can be explored. Through role dramas (Readers' Theatre, role playing, drama for understanding) students will learn to make connections between ideas and actions; between knowledge and experience. Drama has the power to "release tension, kindle emotions and stimulate the imagination". (Curriculum and Assessment Framework Guide, Ministry of Education, Fall 1992.)

The short scripted dramatic pieces offered in Fish in the Floodlights are intended to provide teachers with "launching pads" - ideas for initiating theme units involving such topics as *stewardship, resource use conflict, sustainable communities, ecological interdependence, human intervention in nature* and *First Nations involvement in fishing.*

The dramatizations have been written for students in the early-mid intermediate grades (4-6), however, in some instances it would be appropriate for intermediate students to put on performances for primary audiences.

The drama experience, both for the performers and the audience should be followed by *debriefing*. This will often lead to a different understanding, a change of attitude, a new perspective and a real appreciation of the complexities involved in various human/environmental interactions.

Definitions

Drama is a developmental process centered on the learner. It involves the spontaneous dramatic play of young children, and the games, characterizations and dramatizations arising from children's imagination and experience.

Theatre is an art form involving the presentation of dramatic literature to an audience. The theatre entertains and makes a statement. Communication between audience and performers is intended. Theatre is a unique venue in which the skills of actors, directors, designers and technicians are focussed toward an aesthetic ideal.

Curriculum Intentions

Through participation in the dramatizations in Fish in the Floodlights, the learner will have opportunities to develop creative and critical thinking abilities such as considering solutions from different points of view, and recognizing reactions, feelings and behaviour. Learners will also have opportunities to explore thoughts, feelings and actions of self and others through dramatic interaction and reflection.

Learning Outcomes

After being involved in one or more of the dramatizations (Fish in the Floodlights) the student should be able to:

- identify the main idea in a drama;
- maintain a role;
- interpret a character;
- describe what has occurred in the drama;
- discuss drama presentations using appropriate vocabulary;
- discuss mood, conflict, and presentation of a drama;
- discuss how the drama developed;
- present work to an appropriate audience
- reflect on own participation in a drama;
- analyze and discuss constructively the work of self and others;
- see others' point of view through drama;
- listen attentively to individual and group presentations;
- identify changes in attitudes or beliefs that result from the drama;
- respect others' interpretation;
- develop drama based on student information gathering.
- observe people in their different environments;
- observe and understand the changes people make in their environment;
- interpret the effects of the environment on people.

Teaching Strategies

There are many ways to use the scripts presented in Fish in the Floodlights. Detailed instructions for props (costumes, settings, and special effects) have deliberately been omitted so that students can be involved in the reading/staging process in an open-ended way. The same approach has been taken for casting - only the names of characters have been listed in order to allow students to "flesh" out the character.

It is hoped that the plays will, in some cases, merely act as catalysts for student improvisation, role drama, story telling and script writing. The dramatizations should stimulate discussion and provide opportunities for creative and critical thinking about the issues presented. Students should also be encouraged to critically respond to the dramatizations.

Teachers should be familiar with the background information (Appendix A). The material may be distributed to students. For further information/ activities related to the study of Pacific Salmon and their habitat check with BCTF Lesson Aids for Salmonids in the Classroom (Primary/Intermediate) materials.

1. Cooperative Learning Techniques

Several suggestions for Cooperative Learning Activities are provided. For each drama one particular technique has been used to illustrate how the idea could be developed.

Many drama elements are involved in a drama learning activity. The choice of which elements to combine and which to emphasize, as well as the selection of the most appropriate drama structure to utilize will depend on:

- the experience and training of the teacher;
- the learning outcome(s) being focussed upon;
- the age and prior experience of the students; and
- the material being used.

2. Integration with Other Subject Areas

For each drama piece in the package there are suggestions for art, music, language arts, social studies and science activities.

3. Readers' Theatre

Readers' Theatre is literature based oral reading which communicates a story through oral interpretation rather than through acting. A script is used, hence theatre. However, lines are read, not memorized. The story is read by readers who stand or sit in fixed position and address their lines directly to a listening audience.

Cooperative Approach:

(i) Divide class into groups, distribute scripts to groups.

(ii) Each group is responsible for a presentation.

(iii) Group members are responsible for:

- assigning parts
- preparing a rehearsal schedule
- rehearsing
- selecting, designing and creating stage props or costume pieces
- stage movements (may be taken directly from script version, or created by the group)
- involvement from every individual to make a group effort
- present drama
- debrief assessment - mark down what was successful, mark down what was not successful, report to group
- build on this experience with the next experience.

See Appendix B for Evaluation/Assessment for Readers' Theatre.

4. Storytelling

After using one of the scripts (Cooperative Readers' Theatre) you may wish to extend the reading experience into a storytelling activity. The students should be quite familiar with the story line before you move from reading the script to storytelling.

After the script has been read:

(i) discuss the story and the main idea(s).

(ii) outline the story's sequence. This can be done by Story Webbing or Clustering, Storyboarding (pictures), Story Mapping.

(iii) summarize the story using Who, What, When, Where, How of the plot. The summary statement should include all the important story points.

(iv) in cooperative groups have the students retell parts or all of the story. The tellings may be videotaped (costumes, puppets, masks, props, signs may all be used).

5. Creative Drama

After the students are familiar with the scripts (Readers' Theatre) you may wish to have them *improvise*. There are many improvisation activities:

- interview (T.V. Talk Show style) one of the characters in the script
- working in pairs, one partner creates a model of one of the script characters (clay, papier mache, cardboard) when the model/statues are tapped they move and speak in character
- create a pre-post scene (something that might have happened just before or immediately after the actual story action)
- pictionary or charades may be played using characters, objects or themes from the script

6. Playbuilding

After reading/presenting the scripts in Fish in the Floodlights you may wish to involve students in scripting (and presenting) their own dramas. During playbuilding students may "become" actors, directors, playwrights. Topics (peer pressure, suicide, environment, fantasies, heroes, love, the future, the past) can be generated by discussing some of the themes encountered during the Readers' Theatre process, or through songs, photos, stories, maps, T.V., and personal experience.

Students should be encouraged to "develop" the roles more fully by adding or substituting dialogue that they feel more comfortable using.

7. Presentation of Plays

- Have groups perform their plays for their classmates. *Playbill outlines are supplied with each play; Have the students complete them with information and illustrations, then post them throughout the school.*
- Invite parents to the classroom to enjoy the students' plays
- Have an evening of drama - invite parents, grandparents and friends!
- Invite another class (i.e. the same or a different grade level) to be part of the audience. This invitation also could be a rehearsal audience in preparation for a parent night.
- Invite the Principal and Secretary to these presentations.
- Invite the Principal, District Superintendent and School Trustee(s).
- Work through the plays for the singular purpose of developing an understanding of issues (non-performance).
- Workshop characters, personalize dialogue, recreate dramas.

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presents

Harvesting with Rocks?

A play about

Place:.....

Date: .....Time:.....

For more information contact:

.....

Harvesting with Rocks? - Pre-Post Activities

Synopsis:

Five grade seven students are "hanging around" a small stream which runs through the schoolyard. Two of the boys are mindlessly throwing rocks at the few spawning salmon in the creek. The other three students express concern/objections. The main focus of the drama revolves around the issue of killing salmon - whether for livelihood, food, sport or out of ignorance.

Vocabulary:

spawn
predators
Native Food Fishery
harvesting
angler
commercial fisher
quota

Suggested Cooperative Learning Strategies

The Target and The Grid, located after the play.

Integration with "The Arts"

Music

- Compose a rap song for each scene
- Use musical instruments to complement each scene

Art

- Illustrate the playbill
- Make a pencil sketch of each character
- Make a mural of the most interesting scene
- Design sets
- Create masks to go with emotions of each character

Drama

- Begin each scene as a frozen tableaux
- Readers' Theatre

Integration with Other Subject Areas

Social Studies

- Salmon are harvested in Canada (and in many other countries) by several methods. Students could, in cooperative research groups, prepare historical, operational and economic reports on the various methods.
- Discuss some of the regulations governing the sport, commercial and native food fishery. (You may need to check with your local fisheries office.)
- There are laws in place to protect fish. These laws are called the Fisheries Act. The people who enforce the Fisheries Act are Fishery Officers. Every community has at least one Fishery Officer. Check and find out who your local Fishery Officer(s) are. Also check and find out if the local office has a copy of the Fisheries Act. You will find the listing for the Fishery Office in the blue pages of your telephone directory under Federal Department of Fisheries and Oceans.
- There are many careers associated with the harvesting of salmon in B.C. and much revenue generated (directly and indirectly). Students could develop role plays based on the career opportunities and prepare graphs or other representations to illustrate the statistics and figures for the jobs.

Language Arts

- The concept of "harvesting" and the rituals and celebrations surrounding it could be explored.
- The play has a "pat" didactic ending. Children could discuss other ways (subsequent scenes) to end the play.
- The students could choose the character they'd like most to play and give one or two reasons for their choice.
- The students should choose the character who least appeals to them and explain why.
- Have the students imagine that a Fishery Officer had been watching the five students involved in the rock throwing and that he/she had entered the scene just as the five were departing. Write another act for the play which includes the Fishery Officer.

Science

- Plan a field trip to a local salmon stream in the fall to observe spawning salmon.
- Conduct a stream survey (water quality, water quantity) using a local stream.

For other salmon related information and activities (all subject areas) check with Salmonids in the Classroom (Primary and Intermediate). Available through BCTF Lesson Aids.

Harvesting with Rocks?

Act I

Setting

School yard Puntledge Park Elementary, Courtenay, British Columbia. It is late October.

Characters

Cody
Neil
Heather - *Grade seven students*
Kyle
Maggie

Cody: Any of you guys want to take a look at the salmon in the river?

Maggie: I've got band. I'll meet you down there in 1/2 an hour.

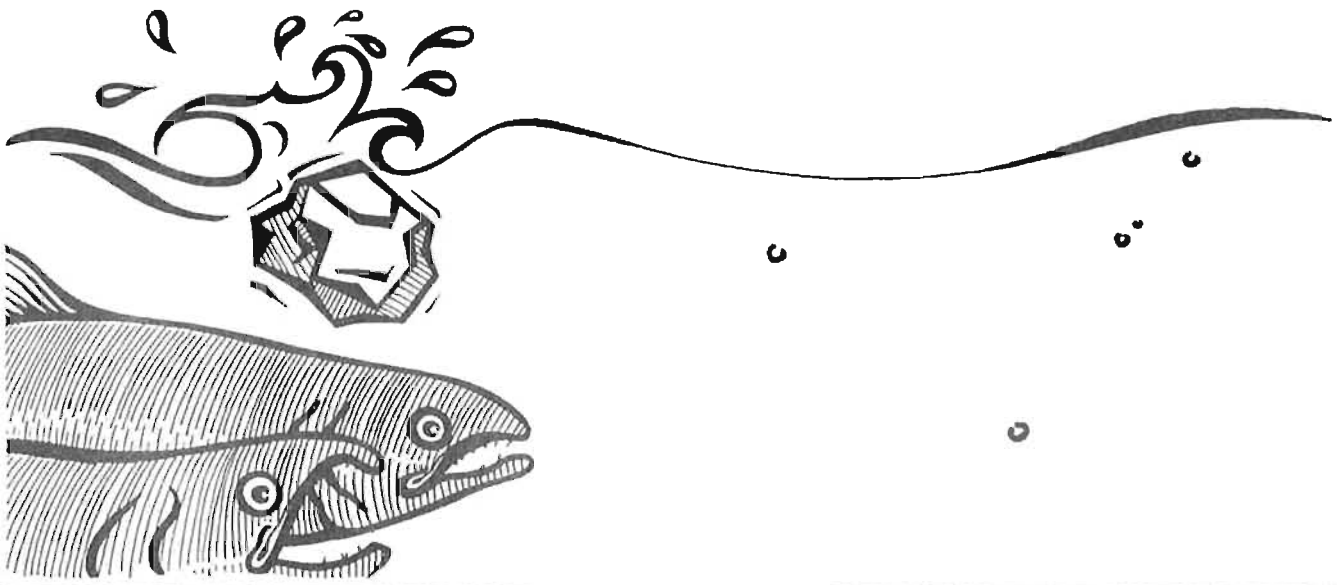
Neil: Why do you want to hang around watching a bunch of ugly fish? *(Pause)* I'd rather go to the mall.

Heather: 'Cause they're interesting. They're getting ready to spawn.

Kyle: Do we need our fishing rods?

Cody: You don't fish for these salmon. Like Heather said, they're getting ready to spawn.

Neil: O.K. let's go.



Act II

Setting:

Puntledge Park River about 20 metres from the back of the school. There is a small footbridge. Neil & Kyle are standing on the river bank. Cody and Heather are on the bridge.

Heather: Whoa, there sure are a lot of fish down there.

Cody: There aren't as many as there were last year and way less than there were three years ago.

Neil: How do you know?

Cody: Mr. Hargreaves told me.

Kyle: Hargreaves - he's the grade four teacher. Why were you talking to him?

Cody: Well, for one thing, I like him and for another, I still remember our salmon trips when we were in his class.

Heather: Me too. That was fun. Remember when we went to the Oyster River and the Puntledge Hatchery?

Kyle: *(Kicking some streamside soil down into the water)* You two think everything about school is fun. If you ask me those trips were lame. But at least we got to miss school.

Neil: *(Picking up a large rock)* I'll show you something awesome. *(Throws rock at a salmon)*

Heather: Hey, what are you doing?

Kyle: (*Picks up another rock and throws it at another fish)* Don't have a cow, they're only fish.

Neil: *(Throws another rock at a pair of salmon) (In a baby voice)* Heather probably thinks fish have feelings. Girls get all mushy about animals.

Cody: You don't have to be a girl and you don't have to get mushy about animals to think that throwing rocks at helpless fish is pretty stupid.

Kyle: Sticking up for your girlfriend, are we Cody? Who cares about a bunch of dumb fish.

Neil: I think he's just a wimp. Cody couldn't hit water if he fell out of a boat.

Kyle: Didn't you say all these precious salmon are going to die after they spawn? So what's the big deal? What makes the difference how they die?

Cody: The difference is that one way is natural and the other way is just mean.

Kyle: Here comes Maggie. She'll straighten you two animal lovers out. Her dad is a commercial fisher.

Act III

Still behind the school. All four students are down at the water's edge. They are joined by Maggie.

Heather: How was band?

Maggie: Pretty good. Hey I thought you said there were lots of salmon in here. There are way less than there were last year.

Cody: *(Pointing at Neil & Kyle)* And if these two have their way there will be even fewer fish in a few hours.

Maggie: What do you mean?

Neil: Yes! *(Hucking another rock into the water and hitting a large salmon).* Bulls eye!

Kyle: Cody & Heather are getting all freaked out about us having some fun with a few fish that are going to croak anyway.

Neil: Maggie, you could give these two a lesson about real life and the real world. Your dad kills thousands of salmon every season.

Maggie: *(Angry)* Excuse me Kyle. Are you and Neil saying that throwing rocks at the spawning salmon is the same as commercial fishers making a living and feeding a lot of people?

Neil: *(Embarrassed)* What about sport fishers? They're not making a living? What about scientists who kill fish for research purposes? For that matter, what about the bears and other animals that kill salmon?

Kyle: Yeah, and what about the First Nation People? They catch a lot of fish too.

Maggie: Well, for one thing, each of those groups is legally allowed to catch fish. They each have to abide by certain laws and they each have a purpose in harvesting salmon.

Cody: Maybe you guys could explain your reason.

Neil & Kyle: *(Both looking down. They are silent)*

Heather: I think it all has to do with respect. An angler respects the fish because sometimes it has taken him or her all day to land two or three fish. I've read a lot about the First Nation people and they certainly have a lot of ceremonies and traditions about the salmon.

Maggie: Commercial fishers have a healthy respect for the salmon because their way of life depends on there always being enough salmon. They have a lot of money invested in their boats and they spend long hours at sea.

Cody: As for Researchers, I don't think they just kill animals without thinking about it carefully.

Neil: I still say these fish are different - they're going to die in a week or so anyway and no one is going to catch them.

Kyle: Yeah, who'd want to eat them. *(Points at a pair of spawning fish)* They're all tired and battered.

Maggie: But if you kill them they won't be able to lay their eggs. That's what they're here for. And after they've spawned their carcasses are eaten by other animals. It all makes sense. What you guys are doing is senseless. *(With emphasis)*

Cody: The commercial and the sport and the native food fishers all have certain quotas of fish they can catch. Otherwise in a few years there won't be any fish coming back here.

Neil: *(Sarcastically)* Well, well - give the man and his ladies a hand. Great speech.

Kyle: I have to admit you're starting to make some sense. Maybe I should have paid more attention on those field trips Mr. Hargreaves took us on.

Heather: You guys have to look at the BIG picture instead of just thinking, 'oh, today I feel like hucking a few rocks at some old salmon 'cause they make easy targets and they're going to die anyway'. Do you realize that each pair of fish in this river produces about 3,000 eggs? So for every two fish you kill you're actually killing three thousand little salmon.

Neil: *(Looking a little sheepish)* Well, so what are you going to do, arrest me?

Heather: Of course not, but you could be in a lot of trouble with the Fisheries Department.

Kyle &Neil: Back off.

Kyle: Big deal. This is boring anyway. You guys can just stay here and commune with nature. I'm going to the mall. *(Kyle starts walking away).*

Neil: Yea. You're no fun. We didn't come here for a big lecture. Hey, Kyle, wait up! *(Neil walks away.)*

Maggie: Those guys can be real jerks. I wonder if they'll ever understand about salmon?

Cooperative Learning Strategies

The Target

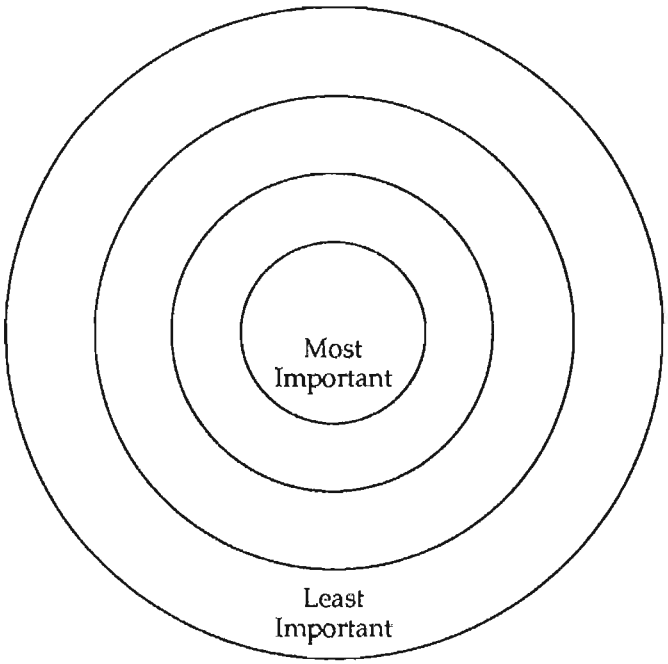
Adapted from the Cooperative Think Tank by James Ballanca, Skylight Publishing Inc. 1990, Palatine, Illinois.

Explain to the students that there are many ways to evaluate or weigh the worth or importance of an idea. Also explain that it is necessary to learn how to build arguments for your idea by using supporting evidence.

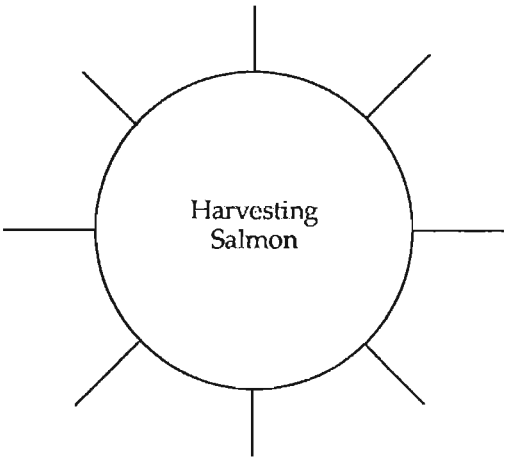
Suggestions for using The Target:

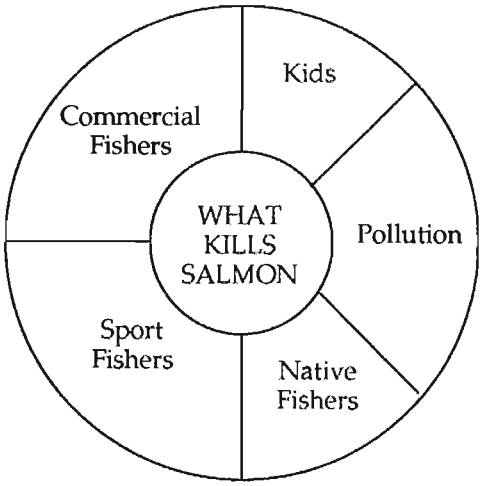
1. Pairs/Teams - after reading the play, have each team evaluate the arguments put forward by the characters as to the validity of the various methods of killing salmon.

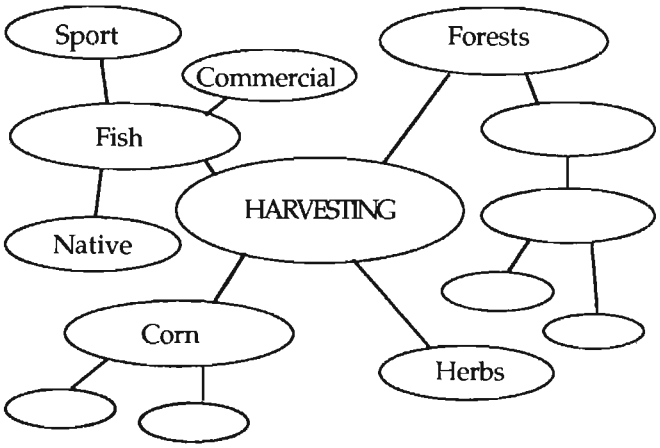
   Who should be allowed to kill salmon?



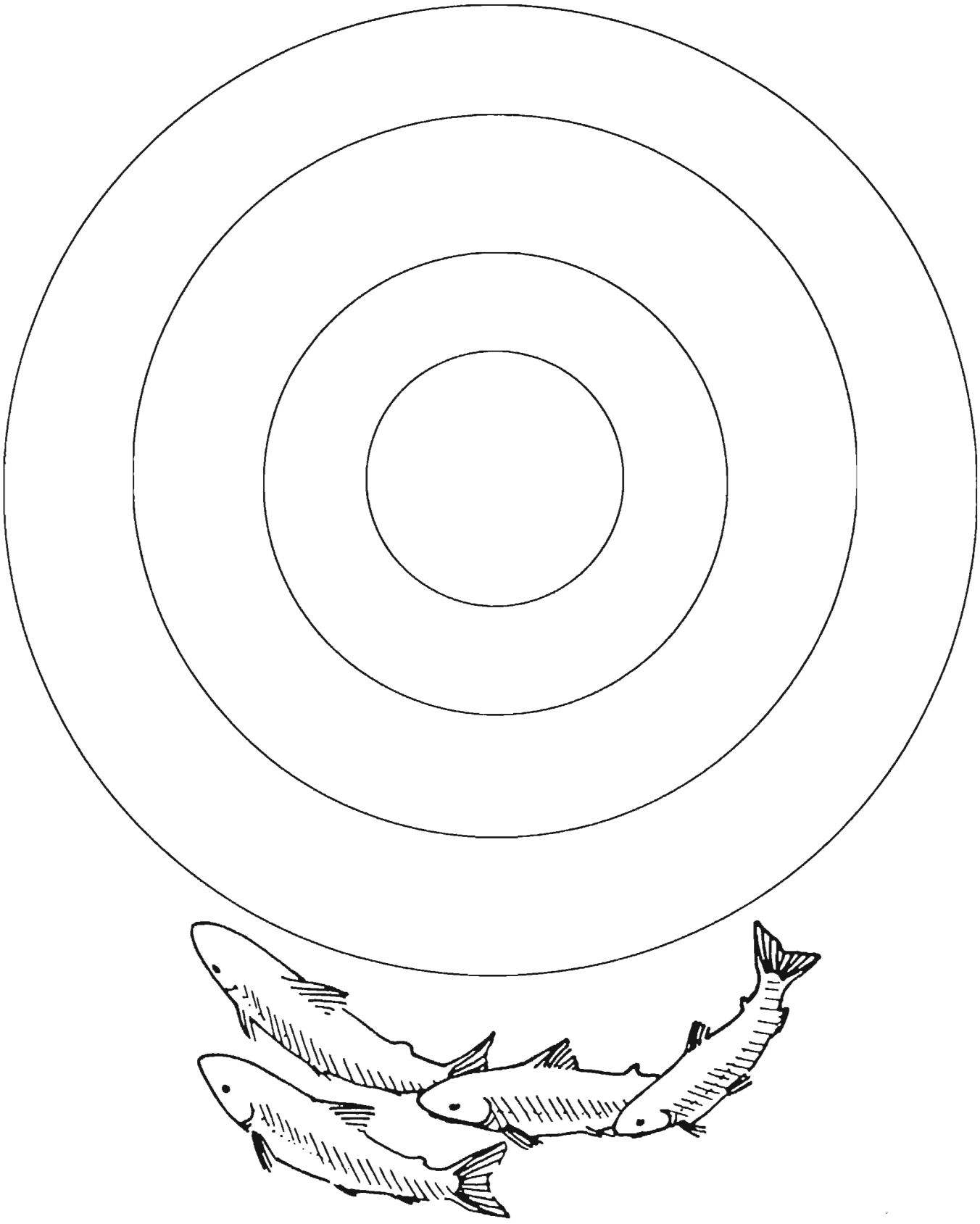
2. Other variations of the Target such as the Mind Map, the Web and the Pie-Chart could be used with the ideas presented in "Harvesting with Rocks".







The Target



The Grid

Adapted from the Cooperative Think Tank by James Ballanca, Skylight Publishing Inc. 1990, Palatine, Illinois.

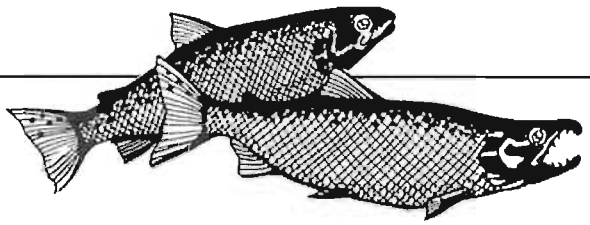
Explain to the students that there are certain fixed elements to any story or play (or movie/T.V. show). There are one or more characters, a setting, a starting point, a conflict and an ending.

Suggestions for using The Grid:

1. After reading the play(s) discuss the role of each character, the setting, the conflict, and the ending. Have the students imagine the play as a continuing sit-com or 1/2 hour drama (soap opera) for T.V. and every week (or every day) they must use basically the same characters and come up with a new story line.
2. Pairs or small groups develop a grid (6 columns may be used). The group members use the characters from "Harvesting with Rocks" or the "Breakfast Club" and develop a new story line for a new play.
3. The new plays could be performed and evaluated.

Good Guy/Girl	Bad Guy/Girl	Friend Good Guy/Girl	Friend Bad Guy/Girl	Setting	Conflict	Ending
Maggie	Neil	Cody	Kyle	School	Throwing rocks	Everyone happy
Heather	Kyle	Maggie	Neil	Creek	Killing salmon	Bad guys transformed
Cody	Neil	Heather	Kyle	Store	Shop-lifting	Bad guy charged
Cody		Heather			Car accident	Good girl hurt
					Drugs	
					Homework	
					Cheat on exam	
					Lying	
					Sneaking out	
					Pollution	

The Grid



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presents

First Nations People: A Trilogy

Part One: 1790 Part Two: 1990 Part Three: 2190

A play about

Place:.....

Date: .....Time:.....

For more information contact:

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First Nations People: A Trilogy - Pre-Post Activities

Synopsis

Three short vignettes involving two children. The first takes place in 1790 as two young First Nations children are awaiting the arrival of the first salmon on the spawning grounds. The second (1990) involves two children, also streamside, who are throwing rocks at spawning salmon. The concluding segment takes place in the future (2190) as two children are visiting a Natural Resources Museum.

Vocabulary:

trilogy	extinct
ceremony	aquarium
defenceless	conscience
exhibit	decline

Suggested Cooperative Learning Strategies

The Fish Bone, located after the play.

Integration with "The Arts"

Music

- Create the sounds of the background using body percussion, voices and found instruments or tape recorder.
- Explore the importance of music in First Nations culture (chants, dancing).

Art

- Illustrate the playbill
- Make a story map.
- Study the work of First Nations artists.
- Recreate the play using shadow puppets or masks.
- Salmon gyotaku.

Drama

- Readers' Theatre
- The Trilogy could be read/staged using the following special effects:
  - Shadow Puppets for Scene I (historical effect)
  - Modern lighting/urban setting for Scene II
  - High tech (robot-like movements and costumes or puppets) for Scene III.

Integration with Other Subject Areas

Language Arts

- Read the "Ceremony of the First Salmon" page *. (Teacher read or jigsaw reading by students.)
- A new NFB film "The Salt Water People" gives an updated perspective on the First Nations involvement in managing the fishery.

Social Studies

- The involvement of First Nations people in fishing in B.C. is very controversial. There are several "landmark" decisions still before the courts. Students should collect newspaper articles and editorials, interview politicians and then prepare a class debate: Should First Nations people be allowed to sell the salmon they catch?
- Invite someone from the local First Nations Band to come and speak to the class.

For other salmon related information and activities (all subject areas) check with Salmonids in the Classroom (Primary and Intermediate). Available through BCTF Lesson Aids.

First Nations People: A Trilogy

Part One

Setting:

It is the year 1790. In a wooded area near a river two First Nations children are on the banks of a river. Person II is older than the other child.

Person I: What are you doing?

Person II: I'm watching for the first salmon to come up the river.

Person I: Why?

Person II: The first salmon is important.

Person I: Why is the first salmon so important?

Person II: Because every year we must watch for the first salmon that swims upstream to our village.

Person I: Why?

Person II: Because we must treat the first salmon especially well.

Person I: Do you catch the first salmon?

Person II: Yes, but before we catch him we offer him a prayer. We say to him:

"O Supernatural one. O swimmer. We thank you that you are willing to come to us. Don't let your coming be bad, for you come to be food for us."

Person I: Why do you do this?

Person II: Because every animal has a spirit. We must show respect for the animal and his spirit. We have a ceremony to show our respect. If we treat the first salmon with respect he will tell the other salmon that this is a good village and the other salmon will come. We want many salmon to come to our river. We need them for our Ceremony.

Person I: What ceremony?

Person II: The Ceremony of the First Salmon.

Person I: What's that?

Person II: It's an important feast. We depend on the salmon. We do not want to take the salmon's coming for granted.

Person I: Why?

Person II: Because if many salmon come we will have much food for the winter. If few salmon come, many of our people will be hungry.

Person I: Will you catch all the salmon that come to our river?

Person II: No. We will catch what our villagers need. We will smoke many salmon. They will keep us full all winter. We will not catch all the salmon.

Person I: Why not?

Person II: If we catch all the salmon this year there will be no salmon the next year. We must let many salmon lay their eggs. We must keep our rivers clean so that the salmon will want to return to us for many years.

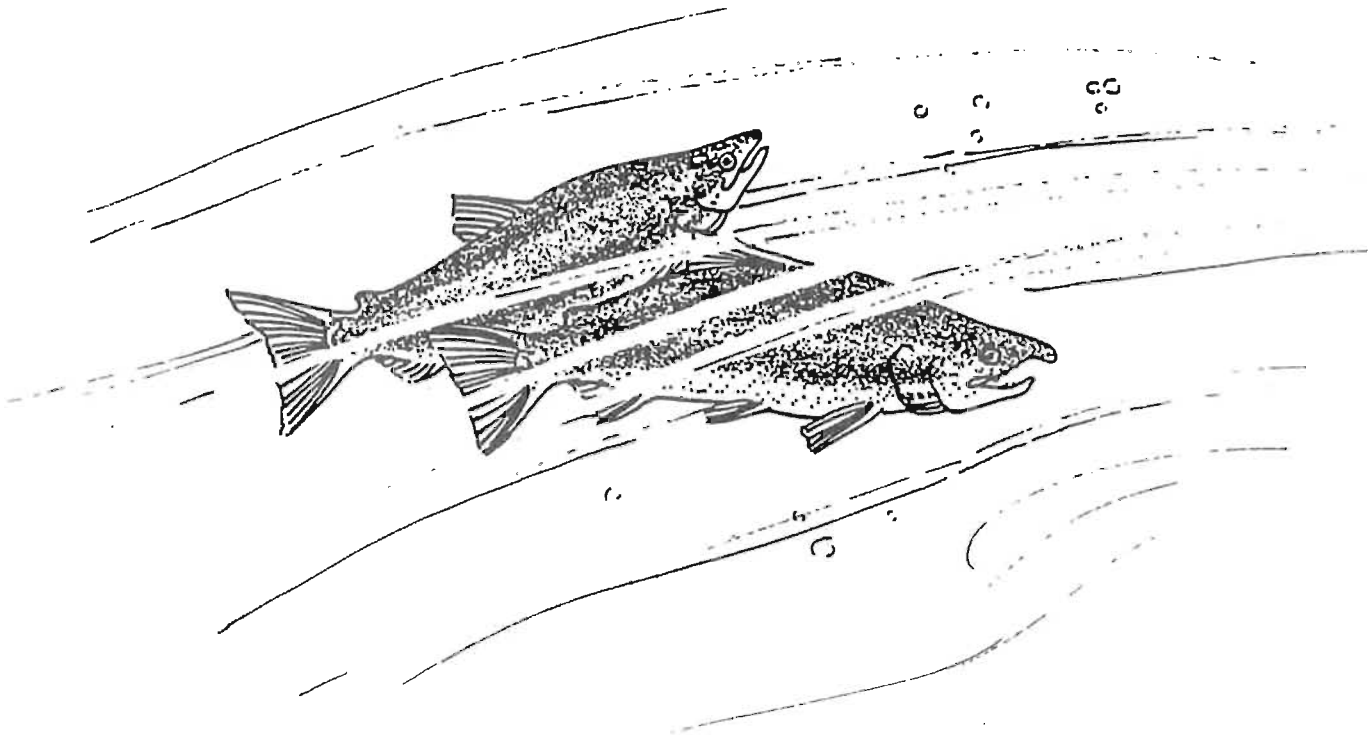
Person I: Who do the salmon belong to?

Person II: The salmon do not belong to anyone. We belong to the salmon. All things in nature are connected. Whatever happens to the salmon, happens to us all. We are all part of the web of life. If we destroy the salmon, we destroy ourselves.

Person I: May I help you watch for the first salmon?

Person II: Will you treat the salmon with respect? Will you teach your children to respect the salmon and the water and the earth?

Person I: I am young now but I will remember this day. I will remember to teach my children about the first salmon.



Part Two

Setting: *It is the year 1990. Two pre-teenage children are standing on the banks of a river.*

Person I: Hey, I hit a big one.

Person II: What are you doing?

Person I: What does it look like?

Person II: It looks like you're throwing rocks at some old, tired salmon that are just minding their own business.

Person I: So what - it's fun!

Person II: They are only a few defenseless fish. It doesn't look like much fun.

Person I: Well, it used to be more fun 'cause there used to be lots more fish in here. I wonder how come there are only a few this year. See if you can hit one. *(Pause)* Come on, or are you one of those animal rights types? Or maybe you just can't throw straight. Maybe you're afraid some fish cops will arrest you.

Person II: (Picking up a rock). There, I hit one too.

From Offstage - through a megaphone, long paper tube or cupped hands.

Deep Voice: THERE USED TO BE HUNDREDS.

Person II: What'd you say?

Person I: I didn't say anything. Hey, I hit another one - that big one over there. Why don't you try again.

Person II: *(Picks up a rock - but hesitates to throw)*

Person I: Well, are you just going to hold that precious rock? Maybe you just lucked out the first time.

Person II: *(Throwing the rock)* There, I hit another one of your stupid fish.

From Offstage:

Deep Voice: THERE USED TO BE HUNDREDS.

Person I: Yeah, yeah, I know.

Person II: Know what?

Person I: That there used to be hundreds. I wish there were hundreds now, it'd be more fun. What I'd like to know is where did they all go?

Person II: Don't ask me. I guess somebody caught them all.

From Offstage:

Deep Voice: HUNDREDS AND HUNDREDS OF SALMON USED TO SPAWN HERE.

Person II: Hey, who's there.

Person I: Yeah, come on out whoever you are.

From Offstage:

Deep Voice: SO MANY SALMON. ENOUGH FOR EVERYONE. NOW ONLY A FEW.

Person I: This place is giving me the creeps.

Person II: (Looking around) I'm going to find out who's trying to scare us. Hey you, come out here.

From Offstage:

Deep Voice: USED TO BE LOTS FOR EVERYONE. NOW THERE ARE ONLY A FEW.

Person I: Maybe we'd better get out of here. There's plenty of weirdos around.

Person II: It sounds like it's coming from the water.

From Offstage:

Deep Voice: HELP THE SALMON. LET THEM SPAWN SO THERE WILL BE HUNDREDS AGAIN.

Person I: What'd you say?

Person II: I didn't say anything.

From Offstage:

Deep Voice: USED TO BE HUNDREDS. NOW ONLY A FEW.

Person I: Huh, What'd he say?

From Offstage:

Deep Voice: TREAT THE SALMON WITH RESPECT AND THEN MORE WILL COME.

Person I: Hey, you know it's time to go do your homework when the water starts talking to you. I'm outa here. Are you coming?

Person II: Yeah, in a minute. I just want to see if the Phantom of the Stream has anything more to say. Maybe we disturbed some kind of fish god when we killed those salmon. I bet lots of kids chuck rocks at these salmon. That's why there are hardly any salmon in this stream.

Person I: Maybe. Maybe. Maybe you shouldn't be listening to strange voices.

Person II: Or maybe I should have listened to a familiar voice a while ago.

Person I: What familiar voice?

Person II: This one. *(Points to own head)*

Part Three

Setting: *It is the year 2190. Two young people are looking at exhibits in a museum.*

Person I: What's that?

Person II: It's a salmon. Well, I should say, it's a model of a salmon.

Person I: What's a salmon?

Person II: A salmon is an extinct species of fish. Hundreds of years ago they used to be very plentiful. In the late part of the last century their numbers started to decline. My father told me he once saw three in an aquarium, and my dad's brother swears he even saw one in a river. But now there are only models.

Person I: Looks kinda neat. I wish I could have seen a real one. I wonder why they became extinct?

Person II: Oh, probably some natural disaster wiped them out.

Person I: Too bad. *(Moving to next exhibit)* What's that?

Person II: It's a tree. Well, it's a model of a tree.

Cooperative Learning Strategy

The Fish Bone

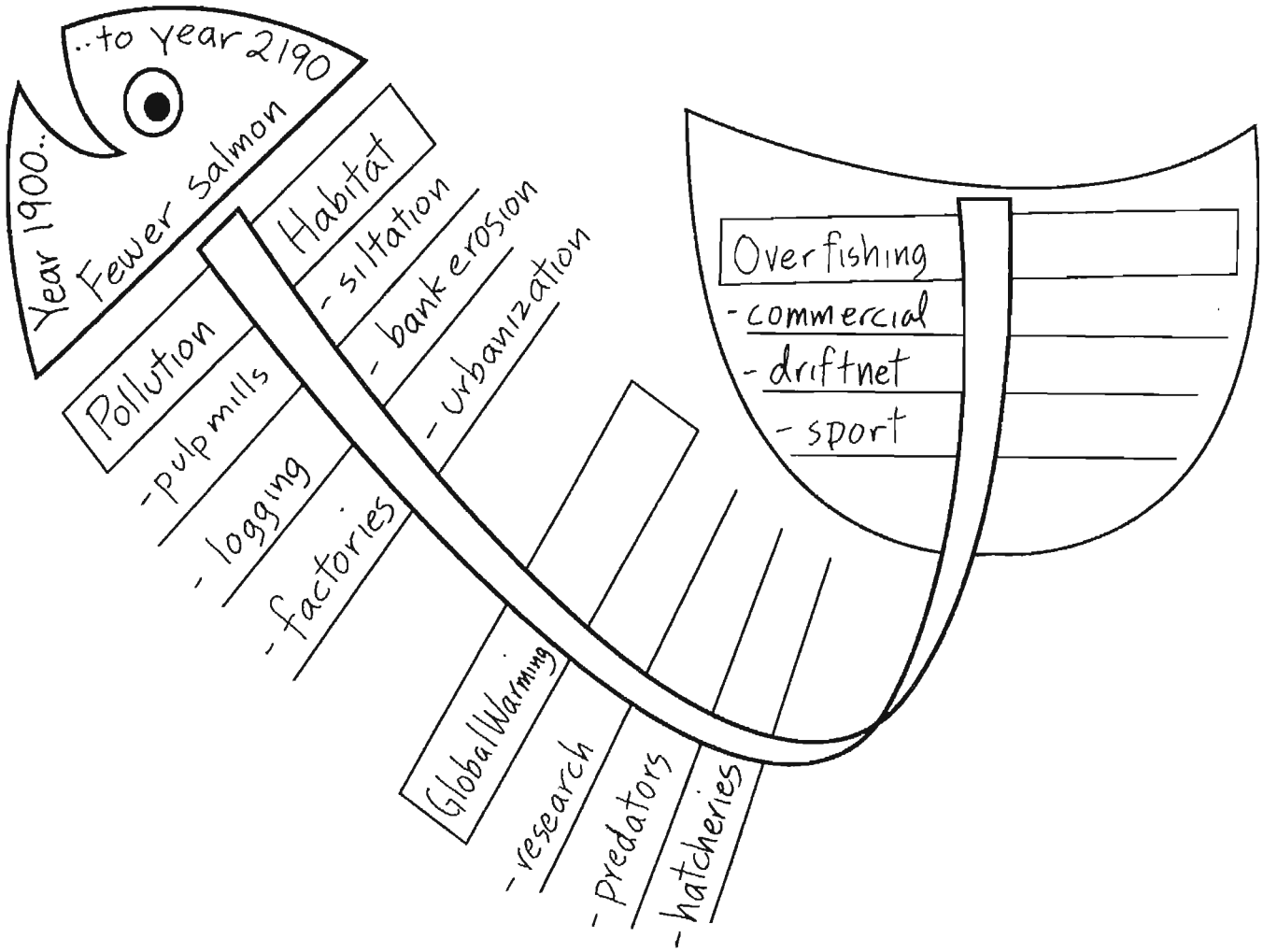
Adapted from The Cooperative Think Tank, by James Bellanca, Skylight Publishing Inc., 1990, Palatine, Illinois

Explain to the students that the Fish Bone is used in problem solving situations.

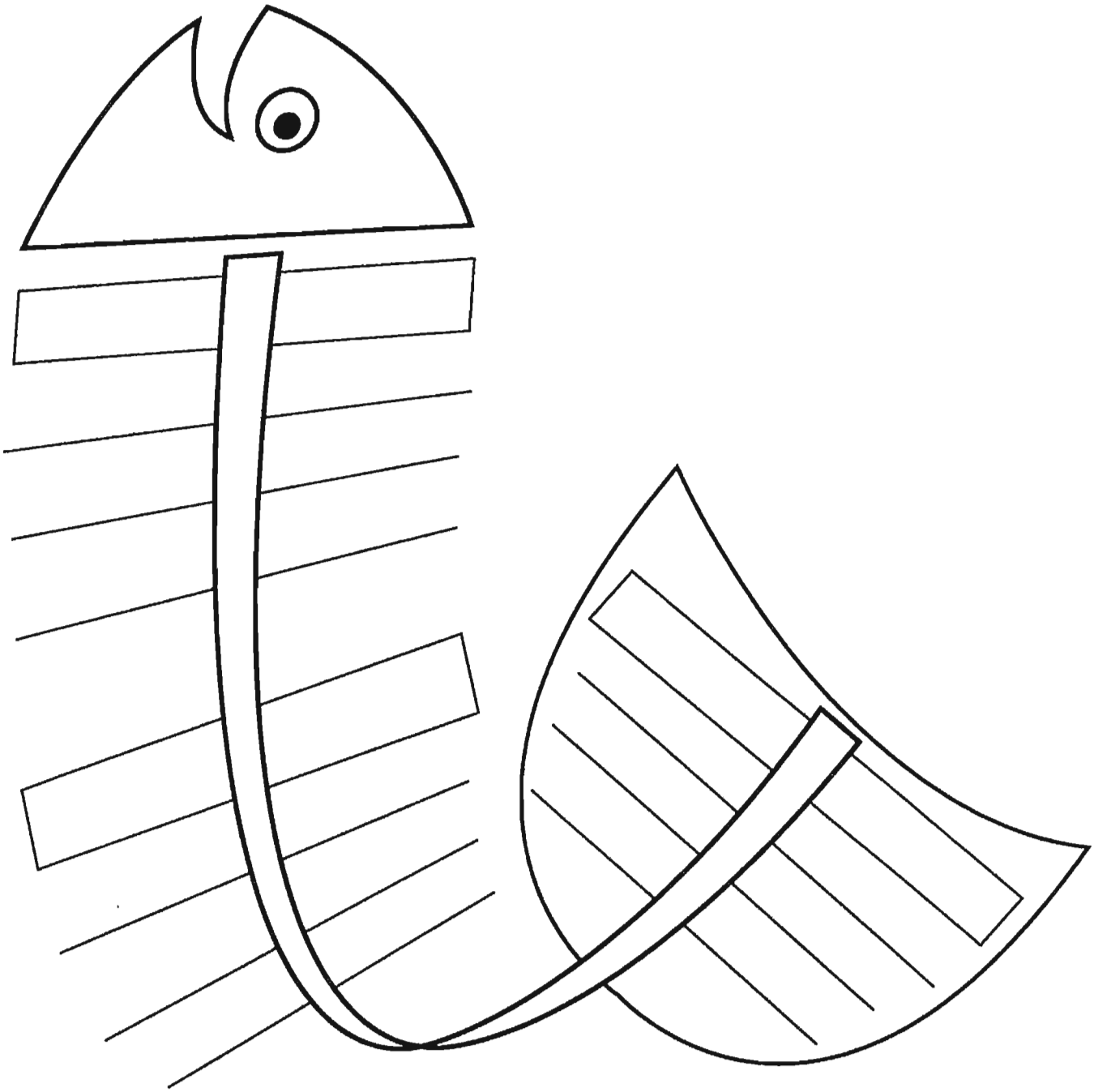
Suggestions for using the Fish Bone:

1. After reading the play(s) identify the effect/ problem.
2. Establish the main categories.
3. Brainstorm for causes under each category.
4. Rank the causes (individuals or pairs).
5. As a class establish the final rank order of causes.

The following is only a sample. There should be no "correct" structuring.



The Fish Bone



The Ceremony of the First Salmon

On a wooden platform, suspended from the canyon walls the fisherman stood with his net. Ice still floated on the river, but an early sun was shining. It was time for the salmon people to come.

The fisherman had made the hoop of his net from vine maple sapling, steam-bent to an oval. His wife had woven the mesh from spun nettle fibres. Now he dipped the net into the water, patient and intent. Nearby a small boy watched and waited.

Today the fisherman thought it might happen. But if not today, certainly soon. The salmon came each year, making their journey from Salmon Country at the unknown edge of the sea, swimming upstream in the narrow inlet, through the river along which the villagers lived.

All through the winter they lived on last year's catch of dried smoked fish. Now there was little left. When the salmon returned there would again be abundance. There would be feasting in the villages, followed by weeks of work to preserve supplies for the next winter.

The salmon would arrive, but this year as always, powerful forces had been invoked to make their coming even surer. Twins, born with the power to summon the fish, had come to the river to call them. The shamans, men endowed with supernatural powers, had seen, in visions, the salmon making their journey. The shamans said they would arrive soon.

The right to take the fish from this place on the river belonged to these villagers. It had been their birthright since the very beginning of things; since Raven created the earth, stole the sun, moon and stars from a chief's wooden chest and flying into the sky, brought light to the world. It was the same Raven who had put the salmon into the sea.

The boy came down to the river's edge. He had been eating the sweet tissue from under the hemlock bark and he wanted to share it with the salmon who must surely like it too. The boy rolled pieces of the inner bark into balls, stuck feathers in them and let them float down the river.

Suddenly the fisherman's net jerked. Shivers ran up the wooden shaft as he swung the net upward from the water. Leaping and twisting in the mesh was the chief of the Spring Salmon - leader of all others - but, silver-wet and shining.

The spring salmon were here!

The boy raced back to the village with the news, and immediately preparations began for the Ceremony of the First Salmon. For until the Ceremony had been completed, no more salmon could be taken.

Four shamans came to the fisherman's platform, carrying with them the paraphernalia of the Ceremony: a new cedar-bark mat, the down of white birds, red ochre, and an eagle's tail.

The chief shaman performed a mystic rite over the writhing salmon. Using an intricately-carved club, he killed it with a single blow. Now the face of the fisherman who had caught the first salmon was painted with red ochre.

It was time to bring the salmon to the village. Reverently it was lifted and laid on the mat, its head pointing upstream so that the other salmon would follow the same way. The white down, a symbol of friendship and welcome, was sprinkled on the river.

The mat was lifted by its four corners and carried slowly back to the village, the chief shaman leading the way, shaking his rattle with his right hand, swinging the eagle tail with his left.

The news had flashed through the village and people rushed forward to meet the procession, as it moved toward the house of the chief. This was the place of welcome for all honoured guests. It was a large and sturdy house, built of thick cedar planks. A tall pole stood in front, carved with crests showing the Chief's noble lineage and power. At the top a carved wolf surmounted the winged image of an eagle. At the bottom, the figure of a bear formed an entry way into the house.

Before the salmon could be taken into the house, it had to be purified. Anyone who had been closely connected with birth, death, and puberty, had to leave. Such people, considered unclean, might offend the fish and thus cause the run to stop.

The procession entered the darkened hall in a single file, the shamans leading the way, the fishermen following. Smoke rose lazily from a fire on the floor, passing upward through a smokehole in the roof, through which a single shaft of spring sunlight slanted to the ground.

The salmon was transferred to a large cedar plank. Now all the shamans of the village assembled in the house, dressed in a variety of ceremonial regalia: leggings, decorated dance aprons, necklaces of pendant bones and headdresses of bear's claws.

Next came the procession of the village people with the very old leading the way. Finally the salmon was encircled.

The singers began their hymn of welcome. Four times the shamans marched around the salmon. Drums throbbed, rattles of shells and deer hooves were shaken and the celebrants danced to the beat. The music ended. Everyone sat down behind the fire, each person taking his or her place according to rank.

It was now very quiet in the house. The sightless round eyes of bears carved into the massive corner posts of the house stared down at the ceremony. The flicker of the flames illuminated the curved image of the killer whale painted across a great wooden screen that set the chief's quarters apart from the rest of the house. Around the celebrants, rich furs, carved painted storage chests and spruce-root baskets of the chief lined the walls.

The voice of the highest ranking guest broke the silence. "Oh Supernatural one! O Swimmer! I thank you that you are willing to come to us. Don't let your coming be bad, for you come to be food for us. Go home and tell your friends that you had good luck on account of coming here, O Friend, O Swimmer."

There was a pause. Time now to cut the salmon. Two very old women shamans came forward - these tasks were always done by women.

The naming was a form of high compliment to the honoured guests. The names carried high social privilege and prestige.

So one of the women shamans spoke: "My dear Chief Spring Salmon, named Quartz Nose, named Two Gill on Back, named Lightening Follow One Another, named Three Jumps."

The names were well-chosen. Each was a tribute in itself. Great honour was bestowed on the salmon. The women took up their knives, special instruments made of mussel, shell - for to use the usual knives of stone for this purpose would be an insult to the guest, bringing thunderstorms and disaster. With great care, and in the prescribed manner, they cut the fish open and it was roasted slowly over the fire.

When it was done, fresh new mats were laid. The salmon was placed on them and each guest ate a portion. Afterwards, they drank fresh water and wiped their hands on finely shredded cedar-bark.

The fisherman's wife brought forward a new, unused mat. She gathered up all the bones of the salmon, and its intestines, and took them to the river's bank and threw them into the water. The villagers knew that this would cause the salmon to instantly return to life and that he would swim back to his people in the Spring Salmon Country.

The Ceremony of the First Salmon was over. Now the men of the village could fish, filling their nets. But while they fished, they took care to respect the many taboos pertaining to the salmon; doing nothing that might offend the salmon and cause them not to return.

For they knew the Salmon to be a creature of value and the means of the sustenance. To assure its continued abundance and its yearly return, respect was necessary.

.....

presents

How Raven, Eagle, Mink and Coyote Brought the Salmon Back

A play about

Place:.....

Date: .....Time:.....

For more information contact:

.....

How Raven, Eagle, Mink and Coyote Brought the Salmon Back - Pre-Post Activities

Please note: This "legend" was written (1993) as a response to the overwhelming requests by teachers to include a scripted legend. It is in no way authentic but, hopefully, will serve as an example of how a traditional theme can be adapted to a script format.

Synopsis:

Four supernatural beings (Raven, Eagle, Mink & Coyote) common to many Northern American Native Indian legends have been used to "create" this non traditional tale about traditional First Nations values and the conservation ethic.

Vocabulary:

respect feast
Shaman

Suggested Cooperative Learning Strategy:

Agree/Disagree Chart , located after the play.

Integration with "The Arts":

Music

- Create a rap song for the return of the salmon which would be used each time the characters return to the Chief.
- Have students create instruments from natural objects (pre-contact time).

Art

- Changing shapes - in pairs. One person draws an animal (person, object) and passes it to the other person to change into something else.
- Salmon print art (gyotaku).
- Illustrate the legends located after the play.

Drama

- Readers' Theatre.
- Identify times of the day with signs (morning, afternoon, sundown). As time passes have signs indicate passage.
- Create a greeting (bow in a certain way or do a hand clap in rhythm).

Integration with Other Subject Areas:

Language Arts

- Read one or two First Nation legends to the class. Brainstorm for "criteria for a legend" (i.e. usually animals involved, usually groupings of 4, usually animals have supernatural powers, usually a lesson is taught). Have the children write their own legends in pairs.
- Read the two legends ("Fog Woman's Gift" page * and "Mink Marries Salmon Woman page *) and then have students write them as scripts (playbuilding).
- Oral storytelling traditions are common to many cultures. Discuss their value (education, entertainment).
- Discuss the place and importance of animals in different cultures (economic, religious, social).

Social Studies

- The historical importance of the salmon to First Nations people is explored in many resources). (Hilary Stewart has several books.) A new NFB video "Salt Water People" is also available.

The Ministry of Education's First Nations Curriculum is being prepared (1993). Nine curricular intentions are articulated.

For other salmon related information and activities (all subject areas) check with Salmonids in the Classroom (Primary and Intermediate). Available through BCTF Lesson Aids.

How Raven, Eagle, Mink & Coyote Brought the Salmon Back

Act 1

Characters:

Narrator 1	*Narrator 2*
Coyote	*Mink*
Raven	*Eagle*
Chief	*Shaman*
Child One	*Child Two*
Old Woman	

Narrator I: Long ago, in the early days of the world when people and fish lived in peace and friendship, many animals could change shapes and forms. They could take the shape of a star or a canoe, or they could be a bear one day and an eagle the next. The most clever of animals were Coyote, Raven, Mink and Eagle.

Narrator 2: One day, Mink, Raven, Coyote and Eagle decided to live among people for awhile and so they changed themselves into four handsome and strong warriors. They walked and walked and by nightfall they arrived at a village.

Enter Coyote, Raven, Mink & Eagle.

Coyote: Here is where we will stay. I am too tired to go further.

Mink: Yes, brother. Let us see if the Chief will show us kindness.

They walk up to the fire where the Chief of the Village is sitting.

Raven: O Chief of this village. Come out and greet four friends.

Enter Chief, followed by Shaman.

Chief: Greetings. Who are you and what do you want?

Eagle: We are four brothers. We ask for permission to stay in your village.

Chief: Ah, but anyone living in the village must contribute by helping and sharing. What will you and your brothers do?

Coyote: We will bring salmon back to your streams.

Shaman: We have not seen salmon in our waters for a long time. Our river is without the one we call "Swimmer".

Raven: If you do as we say, your people shall have many fish in their rivers.

Chief: My people are hungry. I should like to see them full and happy.

Shaman: What must the villagers do?

Mink: Tomorrow, have four of the village men take four nets and go to the river. When the sun stands in the middle of the sky, four giant salmon will swim upstream.

Eagle: Catch these fish and take them back to the village. Cook them and eat them, but be sure to save all the bones.

Raven: Under the light of the moon, take all the bones to the river and throw them into the water. If you do this, the salmon spirits which live in the water will return as whole salmon.

Shaman: We shall do as you say.

Chief: You may sleep in our village tonight.

Coyote: We thank you.

Curtain

Act II

Evening next day. Villagers feasting around the fire.

Old Woman: What a feast. I have not tasted salmon for a long time.

Child #1: Each fish was as big as a canoe.

Chief: It was exactly as the four brothers promised.

Shaman: I have not seen the four brothers since morning.

Chief: Perhaps they went hunting. (*Pause*) Do not forget to keep <u>all</u> the bones, we must return them to the river.

All the villagers, except one young boy, go down to the river and throw the bones of the salmon into the water. The young boy remains behind. After the villagers have gone he takes a bone from his pouch. He flicks the salmon bone with his finger and watches it vibrate.

Curtain

Act III

Next day, morning Chief and Shaman sitting in the village gathering place.
Enter Coyote, Raven, Eagle & Mink.

Chief: Greetings! You were missed last night.

Coyote: We were in the forest.

Shaman: *(Rises: approaches Mink)* Brother, why do you look as if you are asleep?

Mink: I have lost my eyes.

Chief: How did that happen?

Mink: They were not returned to the river.

Shaman: Your words are strange.

Eagle: Did you feast last night?

Chief: Yes.

Raven: And you will again tonight?

Chief: Yes.

Coyote: Be sure all the bones are returned to the river.

Chief: As you wish.

Raven: My brothers and I are going to the forest again. Remember our words and your promise.

Exit four brothers.

Chief: They speak in puzzles.

Shaman: I feel they are not ordinary men.

(Shouts and cheers from villagers offstage)

Chief: The fish have been caught. Let us prepare for the feast!

Exit Chief & Shaman.

Act IV

Next day - morning. Chief and Shaman at the village gathering place.Enter four brothers.

Chief: Greetings.

Coyote: Greetings.

(Shaman rises - approaches Eagle).

Shaman: Brother, unclench your hands.

Eagle: I have lost my fingers.

Chief: How is this so?

Eagle: They were not returned.

Raven: Someone did not give the salmon bones back to the river.

Chief: Perhaps one or two were forgotten.

Coyote: They must be returned to the water.

Enter little boy. He is carrying a comb made of fish bones. He runs his finger along the rungs and it makes a noise. He smiles and approaches the group.

He holds the object up to Mink.

Child 1: Look, pretty.

Mink: I cannot see.

Boy walks over to Eagle.

Child 1: *(Touching the comb)* Tough, prickly. *(He extends the comb to one of the brothers.)*

Eagle: I cannot feel.

Boy, disappointed, walks over to Coyote. Coyote bends down.

Coyote: So, you have kept some of the salmon bones, little one.

Boy continues to stare.

Raven: They must be returned to the river.

Boy clutches comb to his chest.

Coyote: (*Gently*) They do not belong to you, young one. They are part of the salmon spirit. The salmon needs them back. He is blind. He has no fins. You must make him whole again.

Hesitating, the Boy looks at the comb then slowly hands it to Coyote.

Coyote: Thank you. All the bones must be returned to the river.

Exit four brothers into the river.

Act V:

Next day. In front of the Chief's house. Villagers talking together. Enter four brothers.

Chief: Greetings.

Raven: Greetings.

Shaman: (*Points at Mink & Eagle in wonder).* Brothers, your sight and touch have been restored!

Mink: Yes, our senses have been returned.

Eagle: We are whole once more.

Coyote: We have come to say good-bye. Our time has come to move on. We must leave the village in the forest.

Raven: But we do not leave without giving a gift. From now on salmon will once again come to your river.

Mink: Instead of four there will be many.

Eagle: They will return in great numbers each fall so that you will have food all winter.

Coyote: This is our gift to you.

Raven: As long as you return to the river that which belongs to the river the salmon will come to your water. The water and the salmon belong to everyone. The salmon will return if you show respect.

Chief: Thank you Brothers. You have done much for our village.

Shaman: Thank you Brothers. We have learned to return what is not ours to keep.

Coyote: Nature is generous, but it is wise to respect her wishes.

Raven: And now it is time to return to our mother. Good-bye.

Exit.

Cooperative Learning Strategy

The Agree/Disagree Chart

Adapted from The Cooperative Think Tank by James Bellanca, Skylight Publishing Inc., 1990, Palatine, Illinois

Explain to the students that this technique is used to evaluate issues and ideas and emphasize a point of view. They will be able to organize data to support a position for or against an idea.

Suggestions for using The Agree/Disagree Chart:

1. Pairs/teams - after reading or dramatizing the legend students come up with several statements about the legend.
2. Consensus is not necessary. Having, supporting and respecting a point of view is the important process in the activity.

Statement	Before		After	
	Agree	Disagree	Agree	Disagree
1 No one can "own" a resource.				
2 Legends teach a lesson.				
3 Animals may have special powers.				
4				
5				
6				

The Agree/Disagree Chart

Statement	Before		After	
	Agree	Disagree	Agree	Disagree
1				
2				
3				
4				
5				
6				

A Legend: Fog Woman's Gift

by Joan Skogan

In the time when animals and people were still close to one another, Raven was the trickster-hero of the north coast. Raven brought light to the world by tricking the Chief at the Head of the Nass River into giving him the box in which the Chief hid the daylight, and the moon that he hung on his wall. This is the story of how Raven himself was fooled, yet once again found something of great value for the people of the coast.

Raven and his slaves Gitsanuk and Gitsaqeq made a camp at the mouth of a fast flowing creek, and when they were finished Raven said, "Tomorrow, we fish for winter food." At first light, the slaves paddled their master's canoe into the bay and Raven baited the lines with mussel and abalone. Raven fished for cod; he fished for sole, and he fished for halibut. But all he caught was bullheads. The slaves kept silent as Raven grumbled and cursed at his bad luck. "We return to camp, " he ordered and Gitsanuk and Gitsaqeq took up their paddles. The canoe had drifted as Raven fished, and now fog smothered the sea and the far away beach and they were lost. Then, a strand of hair brushed Raven's face. He turned and beside him in the canoe was a woman whose long hair clouded about her shoulders and seemed to dissolve into the mist. The slaves stared at her and even Raven could not speak.

Smiling, she said to him, "Give me your hat," and she held the hat over the left side of the canoe and the fog streamed into it until the sun shone again. They saw their way clearly and by the time they reached the camp on the creek, Raven knew he wanted Fog Woman for his wife.

So the four made preparations for winter together, and Raven planned another fishing trip. This time, he took only Gitsaqeq with him and left Fog Woman in camp with Gitsanuk. Raven and his slave were away so long that Fog Woman at last said to Gitsanuk, "I am hungry. Fill the water basket at the creek and bring it to me."

Wondering, he did as she asked and set the basket before her. She dipped her finger into the water and said "Gitsanuk, pour this water into the sea." As the water streamed out, a sockeye salmon leaped from the basket. Fog Woman gave Gitsanuk a wooden club to kill the fish, and she cleaned it and propped it on green sticks by the fire. The two of them ate that whole fish, and when their hunger was satisfied Fog Woman said, "Tell no one of this - and Gitsanuk! - clean your mouth, so no one will see we have eaten." But when Gitsanuk ran down to the beach to pull up the canoe for Raven and Gitsaqeq, one silver scale shone on his chin.
"What is that?" demanded Raven.
"Nothing," mumbled Gitsanuk, rubbing his face. "We ate the last Bullhead."
"No bullhead has scales like that," snapped Raven and his eyes glittered with power and greed. "Fog Woman!" he shouted, and his wife came to him. Because Raven could discover all secrets, and because she loved him well, she showed him her power.
"Bring me your hat full of water from the creek," she said, and Raven's belly growled with hunger as he scooped the water into is spruce root hat. She dipped four fingers into the water. "Now pour it out," she instructed, and four big sockeye flopped on the ground. Again, Fog Woman fastened them to sticks and barbecued them, and she and Raven and the two slaves feasted on the rich fish.

"Now," said Raven when his belly was round and full, "make more of these fish, enough for the winter."

"You must build a smokehouse first," answered Fog Woman. "My fish are valuable and must be cared for and not wasted."

Raven ordered Gitsanuk and Gitsaqeq to make a smokehouse from cedar planks, and when it was ready they brought Fog Woman a full water basket. She knelt and washed her hair in the water. "Empty this water into the creek," she said, and instantly the creek was alive with leaping silver bodies. Raven stood on the bank and speared the fish, and the slaves waded into the water and caught them with their hands. Before the first snow fell, the drying racks in the smokehouse were full and many more sockeye were stored in cedar boxes. The camp by the creek was ready for winter.

The days grew short, dark and cold and Raven began to boast of his good fortune. By secret means, he sent messengers around the north with news of the winter food. Raven was much envied and no one but his slaves knew that the fish he called his were the result of Fog Woman's power. Raven was careless with his words even to his wife. "I shall return to my father's faraway

home if you will not respect me," she warned, but Raven did not change towards her. One day he struck Fog Woman. She turned away from her proud husband and took out her bone comb. As she combed her long hair the strands blew away about her face in the rising wind and the dead fish in the smokehouse stirred.

The wind rose to a moaning sigh and Fog Woman walked towards the sea. Raven called her name and tried to hold her, but she slipped through his hands and disappeared into the fog. He covered his face with his hands in shame and every salmon on the drying racks and in the boxes rolled past him after Fog Woman. The sockeye entered the sea, flashed silver again, and were gone.

Raven slumped by the fire and his heart was heavy at the loss of Fog Woman. Long before the time of everything sprouting, he and Gitsanuk and Gitsaqeq ached with hunger, and many times they ate bullheads. But the following summer when the warm days and cool nights made fog again, the sockeye returned to the creek. And though Raven took as many fish as he needed, he left others to travel further up the creek and leave their eggs to make certain more sockeye would come back the next year. He never again called them his fish. So, Raven was humbled by his own foolish pride and the northern people received one of their greatest gifts.

NOTE: Fog Woman's Gift is a Tlingit legend, told by the people who lived north of the Nass River on that part of the coast now called the Alaska Panhandle. The story of the woman who made the first salmon is common to several coastal Indian groups. For the Kwatkiutl people of the central coast, her name was Salmon Woman and her husband was Mink, who, like Raven, was both proud and foolish. Fog Woman's daughters, according to the Haida of the Queen Charlotte Islands, are the Creek Women who live at the head of the streams and entice the salmon home.

A Legend: Mink Marries Salmon Woman

by Joan Skogan

Long ago, in the time of the Kwatkiutl myth people, when some of the animals were still human, Mink decided to find a wife. He considered all of the creatures, but he couldn't decide who would make the best mate until one morning, at the end of the summer, he walked down to the banks of the great river, and saw the first salmon resting in the shallows of clear water.

Amazed by her strength and silver beauty, Mink knelt beside her, and asked her to be his wife. Salmon consented, and changed herself into a woman; she and Mink lived together in his cedar house.

All went well for them until the following winter, when famine came to the village of the myth people. The dried halibut and shellfish and berry cakes were gone. The painted cedar storage boxes were empty, and the seal hunters returned from the hunt with no meat. The children whimpered in their sleep, and winter was still long before the people, when Salmon Woman sat by the fire one night, with her long black hair gleaming in the firelight just as her scales used to shine in the sun.

Mink sat beside his beautiful wife, and she smiled at him and daintily picked her teeth with a cedar splinter. After a time, she said, "Mink, will you fetch some water?" And Salmon Woman threw tiny pieces of flesh from her mouth into the water, and a salmon appeared.

"You must kill and cook the salmon", said Mink's wife, "I cannot, for it is my own flesh". All the people of the village ate, and their hunger was satisfied. And when Salmon Woman said to them, "Throw the fish bones into the fire". They did as she wished.

Mink pleaded with Salmon Woman to make more of the splendidly rich fish, and at last she agreed. They walked together to the great river, and Salmon Woman waded out to where the water begins to rush and deepen. She bent over until her long hair fell forward, and she pulled her hair four times against the current. The river filled with leaping silver salmon, and the people came and took what they needed, and the famine was no more.

The glory of the salmon harvest made much power for Mink, and he became a great chief. In time, he forgot that his supernatural wife had caused the salmon to come, and his heart grew proud. Once, in a temper, he beat Salmon Woman, and she cried out to him, "Never do that again. I am not one of your people, and I will not tolerate this from you". Mink rushed out of their house, brushing by the rack of drying salmon at the door. Several of the fish caught in his hair, and he pulled at them impatiently until they fell to the ground, and were trampled into the dirt.

This disrespect for her people angered Salmon Woman. She ran to the river and dove into the water and became a salmon again. Salmon Woman never returned to Mink, but the salmon come back to the rivers and streams every year, and sometimes even now the Kwatkiutl people still put the bones of the first sockeye into the fire.

.....

presents

The Breakfast Club

A play about

Place:.....

Date: .....Time:.....

For more information contact:

.....

The Breakfast Club - Pre-Post Activities

Synopsis:

Seven young people (whose parents are attending an environmental conference) gather in a hotel lobby to wait for the hotel's tour guide. While they are waiting, the students strike up a conversation centering around the same issues their parents are addressing - B.C.'s natural resources and how they should be "managed".

Vocabulary:

natural resources	conspicuous
seine net	controversial
economic	pediatrician
radical	sustainable

Suggested Cooperative Learning Strategy

The Ranking Ladder, located after the play.

Integration with "The Arts"

Music

- Have students choose a song about the environment and have it playing quietly in the background (or use any "elevator" music background music to create hotel atmosphere).

Art

- Make a large banner entitled "The Citizens Think Tank".
- Make other signs depicting various locations in the hotel (restaurant, front desk, bellman's desk).
- Make a large map of B.C. showing the various places the students are from. (Student name and picture beside each place.)

Drama

- Read the parts with expression (each person is trying to convince others of his/her point of view).
- Practice "how to laugh" (like a bear, like Santa Clause, like a hyena, belly laugh, giggle).
- Have students discuss various ways of gathering (i.e. everyone sitting, everyone standing, some on chairs, various combinations).
- Readers' Theatre.
- Other characters could be added to represent:
  - Conservation/Recreation Group like Sierra Club
  - Land Developer
  - Ecotourism/Adventure Tourism Operator
  - Rancher (farmer) with water requirements
  - Municipal politician (concerned about impacts of corporate forest tenures on long term community stability and economic diversity)

Integration with Other Subject Areas

Language Arts

- Subsequent Acts (II, III, IV) should be scripted by the students. Several newspaper articles are included to assist the student in collecting data to support his/her character's position on the environmental issues under discussion.
- In the play, Rochelle's parents were covering the conference for a magazine. Other students could be assigned press roles. The newspaper articles that students develop could be used as models.
- Debates could be organized based on a local environmental issue.

Social Studies

- Students should be encouraged to find out about CORE (Commission on Resources & the Environment) and the Round Table on Sustainable Communities. (Both organizations deal with consensus seeking and developing land/water use strategies).
- There are many careers associated with the management of B.C.'s natural resources. People searches, co-operative research, jigsawing techniques could all be used to explore the jobs involved in each resource.
- *Project Wild, Forest Choices, FOREM, Watershed Stewardship Program*, the Mining Association, B.C. Hydro, MacMillan Bloedel are but a few of the curriculum materials available for studying natural resources. (See the Bibliography Appendix C for a more comprehensive list of publications and A.V. material.)
- The Fraser River Estuary Management Plan (F.R.E.M.P.) has a Role Play Package available (phone 525-1047).

Math

- Have the students consider the benefits and costs of holding conferences such as the Citizens Think Tank. Direct and indirect costs and benefits should be brainstormed (press coverage, retail shopping, life-long friendships ...).
- Children could research the actual costs (airfare, bus fares, accommodation, meals, meeting rooms, handout material, speakers ...).

For other salmon related information and activities (all subject areas) check with Salmonids in the Classroom (Primary and Intermediate). Available through BCTF Lesson Aids.

The Breakfast Club

Setting:

A downtown Vancouver Hotel. It's early Saturday morning and while the adult delegates to the 3rd Annual Citizens Think Tank on B.C. Resources are meeting, some of their children are gathering in the hotel lobby. They are waiting for their Tour Guide to arrive. The conference organizers had activities and educational tours planned for the young people. However, young people being young people, plans change quickly ...

Characters:

Hotel Clerk, Hotel Employees (Bellmen, Assistant Manager), Guests *(some reading the morning newspaper, others checking in and out; others waiting with briefcases for business associates).*

Justin Clarkson *- Grade 7 student*
Molly Little Raven *- Grade 6 student*
Taylor Albas *- Grade 8 student*
Lena Chang *- Grade 7 student*
Marc Rutherford *- Grade 8 student*
Dusty Rhodes *- Grade 8 student*
Rochelle Eisen *- Grade 7 student*

Act I

A young girl ***(Molly Little Raven)*** *emerges from the hotel elevator and proceeds to the front desk. A young boy* ***(Justin Clarkson)*** *is already making an inquiry.*

Justin: My parents are here for the Citizens Think Tank and in this folder *(he shows the booklet to the hotel clerk)* it says that the delegates' kids should meet in the hotel lobby at 8:30 a.m. for "activities".

Clerk: *(Efficiently but somewhat disinterested).* Yes, well, please check with the Concierge *(points to a desk to the right).*

Justin: Thanks. *(He begins to walk to the Concierge's Desk).*

Clerk: *(To Molly, just as efficiently as she addressed Justin.)* May I help you, young lady?

Molly: No, it's O.K. I was going to ask the same question as he did. *(Points to Justin and then catches up with him)* Hey! Are you looking for the tour guide?

Justin: Ya. What group does your father represent?

Molly: Excuse me?

Justin: I just asked what stakeholder group your dad is representing at the Think Tank?

Molly: I'm not here with my dad. My mother is one of the keynote speakers.

*A third student, **Taylor Albas** after also checking with the front desk clerk, joins the other two students.*

Taylor: Hi, you guys. Waiting for the Tour Guide, too?

Molly: Yeah. The late, but hopefully great, Activities Director.

Justin: Highly paid babysitter probably. *(To Molly)* I couldn't help overhearing. What's your mom's speech about?

Molly: She will be making a presentation about the First Nation's involvement in fishing in B.C. It should be a 'hot' session.

Taylor: Why do you think your Mom's speech will be 'hot'?

Molly: I mean it will be controversial.

*Another boy, **Marc Rutherford**, who has also been directed to the Concierge's Desk, listens for a moment to the conversation and then he also joins the group.*

Marc: What's so controversial about Indians fishing? They've been doing it for hundreds of years.

*Another boy, **Dusty Rhodes,** who also has been told where to assemble for the Tour, by the Hotel Clerk, jumps into the conversation.*

Dusty: Who's been doing what for hundreds of years?

Justin: First Nation people have been salmon fishing for hundreds of years.

Dusty: Well, if you ask me they're the reason there are so few salmon in the Skeena River.

Taylor: Where's the Skeena River?

Molly: It's up north and I disagree. I think the reason there are so few salmon in so many of our rivers is that the commercial fishermen are so greedy. They drop those huge seine nets in the water and then wait for the big bucks to roll in.

Dusty: Where'd you get that bit of economic information? Do you have any idea how little money there is to be made on a seine boat these days? For that matter the only fishing boats of any kind making big bucks nowadays are not owned and operated by Canadians.

*A third girl, **Lena Chang**, has been listening to the conversation and she now becomes part of the group.*

Lena: Oh here we go. Let's hear it for all those who want to blame the Asians for stealing their jobs and their fish. Do you think it's Japanese or Vietnamese that are pumping pollution into our rivers? No wonder there are so few salmon around. The poor fish need oxygen in the water to breathe just like we do. Every time a pulp mill uses the water as a dumping ground for its waste you can put a few more hundred salmon in fish heaven.

Marc: Oh right. Here goes the big environmental pitch again. Calling Greenpeace, calling Greenpeace. Lock up all those loggers and mill owners and while you're at it, put up some big signs around the province letting people (and investors) know there are, no jobs here.

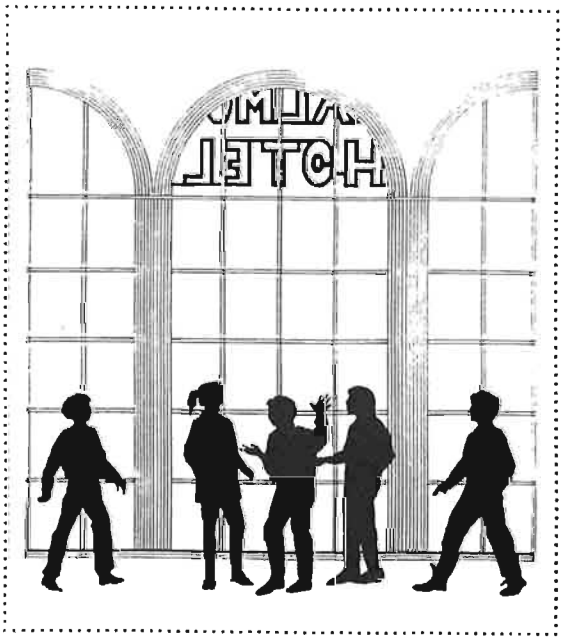
Molly: Excuse me. I didn't mean to start World War III. Boy, if we're yelling at each other here, can you imagine what's happening at our parents' meeting?

Lena: Yeah, maybe we should try a more civilized approach to voicing our opinions. Let's start by introducing ourselves and telling a little bit about who we are so we can get to know each other.

Justin: Sounds good. (*Laughing*) Then we'll know who we're yelling at.

Dusty: What is this? Twenty questions? Tell a little bit about yourself, like what's your favourite T.V. program? Do you think a Whopper tastes better than a Big Mac?

Molly: I don't think she meant that kind of stuff. Just tell where you're from and what group your parents are representing and, *(laughing a little)*, when and where you last spotted Elvis?



Act II

Lena: My name is Lena Chang. I'm here with my father who is not with Greenpeace. He's a research biologist at the Pacific Biological Station in Nanaimo. I have two older brothers and one younger sister. My mother is a pediatrician.

Marc: A pedia - what?

Lena: A pediatrician. It's a baby doctor. Kids, too - I mean, she treats infants and kids up to 18 years old.

Molly: What grade are you in?

Lena: Six. I go to St. Margaret's. It's an all girl private school and I can hardly wait until grade 8. No more uniforms and no more all girl school. Anyway, my father is pretty concerned about the dioxin levels in fish. He's making a presentation on something to do with the effects of pulp mills on salmon.

Marc: Oh great! Another study to show how the poor little fish are suffering because of the big bad pulp mills.

Molly: Let's save our comments until we get all the introductions out of the way. Who wants to go next?

Justin: What the heck. I may as well get this over with. My name is Justin Clarkson. I live in Richmond. I'm here with my mom and dad. They're both teachers. I don't have any brothers or sisters. Both my parents are sport fishing nuts. No kidding, they live for fishing. We can just be driving along and first thing you know we are stopping by the side of the road. Then it's out with the fishing rods and the tackle. It's like being in the army. Everything all packed in neatly. Taken out orderly. Other times we go to our cabin on Vancouver Island. Same thing. Everything there is all neatly packed and when we get there it's steady fishing all weekend. The fishing part is fun especially when its a nice spot and the fish are biting. Every holiday we've ever gone on was organized around fishing. I bet my parents have caught a zillion fish between them. Now mostly it's catch and release for salmon and trout at least. They both belong to the Steelhead Society.

Molly: What's catch and release?

Taylor: What's the Steelhead Society?

Justin: Catch and release is when you use a hook that can be removed easily from the fish so the fish won't die. You don't keep the fish, you let it go. The Steelhead Society is a group of anglers, specialized anglers, ones who want to especially catch a steelhead trout. They are looking for the perfect steelhead experience, whatever that is. Anyway, thanks for listening. That's all I have to say. Who's next?

Taylor: But, you still didn't explain what a steelhead is. For all I know, it's the name of a rock group.

Marc: It's a type of fish, like a salmon. They are great eating fish and there are fewer and fewer of them around.

Molly: Thanks Justin. How about you *(pointing to Taylor)* going next?

Taylor: Taylor Albas is the name, unemployed radical parents is the game. My parents are both professional students. That means they don't "choose" to work. They "choose" to go to school. We've lived all over the world but always in someone else's house. We're always moving and we never need a moving van `cause we don't "choose" to be conspicuous consumers. We're into sustainability. All that means is we "choose" to shop at 2nd hand stores. Anyway, enough of my parents life style "choices". Me, I'm here because my parents thought this would be an interesting "learning experience". Up until an hour ago I didn't agree, but right now it looks promising.

Molly: Yeah, this group does look kind of promising.

Lena: We should put "sustainability" on *our* agenda. After all, we are the future generation and if the old folks don't start conserving and not consuming so much, there won't be any natural resources or an economy for us to argue about.

Item Number One on our agenda will definitely have to do with what a sustainable community is. For now though, who's next?

Marc: Name's Marc Rutherford. I'm here with my brother and my father. They are both loggers. My uncle manages a pulp mill, and my cousin exports timber to Japan. Two of my uncles are owner-operators of small logging companies in the B.C. Interior. I guess you might say wood flows in my veins. It's our lifesblood. We're here because people need to be reminded that if jobs in the forest industry go down the tube then B.C. goes down the tube. I'm sorry, if I don't sympathize with all you 'save the spotted owl and save the salmon types' but my dad can't make mortgage payments and buy groceries with "wilderness" dollars. Maybe all the groups can work something out. We're open to that but the bottom line is that people need jobs.

Molly: I think you're totally wrong. You haven't even considered that if the salmon industry goes down the tube, that a whole other group of people will lose their jobs. Why should only loggers be protected? What about fishermen - whoops fishers?

Lena: Hey Molly. Relax. Chill out! We agreed we wouldn't start yelling until after the introductions. So, Marc, where did you say you were from?

Marc: I guess I forgot some personal details. I got going on the trees and lost track of everything else. Sorry, I don't want to be a jerk.

Justin: Hey, that's O.K. Everyone has a right to his or her own opinion.

Marc: Most of the family is from Port Alberni - but those uncles in the logging business are from Prince George.

Taylor: I have an aunt who lives in Port Alberni. Maybe you know her. She runs a bakery called Patti Cake's or Patti's Cake or something like that. She makes incredible cookies and, of course, delicious cakes.

Marc: Yeah, I know the place. My mom buys bread there. Not cookies. She bakes her own. Sometimes I help her - don't laugh but I love to cook.

Molly, Justin: Hey, that's cool.

Lena: Who's next. Guess there's just you two left, *(pointing at Dusty and Molly).*

Molly: Gentlemen first.

Dusty: Hey, whatever. I didn't know you people were into the feminist stuff.

Lena: What's that supposed to mean? Her people are just like my people or your people. There are some blue collars, some white collars, some Liberals, some Conservatives, some jocks, some bookworms. Even some teenagers who don't like being stereotyped or called 'your people'.

Dusty: O.K. I get your point. I hope I can proceed without having to be afraid of misspeaking or being politically incorrect. Maybe we should add "respecting all points of view" to our agenda.

Molly: Second agenda item: Respect!

Taylor: Go ahead. We need to know name, rank, serial number.

Lena: Or phone number.

Dusty: Gimme a break. My name is Dusty Rhodes and you may as well forget the jokes cause I've heard them all. I live in Prince Rupert and I'm here with my aunt and uncle. They are commercial fishermen or rather commercial fisherpeople or fishers. I don't really care what the correct term is. They own a seine boat and they both work it. My parents are both dead - a car crash when I was seven years old. Uncle Robert is really worried about all the talk about overfishing. He sees what has happened to the cod stocks and the cod fishermen on the east coast and he's afraid that if salmon stocks in B.C. go much lower the government may restrict commercial fishing and he'll be out of a job. My aunt thinks the foreign drift net fishermen or fisherwomen are responsible for taking all the fish. To tell you the truth I'm not really sure who's to blame. Maybe the Department of Fisheries and Oceans hasn't managed the stocks well enough. They're talking about involving the native Indians or rather, I think the politically correct term is, First Nations People, in the decision making process. For what it's worth, Molly, I don't see that it can hurt. Your people did a pretty good job before us white people came along. I mean white like non-natives. Don't ever tell my aunt I said that the First Nations should have more say in the fisheries. She'd kill me. No, first she'd torture me, then she'd kill me.

Molly: I promise not to tell.

Lena: I promise not to be offended by your reference to 'your people' or white people, if you promise not to tell my father I asked for your phone number.

Dusty: My lips are sealed.

A new girl enters the lobby area from the elevator. Looks around. Proceeds to the front desk where she too, is directed to the area of the Concierge's desk. She listens for a minute or two and then she also leaps in with a question.

Rochelle: Did I hear something about phone numbers and lips? Sounds very interesting. Is this a private party or can anyone join in?

Lena: Are your parents at the Think Tank?

Rochelle: Are they there? Hey, without Mom & Pop who would ever hear about The Citizen's Think Tank, or for that matter, without Mama & Papa, who would know about all kinds of newsworthy events. Are my hints making headlines?

Justin: Let's see, are they bigger than a breadbox? Brighter than a flashbulb?

Molly: The Press?

Rochelle: Yup. What a team my folks make. Her words, his pictures. They are doing a story for a well known magazine. Ever heard of "*B.C. Outdoors*"?

Taylor: Hey, it's on our coffee table or, at least, the back issues are on the overturned apple box that serves as our coffee table. My dad gets all kinds of magazines from the dentist's office. Of course, he gets them after they are 2-3 months old. Recycling is great, except when it comes to current events. The 'events' tend to be a little stale when you read about them months later.

Molly: *(Turning to Rochelle)* Well, welcome. What's your name?

Rochelle: Rochelle Eisen.

Molly: Rochelle, we were just finishing up our introductions. Our Tour Guide for the day seems to have forgotten us.

Marc: I don't know about the rest of you but I'm starving. What do you guys think about a little breakfast?

Dusty: Boy, I thought no one would ever ask. I'm all for some food.

Justin: Well, the hotel dining room looks a little pricey.

Lena: There's a fast food factory two blocks from here.

Marc: Sounds terrific. Who is 'up' for an Egg McSomething?

Taylor: Count me in.

Rochelle: Do you think we should notify someone that we're leaving the hotel? That Tour Guide may eventually show up.

Lena: I didn't really want to go on the tour anyway.

Justin: What! You don't want to participate in the planned educational activities. I'm shocked that you'd pass up a such valuable learning experience.

Taylor: What do you call what we've been doing for the past hour?

Rochelle: Have you guys been swapping life stories all morning?

Marc: Rochelle, if you're going to sleep in, you're going to miss a lot of mini-dramas.

Dusty: How about if I go to the front desk and leave a message for the tour guide. If he - or she - is decent, we'll eventually meet up with the 'phantom' tour guide.

Taylor: Hey, Dusty, need some help?

Dusty: Sure, we can check with the front desk and catch up to the others. Do you know where this fine dining establishment that serves the McSomethings is located?

Taylor: Do you think we could possibly miss those distinctive golden arches?

Lena: It's on Dunsmuir.

Dusty: We'll find it.

Molly: Lead the way, Lena.

Justin: We'll have our own Think Tank. I'll bet we can come up with some pretty good suggestions about managing our natural resources. After all, it's us that will have to live with the decisions.

Cooperative Learning Strategy

Adapted from The Cooperative Think Tank, by James Bellanca, Skylight Publishing Inc., 1990, Palatine, Illinois

Explain to the students that this technique is used to demonstrate how important items are in relation to each other.
The terms *ranking* and *criteria* should be introduced

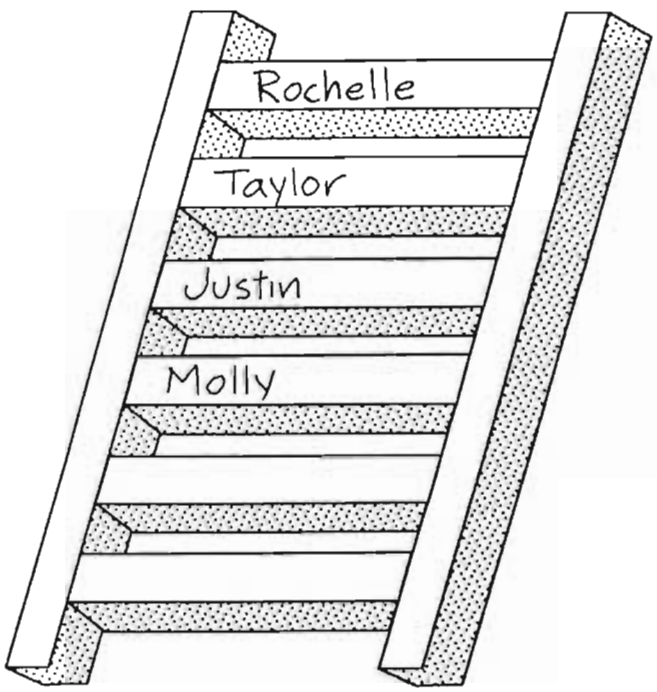
Suggestions for using The Ranking Ladder:

1. Partners - after reading the play each pair must agree on the character rank order and both partners should be able to explain their criteria.
2. Ranking Ideas
   - Which character in the play did you most like?
   - Which character in the play did you least like?
   - Which person best advanced his/her position?
   - What were the most important points raised by the members of the Breakfast Club?
3. Reasons for ranking order should be discussed.

Sample Question:

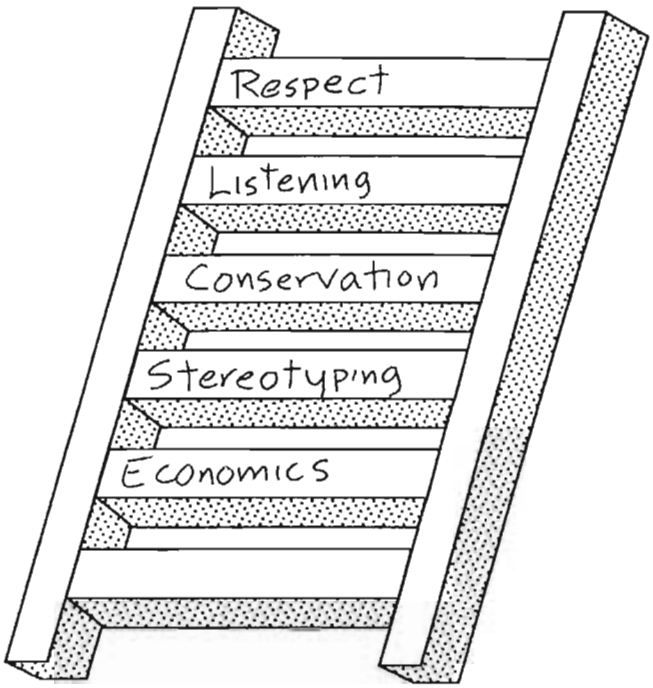
Which person best advanced his/her position?

The following order is only one suggested rank order. There is no "correct" order.



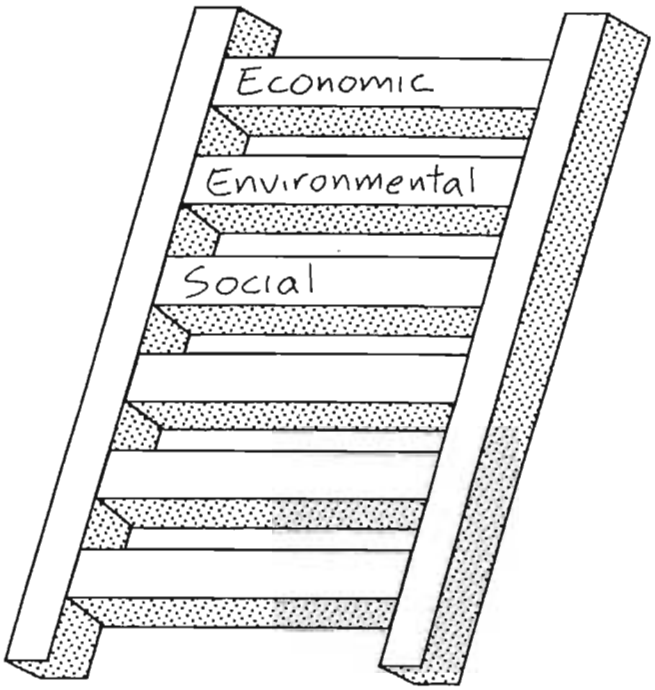
Sample Question:

What were the most important points raised by the Breakfast Club members?

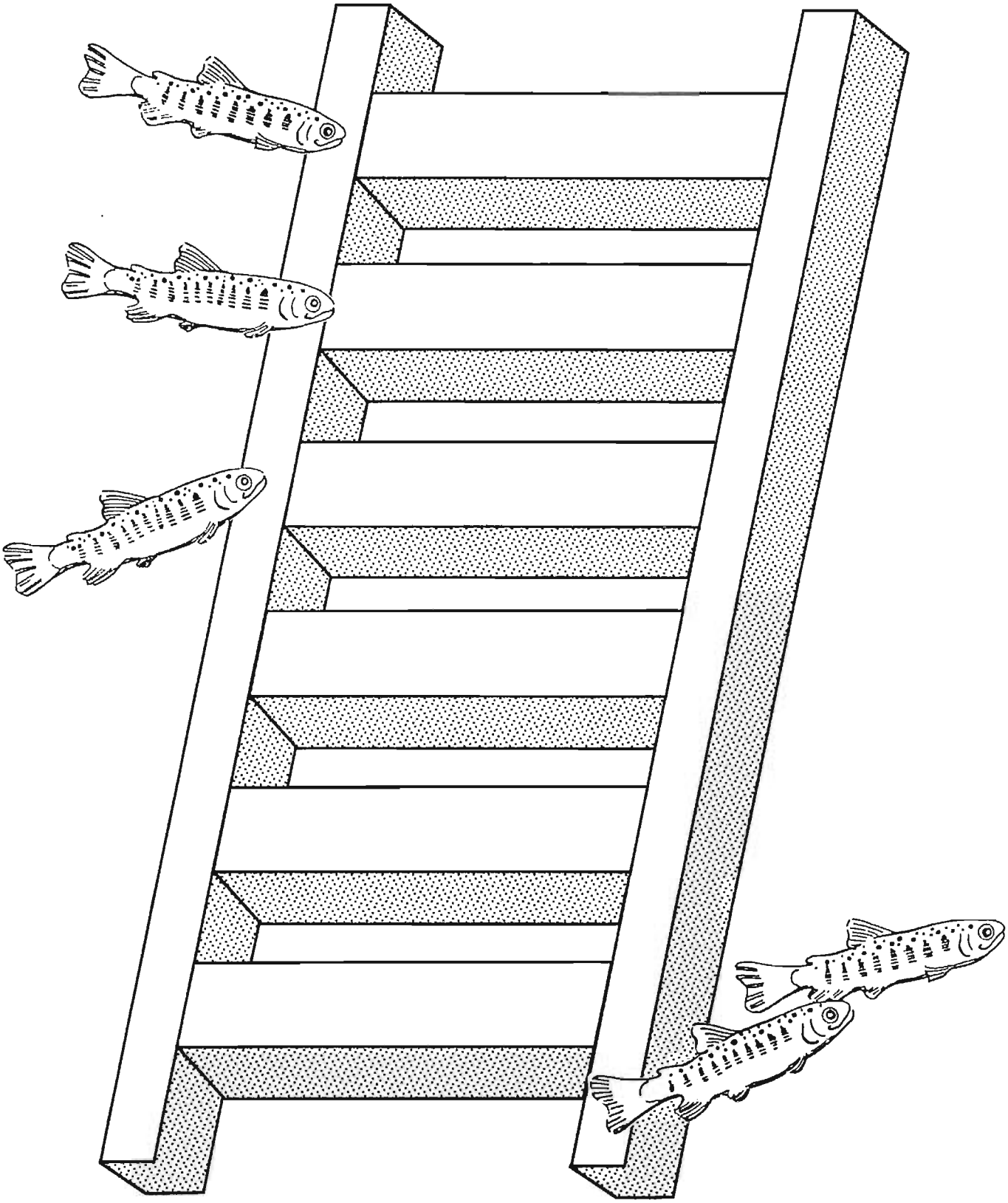


Sample Question:

What criteria should be used to make decisions concerning managing natural resources in B.C.?



Ranking Ladder



Thousands of Jobs at Risk in Forestry Crisis, Analyst Says

Ben Parfitt, The Vancouver Sun,June 1992

Jobs in B.C.'s biggest industry could decline by 15,000 to 20,000 positions by the time the current recession ends, a forest industry analyst said Tuesday.

Such a huge drop in direct jobs would mean a decline from about 80,000 jobs today to 65,000 or 60,000 and would result from a number of factors, said Bob Elton, a partner with the accounting firm Price Waterhouse.

"I think there will be a reduction in the annual allowable cut that will affect the logging sector," Elton said in an interview after a forest industry conference in Vancouver.
"There will be some closure of pulp mills...there will be some reduction in sawmilling. I'm talking about a 20-per-cent drop over-all, and it could be quite evenly spread."
Elton's prediction comes on the heels of a catastrophic year for most of the province's major forest companies, a year in which the B.C. industry posted an estimated loss in net earnings of $900 million.

Lumber producers, who appear headed for a recovery in 1992, lost an estimated $400 million last year, Elton said, while pulp producers lost $300 million and papermakers, $200 million.

The challenges facing B.C. pulp and paper producers, Elton and other conferences speakers said, are immense. Not only must they contend with expensive environmental regulations, they also face increased competition from lower-cost producers in the U.S. south and South America.
Jim Bryja, director of pulp and bleach board marketing for U.S. pulp giant Georgia Pacific Corp., said it will be hard for potential investors to overlook the relative cost advantages in the southern hemisphere where there are abundant and cheap supplies of pine and eucalyptus trees.

For B.C. producers, that may mean mill closures or a reduction of production, said Doug Whitehead, senior vice-president of Fletcher Challenge Canada Ltd.
Whitehead said U.S. companies making pulp from southern pine can produce a product $30 U.S. to $40 U.S. a tonne cheaper than Canada, and "there's no doubt" they are gaining market share.

At the same time, major pulp buyers in Japan find they can blend northern pulps with cheaper pulps and still produce quality papers, Whitehead said.

"In Japan you don't get as much for coastal pulps any more. There's an example of a very discerning market already downgrading our product. It is not prized the way it once was, "Whitehead said.

What troubles Whitehead and others are the high environmental standards the B.C. government now insist pulp companies meet. With a glut of pulp production around the world prices are depressed. The only way to shore up price is to cut production, and that impedes the ability of companies to make money to pay for the expensive capital programs now demanded, Whitehead said.

The result, he surmised, will be the closure of some pulp mills in the province.

"Management and owners are going to make choices and say we're not going to spend any more, we'll just cash out of them. Some will go," Whitehead said.

Roger Wright, a partner with the UK firm, Hawkins Wright, said B.C.'s proposed regulations are "environmentally unnecessary" and will cripple the ability of the province's pulp producers to compete.

Environmentalists Not Out to Get B.C. Farmers

Dave Cursons, Secretary, Okanagan Greens - Penticton Herald, March 1992.

In responding to Ted Noonan's "Farmers Tired of Radicals Targetting Food Growers" (Herald, March 7, 1992), I am assuming that the remarks attributed to rancher Tom Vicars are accurate.

Those who have criticized agricultural practices for environmental reasons usually focus on things like toxic chemicals in food, food irradiation, antibiotics in beef, soil depletion and wasteful fossil fuel consumption.
I know of no environmentalist whose sole aim is to shut down those trying to produce food in B.C.

Environmentalists consistently support sound agricultural practices. Environmentalists want to see a nutritious variety of foodstuffs grown and sold "in-region" with less use of harmful chemicals and better care of the land.
I know of no environmentalists whose antics are "making big bucks from a gullible public," I am aware of some very questionable public relations material produced by the B.C. Cattleman's Association, specifically the Molly the Cow: Your Friend and a Friend of the Environment material with which the BCCA is hoping to indoctrinate our elementary school students.

In the South Okanagan, the biggest "beef" that environmentalists have with growers revolves around the continued use of public forest lands in our community watersheds to graze beef cattle. It is a practice that has gone on for far too long, and it has ruined the grassland ecosystem and affected the water moving through it. Environmentalists believe that the beef-growing industry should pay the real cost of raising beef instead of being subsidized with range leases to help it grow "competitive meat."

What environmentalists are saying is that it is time for ranchers to grow their own grass and that if that means they have to raise the price of beef, so be it. There are cheaper and more environmentally friendly ways of getting protein into our diet.

Our watersheds need to be restored to a healthy condition with the natural emergence of native grasses and shrubs. The wild animals have lived in balance with the grasslands ecosystems for millennia. In a hundred years or so the beef cattle have disrupted the grassland ecosystem with over-grazing. The cost to human settlements in the South Okanagan has been bad water.

"I am interested to hear that cattlemen are committed to new environmental methods." That sort of rhetoric will impress some.

Environmentalists are here to bear witness to the agriculture industry's actions and to speak out whenever it's needed.

Prince Juggles Logging "Hot Potato"

Dawn Hanna, Vancouver Sun August, 1992

British Columbia has a "hideous" problem in terms of environmental conflicts, but that is not a unique situation, Prince Philip told about 800 people attending a World Wildlife Fund benefit dinner Sunday night.

"You might think that here in British Columbia you've got a unique problem with this logging of the forests that you have. But let me tell you that every country has almost exactly the same problem," the prince said.

"No one in WWF wants to say you ought not to log or squander your natural resources, but what it will say is `If you do this, this is likely to be the consequence ... you're going to destroy your assets.'"

The Duke of Edinburgh said the only solution to environment-related conflicts is to get people talking. He said he is encouraged by Premier Mike Harcourt's January announcement of a commission on resources and environment, to be headed by Ombudsman Stephen Owen.

"It's a hideous problem to decide how to manage it. And you have a hideous problem here deciding how to manage it," Prince Philip said.

"This is a very difficult decision to make and I think it is extremely encouraging that the premier has set up this commission and he has got everyone around the table and talking, because you're talking about the future, not just of yourselves—you're past it, you see—but of your children and grandchildren."

But the prince refused to comment specifically on the battle over clearcuts and logging in old-growth forests. "Don't for a minute think that this very hot potato here in British Columbia is unique. And don't believe that I have an opinion one way or the other," he said. "All I'm saying is from a conservationalist point of view if you overdo it, you are going to regret it."

"You will get a reasonable natural habitat, you will get a reasonable number of species surviving if you treat the forest with respect. Make up your own mind and try and figure out a system," he added.

In comments prior to the prince's speech, Harcourt told the dinner that much of the criticism of B.C. logging practices is blown out of proportion.

"Some of the publicity that we have gained, a lot of it is overblown—about being Brazil of the North and the chainsaw massacre of our forests. But that will be a thing of the past," Harcourt said.

"We're going to do it differently in B.C. We're going to sit down and bring peace in the valley and B.C. is nothing but a lot of valleys and a lot of mountains."

Harcourt said the new commission would become an international model showing how a community can make intelligent accommodations so it can have both a sustainable forest and an increase in park and wilderness areas.

Race to Rescue the Salmon

By Jeanne McDowell - Time Magazine, June 1992

Farmers, fishermen and others in the U.S. Northwest will have to change their ways under a federal plan being designed to save the region's fish.

For Leslie Clark, 63, salmon fishing was a birthright - a livelihood that has sustained four generations of his family. As a boy he learned from his father and grandfather the art of casting vast gill nets on the teeming waters of the Columbia River. After years of practice, he says, "You understand the fish and his ways. You know what he's going to do before you see him."

In Clark's youth, glistening 27-kg silver chinooks and red-fleshed sockeyes would leap into the nets. The commercial salmon season was 137 days long, and a day's catch would often exceed a ton. But now the sockeyes have vanished and the silver chinooks have dwindled. The season is one-third as long, and Clark and his two sons are lucky if they catch 136 kg each day. Soon they may have to quit the business altogether, because of a broad effort to rebuild the salmon populations on the lower Columbia and its main tributary, the Snake River. "Everyone who uses the river's water," he says, "is going to have to share the burden and pain."

Last fall the Snake River sockeye was added to America's endangered species list, and this spring the U.S. National Marine Fisheries is expected to take similar action on behalf of most races of chinook. These actions pave the way for an extensive salmon-recovery plan to be put forth by the fisheries service in September that will affect not only commercial and sport fishing throughout a fourstate area but also mining, farming and other industries that depend on the river and the power it generates. "There is no better barometer of the health of the Northwest than salmon," says Bill Arthur of the Sierra Club. "If we can bring back the salmon, we can demonstrate that we have learned to manage the natural systems in a way that perpetuates the bounty."

Before the roaring Columbia River began to be tamed by dams 59 years ago, it teemed with 16 million wild salmon a year as it cut a 1,930-km swath from its headwaters in British Columbia to its mouth at Astoria, Oregon. Today its streams and tributaries are inhabited by only 2.5 million salmon a year, nearly 75% of which are spawned in domestic hatcheries. Logging and grazing on public lands have eroded soils and buried spawning grounds. Delicate habitats have been dried up by the pumping of hundreds of millions of acre-feet of water to grow crops in eastern Oregon, Washington, Idaho and Montana. Overharvesting by commercial fishermen - both on the rivers and in the ocean, where the salmon spend two to five years of their life - has drastically reduced populations of several fish stocks.

But the most ferocious enemies of the fish are eight hydroelectric dams on the lower Columbia and Snake rivers that harness water behind massive walls of concrete. On their journey upstream every year, the salmon are aided by the fish ladders that allow them to bypass dams. But the trip downstream from the spawning grounds to the Pacific is a treacherous 1,450-km journey that obliterates as many as 11 million juvenile salmon, called smolts, a year. Slack pools created by reservoirs behind the dams have slowed the smolts' traveling time from seven days to six weeks. This increases their exposure to predators and to higher water temperatures that make them susceptible to disease. The combination can be fatal, throwing off the delicate biological clock that allows the salmon to adapt miraculously from fresh to salt water once they get to the sea. The smolts that survive face a grisly threat: the majority end up ground to a pulp in the deadly turbines that create the cheapest electricity in the country.

Saving the salmon will require a far-reaching plan to restore habitat, reduce the number of commercial fish harvests and limit the number of hatchery salmon released in the river. But the crucial element will be changing operations at the dams to increase the velocity of the waters so that young fish are quickly flushed seaward. Biologists say this can be achieved by releasing vast amounts of water from upstream reservoirs or by lowering water levels in the pools behind the dams during the spring migration.

While the Endangered Species Act has given a sense of urgency to the salmon's plight in the U.S., a number of efforts have already been made to increase the runs. In 1980 the U.S. Congress passed the Northwest Power Act, which required federal power authorities, who oversee the dams, to give salmon protection equal priority with

electricity production. The act also created the four-state Northwest Power Planning Council, which aimed to double the number of salmon to 5 million, to make up for those lost in the dams. To meet this goal, the council established fish hatcheries and installed screening devices at many dams to prevent smolts from being sucked into the turbines. The council has also ordered barges to transport smolts around the dams and has increased the flows by releasing water from storage reservoirs.

But 12 years and a billion regional dollars spent on such efforts have failed to rebuild or even stabilize the salmon populations. Optimism about hatchery technology has waned, and many scientists now believe domesticated salmon lack the genetic robustness of wild ones. Environmentalists complain that the planning council is too weak to take on the utilities that have dominated the river for decades. "The fish got what utilities were willing to give them," says Bill Bakke of the Oregon Trout, a fish-conservation group. Instead of doubling, the number of salmon has continued to decline steadily.

The forthcoming plan from the National Marine Fisheries Service is likely to be much stricter in requiring increased water flows at the dams. Farmers, manufacturers and utilities are worrying about the consequences. In Lewiston, a port 748 km inland on the Snake River in Idaho, port director Ron McMurray says barge traffic may be halted several months a year, forcing farmers to transport cargo by rail or truck. Ron Reimann, who farms 1,295 hectares in Pasco, Washington, estimates that it will cost him $1.3 million if he has to move his irrigation pumps to accommodate lower water levels. In addition, electricity rates are expected to rise as much as 8% because of the decreased efficiency of the hydroelectric plants. Aluminum manufacturers, lured to the region by cheap energy, could be hit, as well as the small towns they support. Officials at the fisheries service insist that the recovery plan will spread the burden among all the divergent interests, but a power struggle is already under way.

"Fish advocates" blame the U.S. Army Corps of Engineers, which runs the dams, for not assuming responsibility for the diminished salmon runs. Idaho farmers, on the other hand, want to protect their water-guzzling crops. In the meantime, four tribes of Native Americans are certain to go to court if their rights to half of all fish in the Columbia River basin are taken away.

Even so, the battle to save the salmon has generated far less rancor than the battle between environmentalists and loggers over the northern spotted owl. In addition to its contribution to the Northwest economy - $52 million a year in commercial fishing-related income alone - the salmon has deep-seated symbolic value. Names of Washington towns such as Chinook and White Salmon reflect the place of the cherished fish in the region's soul. In religious ceremonies, Native American tribes thank their Creator for the life-perpetuating salmon.

Salmon lovers call the completion of Grand Coulee Dam in 1941 one of the darkest moments for the fish. As 27-kg "June hogs" migrated upstream that summer, following their unwavering instinct to return to the streams where they were spawned, thousands perished when they flung themselves against the unyielding concrete. But even the staunchest fish advocates realize that the June hogs are gone forever and that the dams are here to stay. Biologists are optimistic, however, that a strong recovery plan can bring other salmon species back from the brink within 20 years. Leslie Clark, the third-generation gill netter, is willing to put his beloved livelihood on hold to achieve that end. "Fishing has been good to us," he says. "But watching these fantastic fish go down to little or nothing has been very sad. If you depend on a resource, you've got to take care of it."

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presents

What's Recess?

A play about

Place:.....

Date: .....Time:.....

For more information contact:

.....

What's Recess? - Pre-Post Activities

This play was written for puppetry. Please see Appendix C for ideas and strategies using puppets. "Fish Talk" in Appendix A has information about the idea of personification of fish.

For this play you will need two salmon fry puppets and an adult fish puppet to portray the steelhead trout.

Synopsis:

The dramatization involves two coho fry. One has reared in The Jingle Pot River, the other, raised in a classroom incubator, has just been released into the Jingle Pot. They meet and contrast and compare life histories and survival strategies.

Vocabulary:

predator	hatchery
egg-take	steelhead trout
redd	anaesthetized
incubator	fertilized
larvae	naïve

Suggested Cooperative Learning Strategy:

The Venn Diagram, located after the play.

Integration with "The Arts"

Music

- Create set sounds from a voice choir (birds singing, frogs croaking, fish swimming, insects buzzing).

Art

- Illustrate the playbill
- Make a "larger than life" painted 3-D salmon using foam (2-3 cm thick foam from upholstery shop). The child stands inside (like a sandwich). Glue guns and tempera paint work well on foam. (Suggest the children emphasize large eyes to capture the audience's attention.)
- Create other puppets to represent other aquatic life in the river (see Appendix C).
- Make a mural backdrop for each scene. The murals should contain the details of the natural environment described in each scene.

Drama

- Use slides, projected against the wall, as a backdrop for flashback effect.
- Word cards, actual props or pictures (ice cream buckets, plastic bags) could be held up as characters use the words.
- Readers' Theatre.
- *Project Wild* has many activity suggestions involving roledrama.

Integration with Other Subject Areas

Language Arts

- Students could script other plays, contrasting and comparing the life cycle of another animal to that of the salmon.
- Cooperative Research groups, using the Jigsaw approach, could develop similar dramatizations for other life cycle stages i.e. egg or alevin or adults (in the ocean stages) could be contrasted and compared.
- Students could imagine themselves in a different country/culture and having a contrast/compare conversation with a student the same age.
- Students could use animals in the wild/animals in captivity to contrast and compare life histories and experiences.
- Refer to Fish Talk (Appendix A) for a discussion about personifications and anthropomorphism (attributing human characteristics to animals). Why is it done? Should it be done?

Social Studies

- Students could research the need for and the historical development of hatcheries in B.C.
- A debate (human intervention in nature) could be organized to bring out the pros and cons of enhancement and research.
- There are many career opportunities with the Department of Fisheries & Oceans (fish culturist, research scientist, technician, fishery officer, biologist). Students could design interview questionnaires or People/Expert Searches for some of the careers.

Science

- For more information on the classroom incubation program and/or interpretive programs at hatcheries contact your local Federal Department of Fisheries & Oceans office.
- Plan a visit to a hatchery and/or local salmon stream.
- There are many science investigations that may be done using a classroom aquarium. A new set of intermediate science curriculum materials (how to's and student hands-on activities) entitled Salmon Below the Surface is available at BCTF (Fall, 1993).

For other salmon related information and activities (all subject areas) check with Salmonids in the Classroom (Primary and Intermediate). Available through BCTF Lesson Aids.

What's Recess?

Act I

Setting

Jingle Pot River, about 8 kms. from the Kelsey Estuary. It is late April. Insect larvae are plentiful. Several hundred coho fry have been rearing naturally for almost a year in the river, among them a "street" wise coho named Connie. About an hour ago 22 grade five students released one hundred coho fry into the river. The students had incubated and raised these fish in their classroom incubator. One of the first fry to be released was a "naive" young female coho named Katherine.

Characters

Katherine Coho
Connie Coho
Steelhead Trout
Insects and other aquatic organisms

Katherine: Excuse me. Could you help me? I'm looking for the person who's in charge of feeding the fry today?

Connie: You're looking for what?

Katherine: The student who is supposed to feed the fry. I think his name is Chad.

Connie: What is this? Some kind of bad joke? If you want something to eat around here you're going to have to get it yourself. Where are you from anyway? I haven't seen you around here before.

Katherine: I just got here. I probably look a mess. It was a pretty rough ride. We were jostled about. The students tried to be careful but by the time they scooped us up and put us in plastic bags and then transferred us to the ice cream buckets and then, well you know how it is. It's been quite a day.

Connie: Ice cream buckets? Plastic bags? Students? Look out! *(She points and ducks)*

Large trout darts in the direction of the two fry.

Katherine: What was that? Goodness, he seemed angry.

Connie: That was a steelhead trout, dearie, and he wasn't angry, just hungry.

Katherine: Well, aren't we all? Did the students forget to feed him too?

Connie: Look, Miss, Mrs. or Ms! I don't know what it was like where you were raised but around here nobody named Chad is going to feed you. There is someone in charge of feeding you and that someone is about your size and weight.

Katherine: You mean - me?

Connie: And another thing. Unless you want to end up in a close encounter with Steel over there, I suggest you concentrate on finding some place to hide. Haven't you ever heard of predators?

Katherine: Thanks for the advice. If you have a few minutes between looking for food and hiding from critters I'd sure like to ask you a few questions.

Connie: Hey - no problem. Follow me. I know a safe place where we can chat.

Act II

A small beaver dam located in a side channel of the Jingle Pot River.

Katherine: This is awesome. Did the kids at your school get this incubator from the Department of Fisheries?

Connie: Did the who get the what from where?

Katherine: You know, did the kids -

Connie: Hold it right there. We have to get a few ground rules straight. I know you look like a fish. You swim like a fish, but wow, you sure don't talk like a fish.

Katherine: Well, you're not exactly making sense either. All this babble about finding food and hiding from a steelhead trout with huge jaws.

Connie: Maybe we should start over and fill each other in on the details of our lives.

Katherine: Sounds good to me. Shall we flip to see who starts? Do you want scales or tails?

Connie: There you go again - I don't have any intention of flipping or losing any scales.

Katherine: It just means - Oh never mind, why don't you go first. Which hatchery did your parents come from?

Connie: Aye yi yi! My parents didn't come from a hatchery, whatever that is. Excuse me a moment. I'm just going to dart out into the stream and get myself a mayfly or two to fortify myself for this chat. Be right back.

Insects and other small aquatic organisms swim nearby.

Act III

Connie: To begin at the beginning. Almost 2 years ago, my parents swam up to the Jingle Pot River. My mother dug a redd and then she -

Katherine: Sorry to interrupt, but what's a redd?

Connie: A redd is a large nest that female salmon dig in the gravel. It's about 20 cm deep and it's also where I spent the first 6 months of my life.

Katherine: Sounds nice. Please continue.

Connie: Well, after my mother dug the redd she laid her eggs and at the same time my father fertilized the eggs with his milt. Then my mom covered the eggs and guarded her nest for 2-3 days. Then all of us fertilized eggs settled down to 'develop'.

Katherine: Did both your parents die?

Connie: Yup - just part of the natural cycle. What about you? How did your life begin?

Katherine: My parents also left the ocean and swam up the Jingle Pot River but before they could spawn naturally they were captured by hatchery workers. They were taken to the Jingle Pot Hatchery where they were held in large concrete ponds until it was egg-take time.

Connie: 'Til it was what time?

Katherine: Until it was time for the hatchery people to do the egg-takes. It works like this. The female salmon are killed and their eggs are taken. The males are either killed or anaesthetized.

Connie: Anaesthetized?

Katherine: It means that they are given some medication to make them drowsy and easy to handle. Like being put to sleep.

Connie: Boy, the egg-take business sounds so, so, business-like. What happened to spawning in a quiet stream. What ever happened to privacy?

Katherine: I agree, it doesn't sound anything like how life ended for your parents or for that matter how life began for you. Hatcheries didn't use to be necessary but now with so many salmon stocks being so low they have their place. After all, in nature, only about 10% of the eggs survive.

Connie: So how many survive in a hatchery?

Katherine: 90% or more.

Connie: Wow.

Katherine: Hey, before I continue with my life story, how about showing me how to catch one of those mayflies?

Both salmon fry dart off to catch some insects.

Act III

Connie: O.K. so we've both described how we got to be eggs - you in a hatchery me in a redd in the good old Jingle Pot River. By the way, if you didn't live in a redd where did you live?

Katherine: After the eggs and milt were taken from my parents the fertilized eggs were put in huge trays in the hatchery. They were like dresser drawers with lots of cold, clean water flowing down over them. They were called Heath Trays and all I really remember was once in a while someone would come in and check to see if the water temperature was still at about 2 - 10° C.

Connie: Water temperature was a big deal for us, too. All winter while we were growing inside our egg shells we were developing at a certain rate because of the water temperature. It was especially exciting when we got our eyes. I guess I'd have been about 2 months old and it meant I had survived one of the toughest parts of my life.

Katherine: Me too! I mean it was pretty exciting to be eyed because not only did it mean I had an eye it meant I would soon be changing my place of residence.

Connie: You mean they were going to move you to another hatchery?

Katherine: No, it meant that my particular group was going to be transferred to a new home.

Connie: O.K. - now you're going to have to slow down. Let me get this straight. Some of the eggs, or rather eyed eggs, were going to leave the hatchery. Just how were you going to move. I mean I can't quite see a bunch of salmon eggs just rolling out of the hatchery.

Katherine: Hey, silly! When you're a hatchery-type salmon, all of the work is done by people.

Connie: How did THE PEOPLE transfer you to your new home? And where was this new home?

Katherine: We were taken to a school.

Connie: No, I mean where was your new home? I know about schooling - we all began to travel in schools but not until we were swim-up fry. Eggs don't swim in schools.

Katherine: Schools are places where kids go to learn stuff. They learn about reading and numbers and some of them learn about salmon and some of them raise salmon in classroom incubators.

Connie: Kids go to school. Salmon swim in schools. Salmon live in schools. Hey maybe we have more in common than I thought. What's a classroom incubator?

Katherine: It's a big glass tank. Some people call it an aquarium. It's a cool place.

Connie: Does it have gravel and water?

Katherine: Yup - the gravel is on the bottom and the tank is filled with cool, clean water. There's a filter in the corner and some cooling coils to keep the water temperature at around 2°C and everyday the kids peek in to make sure we're O.K. They take the temperature and sometimes they write stories about us.

Connie: Boy what a lot of attention. Sounds like they really cared about you.

Katherine: They cared about you too. They knew that not all salmon were living in hatcheries or in incubators. They went down to the Jingle Pot and made sure no one was disturbing you guys. They wrote stories about what salmon need in their streams.

Connie: That makes me feel good. Tell me more about what you learned in school.

Katherine: Well, I learned about recess.

Connie: Is that the kind of food they feed you?

Katherine: No, recess was when the kids ate their own snack.

Connie: Did they give you some of their snack?

Katherine: No! Absolutely not. The kids only fed us after we became swim up fry and then they only fed us the proper fish food and at certain times.

Connie: Speaking of food - don't you think it's time for our recess?

Both fish dart out into the stream to get a "snack".

Act IV

Katherine: Now it's your turn. What was life like for you after you got your eyes?

Connie: Not much different until we hatched. By the way, when did you hatch? Or did you hatch?

Katherine: Sure, I hatched. We both go through the same stages. The water temperature just affects when we do certain things - like hatch.

Connie: You know I'd always thought that once we hatched we'd be leaving our redd but we didn't. We became little alevins but we still couldn't swim yet. We just sort of squirmed and squiggled around. Of course, we had all the food we needed in our yolk sacs.

Katherine: You should have seen some of the pictures the kids drew of us when we were alevins. Yuck, I hope no one ever sees those. We sure looked funny. Not at all like the gorgeous critters we are now.

Connie: Do you remember how exciting it was when we finally used up the old yolk sac and we're ready to swim up out of the gravel, or in your case, er, exactly how did that work?

Katherine: It was a bit of a blur for me. It happened at night and I'm more of a morning fish. I do remember how excited the kids were when they got to school the next day after we were all up and swimming on the surface of the water. You would have thought they personally had accomplished the swim up thing.

Connie: No one was around to get excited about us becoming swim up fry - except maybe old jaws over there.

Katherine: (*Scared*) Over where!

Connie: Just kidding. It isn't recess time for him.

Katherine: Don't joke about that. You know I haven't had any experience with other critters.

Connie: But you're a fast learner. Up until today you hadn't had any experience finding your own food either and now you're almost an expert mayfly catcher.

Katherine: Thanks! Coming from you that's a real compliment.

Connie: Stick with me, I'll teach you the ins and outs of life here in the Jingle Pot.

Katherine: Will we live here for a long time?

Connie: You'll be here for another year but I'll be heading downstream in a few weeks. Then it will be the big blue Pacific Ocean for me for a year or so.

Katherine: Yikes. What will I do without you to help me out?

Connie: I promise that by the time I go you will be a stream-wise fry.

Katherine: Maybe by next year I'll be able to help out the fry that the kids will be releasing.

Connie: I'll just bet you will.

Cooperative Learning Strategy

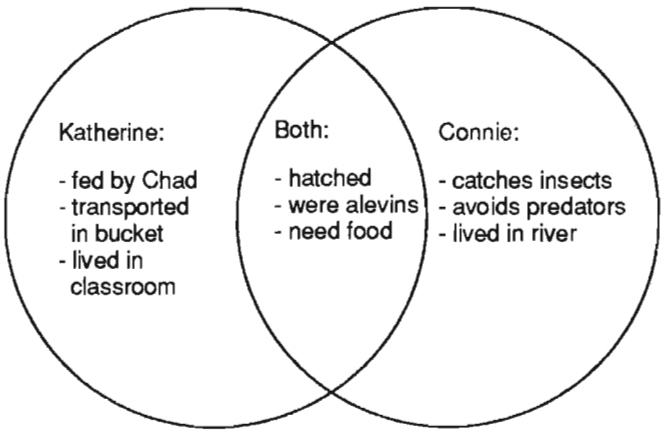
Adapted from the Cooperative Think Tank by James Ballanca, Skylight Publishing Inc. 1990, Palatine, Illinois.

Explain to the students that this technique is used to help visualize similarities and differences between two objects, characters, situations.

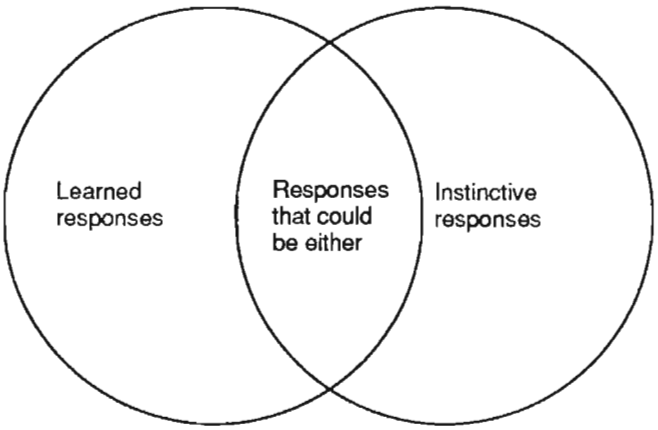
Suggestions for using The Venn Diagram:

1. Pairs - after reading the play each pair should decide what the differences are between Katherine & Connie's life experiences.
2. After the students have completed the Venn Diagrams ask them to share their results.
3. Venn Diagram Ideas

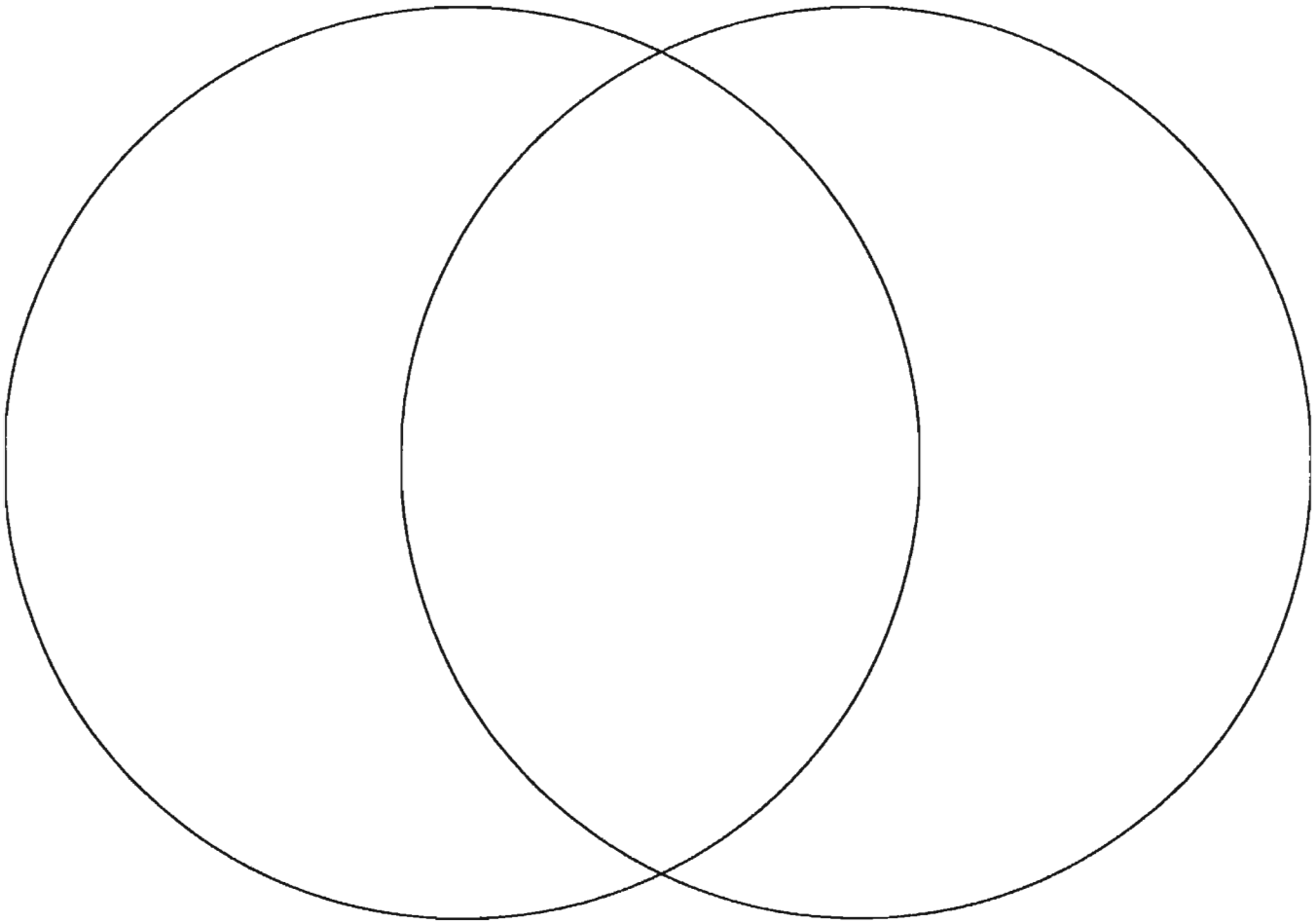
   Things that happened to Connie/Katherine:

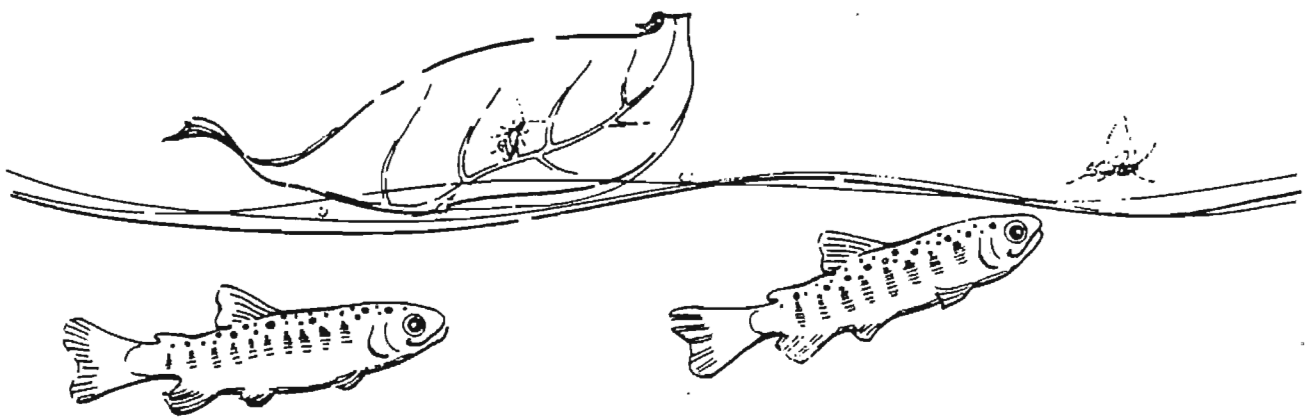


4. Things that fish "learn"; things that fish "know".



Venn Diagram





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presents

Ripple River Five

A play about

Place:.....

Date: .....Time:.....

For more information contact:

.....

Ripple River Five - Pre-Post Activities

This play was written for puppetry. Please see Appendix C for ideas and strategies using puppets. "Fish Talk" in Appendix A has information about the idea of personification of fish.

For this play you will need five salmon fry puppets.

This play is a follow-up to "What's Recess?", which is about the prior stage in a salmon's life cycle.

Synopsis:

Four coho fry have reared in the Ripple River for a little over a year. They know the ways of their freshwater habitat and are getting ready to leave their home stream for the Pacific Ocean. Shortly before their departure, the nearby hatchery releases its year old coho fry into the Ripple River. Among the thousands of hatchery reared coho is Samantha. The drama centres around the "rearing story-swapping" between Samantha & the four resident fry.

Vocabulary:

alevin
predator
kidneys
parr mark
polluted
rearing pond
hatchery
adipose fin
incubate
gills
smolt
habitat
biologists
brood stock
polluted
migrate
survival

Suggested Cooperative Learning Strategy:

K.W.L., located after the play.

Integration with "The Arts"

Music

- Water music could be played quietly in the background.
- Have the "critters" sing a song before the play begins. (Make up words for each animal using a familiar tune such as the mosquitoes go marching one by one ..., the mayflies go marching two by two ..., the trout go marching three by three...).

Art

- Create a river that is winding on the wall behind the actors.
- Research and draw (paint) the different aquatic organisms (gulls, mergansers, caddis flies, mayflies) that would live in and around the river).
- Make mobiles, face masks to represent the aquatic organisms.

Drama

- Readers' Theatre.
- Students could have sticks with blue ribbons or blue streams of paper and dart in and about the characters to create the sensation of living in the water.

Integration with Other Subject Areas

Language Arts

- There are several questions and activities related to the play. See pages * to *. You may want to distribute some of the information from Appendix A.
- Simulate a discussion, using Fish Talk (Appendix A), about personification/anthropomorphism.
- Generate a list: Fish can; Fish can't to clarify fantasy from reality.

Science

- Check Appendix A for Background Reference Material on the Pacific Salmon. For more information about salmon, both wild and hatchery stocks, consult Salmonids in the Classroom (Intermediate).
- Visit a local salmon stream (in the fall and/or in the spring).
- Visit a local hatchery. (There are hundreds of small hatcheries throughout the province and most of them welcome school groups.) For a complete list of where and when to see salmon, contact your local Federal Department of Fisheries & Oceans.
- Many schools in B.C. are involved in raising salmon in their classrooms. For details about the Classroom Incubation program contact your local Community Advisor (Federal Department of Fisheries & Oceans).
- Find out about the Storm Drain Marking Program(contact your local Federal Department of Fisheries Community Advisor).

Math

- There are many statistics involved in hatchery operations (egg-fry survival, comparison with natural survival, fry growth rates, number of returns). This data could be used in computation, problem solving and graphing.

For other salmon related information and activities (all subject areas) check with Salmonids in the Classroom (Primary and Intermediate). Available through BCTF Lesson Aids.

Ripple River Five

Characters

Sally Salar	*Year old fry - almost smolted up. Twin sister to Cindy.*
Cindy Salar	*Year old fry - almost smolted up. Twin sister to Sally.*
Trevor	*Year old fry - almost smolted up.*
Mikey	*Year-old fry - almost smolted up. Trevor's best friend.*
Samantha	*Hatchery fry - newly released. Also one year old and almost smolted up.*

Setting

The Ripple River is located near the Jones Creek Hatchery. It is early May. The River is alive with "critters" such as mayflies, caddisflies, beetles, ants, caterpillars and worms. Hundreds of Pacific salmon fry are swimming about. These fry have lived in the Ripple River for the past year. Soon they will begin their migration downstream to the estuary and then out into the Pacific Ocean.

Act I, Scene I

Two of the fry, Cindy and Sally, the Salar twins, are deep in conversation.

Cindy: Where should we go for lunch today?

Sally: Let's try that new spot upstream a little. What's it called? 'The Territorial'. I hear it's got great food.

Cindy: Oh, you mean the one with over fifteen kinds of insects on the menu? It looks nice, but the other day when I tried to get in it was very crowded. Word must have gotten around that it was a great spot to eat. They don't take reservations so it's first come first served and you know how hard it is to get past those steelhead trout. They're so much bigger than we are.

Sally: Well, where do you suggest we go?

Cindy: You know me. Nothing fancy.

Sally: We may as well just go to our usual spot. The food is good and the view is terrific.

Act I, Scene II

Later that afternoon ...

Sally: What are you thinking about, Cindy? You look so worried.

Cindy: I was just wondering about what it was going to be like living in the ocean. Will there be lots of food? Will there be huge hungry critters just waiting to munch on delicious salmon snacks? Will we Ripple River salmon all stay together? Will you and I stay best friends? How will we know where to go once we're in the ocean?

Sally: Whoa! One thing at a time.

Cindy: Will the water look and feel the same?

Sally: I think the water will look pretty much the same but I expect there will be more of it and it will be salty.

Cindy: Salty? What do you mean salty?

Sally: Well, you know how our bodies are changing. We're starting to lose our parr marks. We're beginning to silver up. That's what being a smolt is all about. We're growing bigger and changing so that we can adjust to living in salt water. It's hard to describe, but we'll be ready for life in the ocean by the time we get there. Nature will never let us down.

Cindy: You mean just because we lose our parr marks and turn silver we'll be ready for salt water?

Sally: No, it's not quite that simple. Our insides are changing as well.

Cindy: That sounds weird. What kinds of inside changing are we going through?

Sally: Like, for instance, our kidneys and our gills. They have been used to us living in freshwater.

Cindy: Once all these changes are complete will we be ready for life at sea?

Sally: You bet, and I, for one, think it will be quite an adventure to leave the good old Ripple River and head out to sea.

Cindy: I'm not sure I want to have any adventures. Maybe I'll just stay here. Maybe I'm not the adventurous type.

Sally: You'll be ready! And besides, you won't have a choice!

Act I, Scene III

Cindy: What's all the commotion about over there on the river bank?

Sally: Beats me. Could be those biologists coming to check the water temperature again. I wonder why they keep coming and taking water samples? Do you think we're in a special river? Maybe there's something wrong with our old habitat here. Last time the biologists were here remember they were talking about pollution from some factory.

Cindy: Pollution. It's a big word. Do you think it's a big problem?

Sally: In some rivers it sure is. People sometimes use the water as a dumping ground for their wastes.

Cindy: If this water was polluted don't you think we'd know about it? Does pollution taste salty? Don't you think we'd be coughing or feeling sick?

Sally: I'm not exactly sure. Let's swim over to the edge of the river and get a closer look at what's happening. Maybe we'll find out what pollution is all about.

Cindy: It doesn't look like the same biologists who were here last week. It looks like a bunch of kids. Shouldn't they be in school, just like us? In school, get it?

Sally: I hope they're not dumping garbage or chemicals in the water. Sometimes humans don't realize that pollution is caused every time something gets in the water. Lots of people think water is only polluted if it looks bad. They think it's only big companies that cause the problem. By the time the water looks polluted it's too late - for us salmon, anyway.

Cindy: Remember last fall when those men from that garage came down and dumped all that stuff into the river. Antifreeze and oil wasn't it?

Sally: How could I forget? It killed Eddie and Mark before they even got all their parr marks.

Cindy: Let's get out of here until they're gone. We can come back later if it's safe.

Act II, Scene I

A little further downstream, under the shade of a large tree ...

Samantha: Excuse me. Could you help me? I'm looking for the person who's in charge of checking the water temperature in the troughs. It feels a little warm today.

Trevor: You're looking for what?

Samantha: The hatchery worker who is supposed to check the water temperature. I think his name is Dan.

Trevor: What is this? Some kind of bad joke? No one checks the temperature. This is a river. Where are you from, anyway? I haven't seen you around here before.

Samantha: I just got here. It was a pretty rough ride. First we were taken out of the rearing ponds, then we were loaded into huge trucks. Then we were put in buckets. The hatchery workers and the students tried to be careful but we still got jostled about. You know how it is. It's been quite a day.

Trevor: Buckets? Hatchery workers? Students? What are you talking about?

Samantha: You know how involved one of these fry releases is. It takes a lot of planning. All kinds of people from the hatchery are involved.

Trevor: Hatchery? Release? Look friend, why don't you start from the beginning.

Samantha: O.K. Well, first we were in the Heath Trays. Oh no, I guess the real beginning was before that. Let's see. First our parents were captured for brood stock by the hatchery workers, then there was the egg take, then we were taken to the incubation room, then ...

Trevor: Look out!

Samantha: What was that? And why did it look so angry?

Trevor: <u>That</u> was a full-grown merganser, dearie, and he wasn't angry, just hungry.

Samantha: Well, aren't we all.

Trevor: Look, I don't know what it was like where you were raised but around here nobody named Dan is going to check the water temperature. I suppose you'll want to be fed too. Here it's every fry for him or herself. There's only one way to get food around here.

Samantha: Oh dear, I do have a lot to learn.

Trevor: And another thing. Unless you want to end up as hors d'oeuvres for Jaws over there, I suggest you concentrate on finding a nice quiet spot with plenty of grub around. Maybe you can explain all the details about trucks and buckets and students and Heath trays to Sally and Cindy over there. They may be interested. In fact, they'll probably suggest you do it over lunch. As for me, I've got better things to do with my time. After all, I'm almost ready to migrate. Don't ask what that means. Cindy and Sally will, I'm sure, fill you in on that, plus all the other details of life in the Ripple River.

Samantha: Thanks for the advice. My, this is going to be exciting ...

Trevor: The poor thing must be suffering from truck lag or bucket shock. She'll never make it.

Act II, Scene II

A bend in the river has created a large deep pool. There are overhanging boughs. The coho fry like to rest in the quiet waters.

Samantha: Excuse me. What are those?

Mikey: Those what?

Samantha: Those grey round things underneath us. I can't see the bottom of the rearing pond. Our pond at the hatchery was smooth but here I can't see the concrete. Those things are in the way.

Mikey: Those things are rocks and gravel. Those things make up the river bed.

Samantha: What's wrong with your concrete? Why is it covered with rocks and gravel?

Mikey: Look, maybe you should rest awhile. Too much darting around can make you dizzy. Just take it easy, you'll feel fine. *(To himself)* Concrete, rearing pond ...?

Act II, Scene III

Same setting as Act II: Scene II.

Trevor: I just met the strangest salmon.

Mikey: Me too.

Trevor: Was she about so long, only a few parr marks left, almost silvered up?

Mikey: Yeah, sorta cute, but boy was she weird.

Trevor: You mean the lights were all on but nobody was home?

Mikey: Not exactly. She just seemed confused. She didn't know why we had rocks and gravel on the bottom of the river.

Trevor: Did she mention anything about a guy named Dan who was supposed to feed us?

Mikey: She looked like one of us except for a missing adipose fin but she talked like she was from outer space.

Trevor: Missing adipose fin?

Mikey: She told me the hatchery people clipped her adipose fin so scientists and fishers would know she had some kind of a tag in her nose.

Trevor: She's weirder than I thought. Why would she have something in her nose?

Mikey: I asked her and she said the nose tag contained all sorts of information that biologists use in their research.

Trevor: Sounds like a real brain. What's research?

Mikey: She knows a lot about some stuff and nothing about other stuff.

Trevor: Maybe that's what happens to fish that live in hatcheries, whatever hatcheries are. Maybe something gets stuck in their gills. Maybe hatcheries make fish start seeing concrete and Heath trays - whatever they are? Let's go find Cindy and Sally. Little miss what's her name will have bumped into them by now. After all it's a small world here in the Ripple River.

Act III, Scene I

Late afternoon. A beaver dam (deserted) has provided an ideal spot for rearing coho. The area is sheltered and plenty of insects drop into the water from the nearby trees.

Cindy: You mean you began life in a tray instead of under the gravel?

Samantha: Yup, I was incubated along with several thousand other eggs. It was clean and comfortable. Lots of cool water flowing over us. Nothing to do but grow.

Sally: We had cool, clean water too but we lived in constant fear of being crushed or dug up or washed away.

Cindy: Were you an alevin?

Samantha: Sure - weren't you?

Cindy: Yes, and I hated it. That big old yolk sac always getting in the way. I was the happiest swim-up fry you ever saw.

Sally: We liked emerging from the gravel too but then we really had to watch out.

Samantha: Watch out for what?

Sally: Critters - gulls, mergansers, bigger fish.

Samantha: Well, at the hatchery we were protected and fed.

Sally/Cindy: You were *fed?*

Samantha: Yes, the pellets didn't taste all that great but we always got lots to eat and we got it regular as clock work.

Cindy: And this place where you were incubated and reared was called a hatchery?

Samantha: Yes, it was the Jones Creek Salmon Hatchery. There are lots of hatcheries just like it all over the province.

Sally: Seems strange. Why would anybody want to raise fish in a hatchery? We've got lots of rivers and lots of room.

Samantha: I think it has to do with survival.

Cindy: Survival?

Sally: You know, Cindy, the number of us salmon still alive are the survivors.

Cindy: So what's the big difference. We're all starting to smolt up and we'll all be heading downstream and out to sea in a few more days.

Act III, Scene II

Twilight, same setting as Act II, Scene I. The coho fry/smolts dart about.

Trevor: I see you girls met - what's your name?

Samantha: Samantha.

Trevor: Hi, Samantha. I'm Trevor and this is my friend, Mikey.

Samantha: Hi, Mikey. Hi, Trevor.

Mikey: What are you females up to?

Sally: We were just comparing our life history with Samantha's. She has lived all her life in the Jones Creek Salmon Hatchery. It's only five kilometres from here. She was released into our river this morning by the hatchery staff and some students from Sunshine Elementary School.

Trevor: Released?

Samantha: Yes, remember I tried to explain to you guys why I was so mixed up. You would have been confused too if you'd been in a truck and then in buckets and then had to look at all those strange things instead of concrete.

Mikey: Rocks and gravel.

Samantha: Yes, rocks and gravel.

Trevor: Did you ever find Dan?

Samantha: No smarty fins. I caught a couple of mayflies. It came very naturally, as a matter of fact.

Trevor: Well, enough of this chit-chat. We have to be migrating along.

Sally: You mean it's time to go?

Cindy: You mean we're off to the salt chuck?

Samantha: Migrate? Salt chuck? Sounds like we're going somewhere. I just got here.

Mikey: Well, unless you were released too early you'll be heading out with the rest of us. That hatchery living may be short on scenery and adventure but you seemed to have managed to turn out just fine.

Samantha: But you guys are more prepared for moving downstream. You've had lots of practice feeding yourselves and avoiding predators.

Sally: Hey, Sam, you'll get the hang of river life. There'll be plenty of food where we're going and as for predator avoidance I think that will come pretty naturally. Besides, you'll have your friends around you. We'll show you the ropes.

Trevor: Sure, it doesn't matter whether we came from a river or a hatchery we're all fry or rather almost smolts and we're all off to see the Pacific Ocean and have adventures together.

Cindy: I hope it won't be too much of an adventure.

Mikey: Nothing will be too much of an adventure for the Ripple River Five.

Cooperative Learning Strategy

K.W.L. (Know, Wonder, Learn)

Adapted from The Cooperative Think Tank, by James Bellanca, Skylight Publishing Inc., 1990, Palatine, Illinois

Explain to the students that this technique allows them to access prior knowledge about a topic, focus their study on what they want to learn, evaluate what they have learned and reflect upon how they come to acquire their new knowledge.

Suggestions for using K.W.L.:

1. Class/Group - before reading the play have students brainstorm for a list of information about salmon. Have them each come up with 2-3 questions that they would like to have answered. After reading/dramatizing the play have the students complete the chart.

What I Know	What I Wonder About	What I Learned	How I Learned
Live in water	What is a hatchery?	Hatcheries rear thousands of fish	Characters in play. Visited a hatchery.
Have gills	Why they change colour	Salmon fry have parr marks	Asked a friend.
Eat herring	Why they leap	Salmon live part of their lives in fresh water and part in salt water.	Read a book. Saw a video.
	How fast they swim		Teacher told me.

K.W.L. Chart

What I Know		
What I Wonder About	**What I Learned**	**How I Learned**

Ripple River Five - Questions

Act I, Scene I

1. (a) Cindy and Sally Salar are Pacific salmon fry. Describe what a salmon fry looks like. Draw a picture to go with your description.

   (b) Describe a day in the life of a Pacific salmon fry. (You may want to give your fry a name.)

2. (a) Cindy and Sally's habitat is the Ripple River. What kinds of things do you think make a good habitat for these salmon?

   (b) Describe a river that would not be suitable for salmon to live in.

3. (a) In real life salmon do not talk. Why do you think the author of the play might have wanted her fish to talk?

   (b) Think of at least three examples of stories or T.V. programs in which the characters are talking animals.

   (c) When an author gives animals human characteristics he/she is said to be using personification. Write a T.V. or radio ad on the back of this page, using personified animals to sell a product or promote an event.

4. In real life, salmon fry or smolts are able to do some of the following things. Put a check mark beside the things salmon <u>can</u> do. If you are not sure put a question mark in the space.

___ see	___ smell	___ swim
___ hear	___ feel sorry	___ laugh
___ eat	___ feel pain	___ search for food
___ walk	___ react to water conditions	___ avoid predators
___ cry	___ wonder about the future	___ plan ahead
___ establish territories	___ communicate with other salmon	___ recognize their river

5. (a) Look up the word <u>territorial</u> in your dictionary. Why do you think <u>The Territorial</u> might be an appropriate name for a restaurant in a salmon river?

(b) With a partner, brainstorm for some other names that could be used for "restaurants" for salmon?

6. (a) Choose one restaurant name from 5(b) and pretend that you and your partner are the owners. Make up a menu for your restaurant on the back of this page.

(b) Choose one item from your menu and write a recipe for it.

Ingredients

Methods

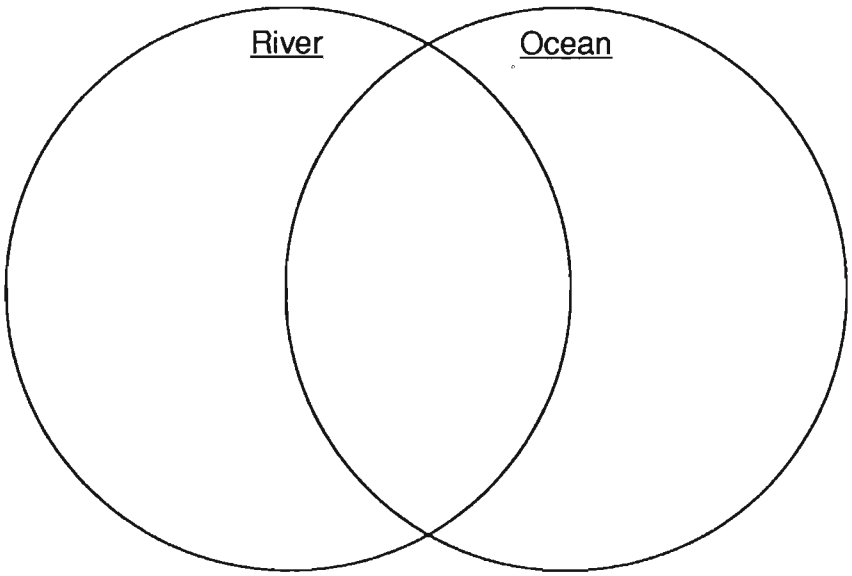
(c) Describe what your restaurant looks like.

(d) Design an ad for T.V., radio or the newspaper for your restaurant. Do it on the back of this page.

Act I, Scene II

1. (a) Cindy and Sally are actually salmon fry but they have begun to "smolt up". What kinds of changes are they noticing?

(b) Contrast and compare life for salmon in the river with life for salmon in the ocean.



(c) Salmon are anadromous - that means they live part of their life in freshwater and part in saltwater. Name any other fish you know that are anadromous.

(d) Name some fish that spend their whole life in freshwater.

2. (a) Cindy was worried about what kinds of things might be waiting for her in the ocean. List any concerns you would have if you were a salmon fry, that Cindy hadn't thought of.

(b) Sally was looking forward to adventures at sea. What kinds of "adventures" do you think she really might have? Write a short story about "Sally Salmon at Sea", on the back of this page.

Act I, Scene III

1. (a) Why do you think scientists might test the water temperature in the Ripple River?

   (b) Look up the word pollution in your dictionary. Write the definition.

   (c) List as many kinds of pollution as you can think of.

   (d) Do you think salmon would be able to "sense" the presence of pollution?

   (e) Do you know of any incidents in your area of people or companies polluting streams or rivers? (You may wish to put together a portfolio of newspaper clippings about the environment.) If so, describe what happened. If not, describe why you feel your rivers or streams are pollution free.

   (f) List, in rank order, the causes of pollution in fresh water, in your area. If the water in your neighbourhood is pollution-free, draw a BIG HAPPY FACE.

2. Sally and Cindy hoped the school children on the river bank weren't dumping garbage in their river. Make a list of River Care Guidelines for school children to follow.

3. What do you think the children were doing out of school on the river bank?

Act II, Scene I

1. Two new characters are introduced in this act of the play - Samantha and Trevor. Why did the two have trouble communicating?

2. Draw a cartoon strip illustrating Samantha, Trevor and Jaws - the trout.

3. Suppose you and your classmates are going to be involved in a fry release. Complete the following senses chart.

ON OUR FIELD TRIP I THINK WE WILL:				
See 	**Hear** 	**Touch** 	**Smell** 	**Taste** 

4. (a) Choose a partner and brainstorm for eaters of salmon (predators) and what salmon eat (prey) at each stage of their life cycle.

	Predators	Prey
Egg		
Alevin		
Fry		
Smolt		
Adult		
Spawner		

(b) Salmon, at every stage of their development, are part of the food webs in both freshwater and saltwater. Illustrate the salmon at one particular stage of its life in a food web.

Act II, Scene II

1. Samantha has been raised in a hatchery. She is confused about her new surroundings. What other things, besides rocks at the bottom of the river, would she find different?

2. What kinds of things would Mikey, or one of the other "natural" fry find very different if they had been placed in a hatchery?

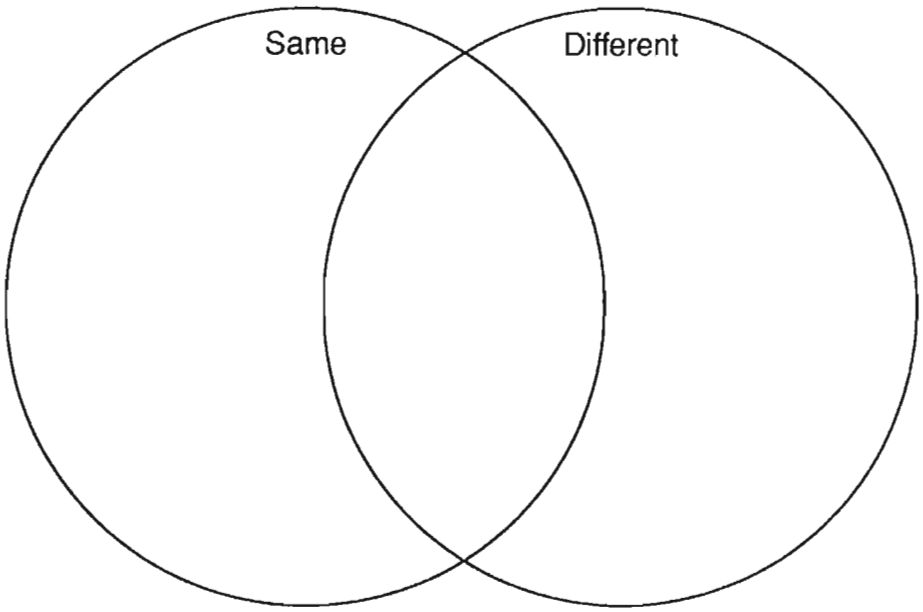
Act II, Scene III

1. Samantha's adipose fin had been clipped at the hatchery. This is done as part of a tagging program. Why do you think salmon would be tagged?

2. Mikey and Trevor compare notes about their conversations with Samantha. They blame her behaviour on pollution. How do you think pollution affects young salmon?

Act III, Scene I

1. Contrast and compare a salmon's life cycle in a hatchery with a salmon's life cycle in a river under the headings:



2. (a) What would cause salmon mortality (death) in a river?

   (b) What would cause salmon to die in a hatchery?

3. Do you think more salmon would survive in a hatchery or in the river? Give reasons for your answer.

Act III, Scene II

1. Trevor and the other salmon were getting ready to migrate downstream. Imagine the Ripple River is right outside your classroom. Draw a map to help them get to the ocean. (Be sure and label all points of interest.)

2. Write a story, a play, a poem or a song on the back of this page about the ocean adventures of the Ripple River Five.

3. (a) What did you learn about salmon from reading the play?

   (b) What were the strengths and weaknesses of the play?

   (c) What part of the play did you enjoy the least? Give reasons.

   (d) What part of the play did you enjoy the most? Give reasons.

.....

presents

A Tale of Two Sockeye

A play about

Place:.....

Date: .....Time:.....

For more information contact:

.....

A Tale of Two Sockeye - Pre-Post Activities

This play was written for puppetry. Please see Appendix C for ideas and strategies using puppets. "Fish Talk" in Appendix A has information about the idea of personification of fish.

For this play you will need two spawner puppets.

Synopsis:

Two tired female sockeye salmon enroute to the Adams River rest for a moment, and briefly reflect on their journey up the Fraser River.

Vocabulary:

impressive	habitat
environment	pollution

Suggested Cooperative Learning Strategy:

The Sequence Chart. Located after the play.

This could be given to the audience to provide focus during the play. (For younger audiences, the boxes could be large squares of paper distributed prior to the performance.)

Integration with "The Arts:"

Music

- Travelling music "On the Road Again" could be played. Invent new words to a tune using words from the play.
- A song, "Little Salmon", is on the audio cassette, "Chucky Chum", as part of the salmonid education materials available at BCTF Lesson Aids.

Art

- Illustrate the playbill.
- Make three dimensional representation of the journey upstream (Plasticine, cardboard, pieces of wood).
- Puppet ideas - see Appendix C.

Drama

- Readers' Theatre.
- Create distinct voices to go along with the characters (high/low).
- Slides or pictures of the scenes (coming up the river) could be projected behind the speakers.
- Brainstorm for a list of fish and other animal and water movements that could be used to enhance the dialogue.

Integration with Other Subject Areas:

Science

- See Appendix A for information about the salmon life cycle.
- Although all Pacific Salmon die after they spawn, the carcasses provide food for scavengers and nutrients for the streamside ecosystem. Discuss the food web and nature's wondrous recycling "plan" (Project Wild has many activities centered around this theme).
- Visit a local river/stream/creek in the fall to observe salmon spawning.

Language Arts

- Have the students write subsequent Acts to the short drama using the same characters or fish of other (local) species.

Social Studies

- Locate the Fraser River on a map of B.C. and have the students prepare geographical, historical, economic reports using cooperative (jigsaw) strategies.
- Every four years the peak sockeye run brings hundreds of thousands of B.C. residents and tourists to the Adams River. Discuss the economic importance of "events" such as this to host towns/cities.

For other salmon related information and activities (all subject areas) check with Salmonids in the Classroom (Primary and Intermediate). Available through BCTF Lesson Aids.

A Tale of Two Sockeye

Setting

Adams River near Chase, B.C. It is mid-October. Hundreds of pairs of spawning sockeye salmon are already on the spawning grounds. Two females, Shannon and Sandra, have just arrived.

Characters

Shannon Salmon
Sandra Salmon

Shannon: So this is the world-famous Adams River. It sure is crowded.

Sandra: Yes, isn't it impressive. I'm so excited. What do we do now?

Sandra: You have to admit, it was quite an adventure. It seems like such a long time ago since we first left the Pacific Ocean.

Shannon: Remember when we were surprised that the water tasted so much less salty?

Sandra: That's because we were in the Fraser River Estuary. The salt water from the ocean mixes with the fresh water from the Fraser River.

Shannon: And boy, were there ever a lot of animals living there. The estuary was teeming with life and a lot of it looked like it would make a great meal, but ...

Sandra: The big BUT. But we weren't hungry. Our bodies were telling us not to eat. It was then we realized we'd better not spend too much time gazing around like tourists. We only had so much energy stored in our bodies and we had a long way to go - without food.

Shannon: And don't forget we sort of knew we'd need extra energy to get through all the hazards along the way. For us, the upstream journey was going to be like a giant obstacle course.

Sandra: It turned out we had to swim around and away from all kinds of predators.

Shannon: I agree that some of the critters we saw along the way were scary but my vote for the most frightful experience goes to those massive log booms in the Fraser estuary.

Shannon: Speaking of unpleasant experiences, that bear that took a swipe at us, just as we passed Hope, had paws the size of three caudal fins.

Sandra: What about Polluter of the Year? We swam through something pretty nasty near Abbotsford and again near Kamloops. The winner of that award, if you can call it winning, would probably be a three or four way tie. Do you think all this environmental awareness that is being talked about and taught will be so effective in convincing people not to pollute that our offspring won't ever have to ever experience that clogged nostril feeling?

Shannon: I sure hope so because both our freshwater and our ocean habitats are very dependent on how **all** folks in **all** countries take care of the water. The important thing now is that we made it and we're finally here. Now we must get on with spawning.

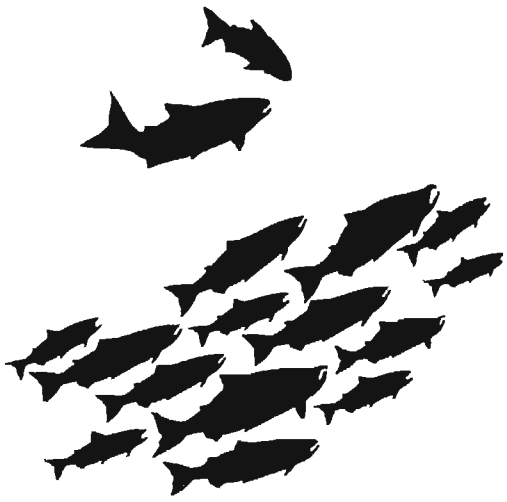
Sandra: I guess you're right. This old body is pretty tired and battered and it looks like it will take a fair amount of energy to find a good spot for a redd.

Shannon: Sandra, please don't laugh at me, but how do we, you know, find a mate?

Sandra: I'm not sure, but there's only one way to find out and it isn't by reading or talking about it. Let's go.

Shannon: You mean just swim up there with all those strangers?

Sandra: Yup. Last one on the spawning grounds is a rotten fish.



Cooperative Learning Strategies

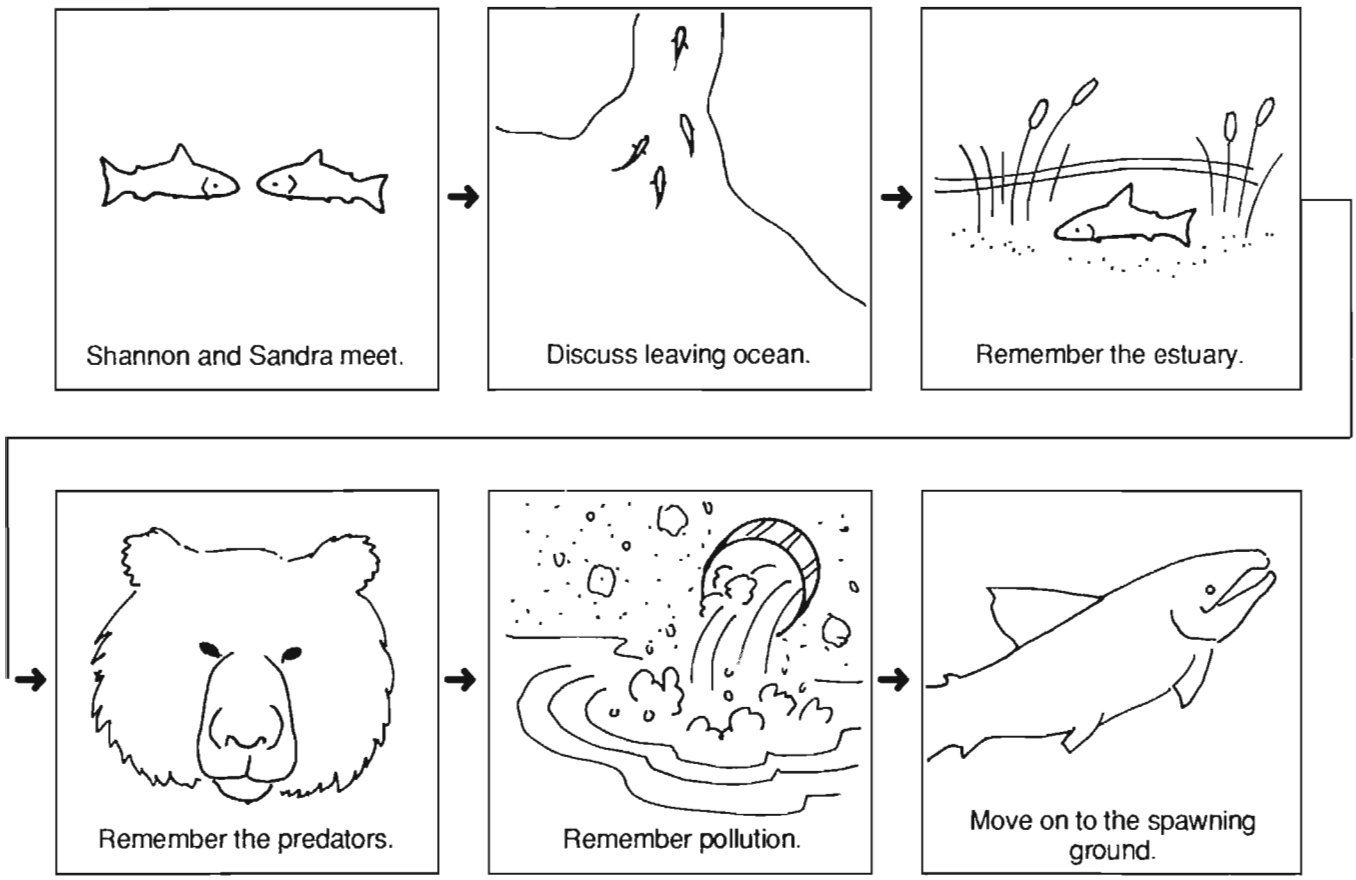
The Sequence Chart

Adapted from, The Cooperative Think Tank, by James Bellanca, Skylight Publishing Inc., 1990, Palatine, Illinois.

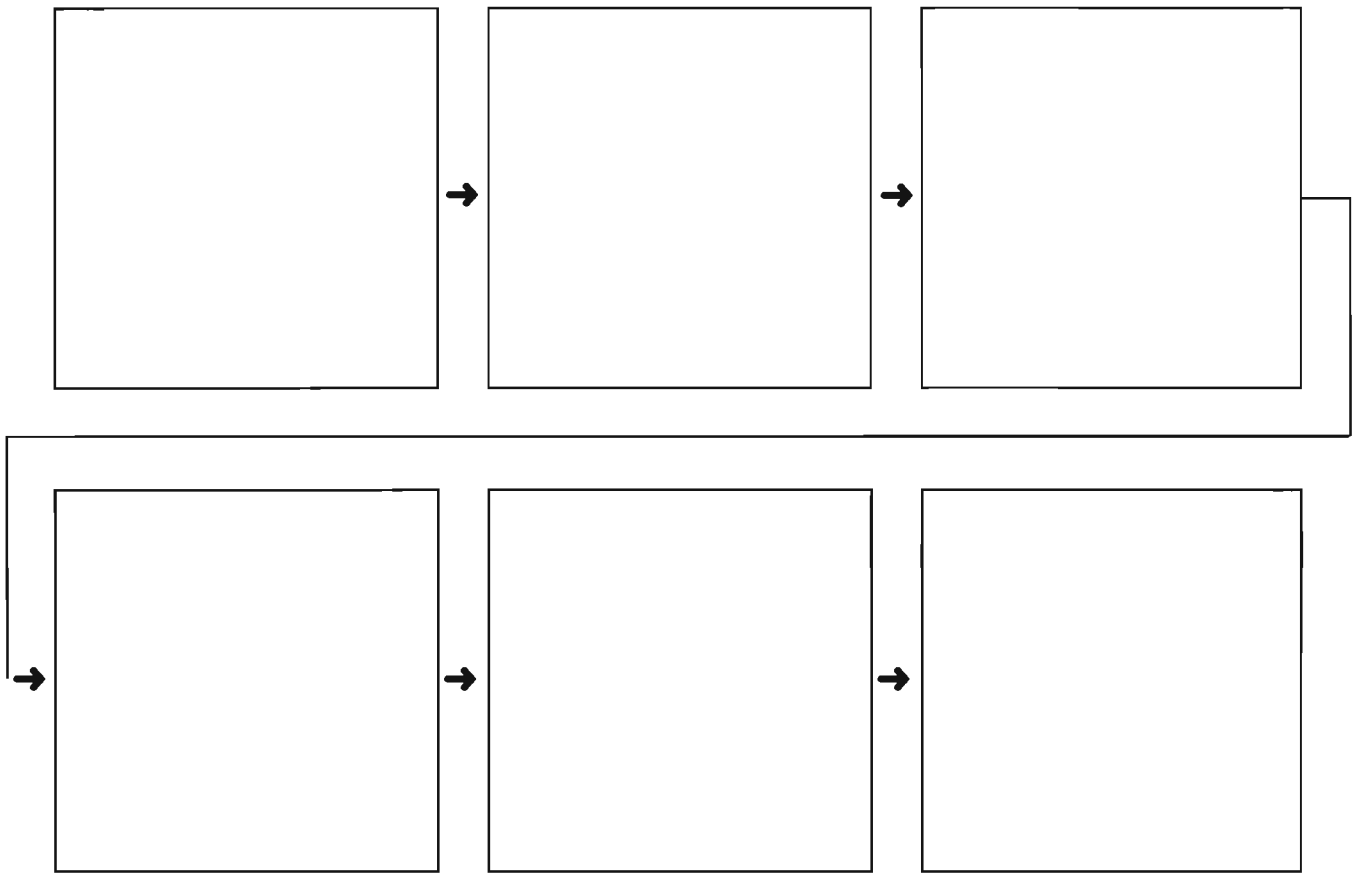
Explain to the students that there are many ways to sequence events. Charting processes or events is a way of organizing the story.

Suggestions for using The Sequence Chart:

1. Whole Class - after dramatizing the play, have the students identify the problem faced by the two characters. Have the students list the events that occurred in order. Show The Sequence Chart and have the students draw a picture of each event in the correct box.
2. Use no more than two or three words to label each picture.



The Sequence Chart



Problem Solving Scenarios

Preparation

- Prepare copies of Student Guideline (next page) as a handout for each group.

Day 1: Introductory Lesson

a. Explain the purpose of problem-solving through drama.

Draw an awareness that a problem-solving drama is similar to a mystery story.

i.e. In mysteries, you use all the clues to solve the mystery. In scenarios, you analyse all the facts and options to achieve a solution.

b. Read a scenario to the class to illustrate your points.

What facts were given?

What factors must be taken into account to achieve a solution?

Write the words on the blackboard that pertain to each heading. Headings are: Facts, Emotions, Needs, Behaviours, Processes, Solutions.

c. Ask for volunteers to ad lib the scenario, using all the information on the board.

Day 2: Co-operating Groups Planning

a. Choose one or more of the scenarios on the following pages. They may be cut out and laminated.

b. Have class break into groups and meet in specified areas. Give each group a copy of the Student Guideline to complete.

c. Students should develop the dialogue using the information collected. Plays should be 3 - 5 minutes long, depending on age and ability of students.

d. It should be established what props and costumes will be needed. These should be ready for rehearsal on Day 3.

e. Set date and send invitation to guests. Usually five plays can be performed in a 40 minute period if students are very organized.

f. Post evaluation sheet on bulletin board so that students are aware of the criteria for evaluation in order to work to that end.

Day 3: Rehearsals

Remind students to have props at school, if not already there.

Day 4: Second day of rehearsals.

Day 5: Presentation

a. Each group presents its play.

b. The cast should be thanked by the audience.

Day 6: Evaluation

a. The evaluation could follow each play or could be done after all plays are presented.

b. Optional: Discussion can follow the evaluation. This discussion would centre on the positive aspects of the play and be offered by students and teacher. Other solutions can be offered by the class. In this way, the cast realizes that a number of solutions could be applied to this scenario with equal results.

Suggestions for opening remarks:

- I like the way ...
- It was great when ...
- I really liked ...
- I think it was interesting when ...
- My favourite part was ...

Student Guideline

Respond to the following questions and statements. You can write on this sheet.

How many characters are required? Choose and name them.

Re-read the scenario.

What is the problem?

What facts have been given to you in the scenario?

What emotions or feelings are evident?

What needs must be satisfied to reach a satisfactory solution?

What behaviours will be required to solve this problem?

What process(es) will be required to solve this problem?

Solutions - Discuss past experiences of group that were similar to, or the same as, the needs in this problem. How were they solved?

Problem Solving Scenarios

Barry and Glenn had been friends for years - more years than they'd often like to remember. They played poker on Thursday night, golf on Saturday and they went fishing on Sunday.

One Sunday, around 5:30 a.m., as they were sitting in their small boat bouncing along, preparing for their first cast of the day, Barry surprised his friend by saying, "I'm going to quit fishing next year. The price of my fishing licence went up. The new regulations on chinook are so strict it's not worth all the effort for a couple of fish. Heck, sometimes we fish for hours and never catch a thing."

Glen tried to interrupt, "But Barry, we really enjoy ...," when his friend cut him off.

"Enjoy! Enjoy! It's the commercial fishermen who enjoy - all the way to the bank. It's foreign countries who enjoy taking our fish. There are too many seals out there and they want their share too. Besides, logging and other industries are so busy polluting the spawning streams it's a wonder any salmon survive. Everyone else but us gets a fair share. Why can't it be like the old days when we could fish all day and take home enough salmon for a neighbourhood barbecue?"

Anne and her family are enjoying a camping holiday. Every morning she and her brother Mike go to get wood and water. One day as they are gathering up some logs from the pile, made available by the Parks Branch, they notice two girls and a boy about their age. These kids are gathered around the water tap. Anne notices that instead of taking water from the tap they are pouring several containers of a darkish liquid down the drain under the tap. She nudges Mike to draw his attention to what is going on. What do you think they will do?

Danny's dad is a commercial fisherman. In the off-season he is a part-time mechanic. He has his own tools and he works out of a shop located about 10 kilometres from their house. One Saturday afternoon Danny decides to go with his dad to learn a bit about fixing cars. He feels it will save him a lot of money when he owns his own car - one day, he hopes. He watches his dad and two other part-time mechanics as they change mufflers, test brakes, change oil, replace c.v. joints. He asks his dad if he can help. His dad takes him over to a pile of really grimy assorted car parts. There is a pile of rags and some cleaner beside the parts. "Take these outside over by the creek bank and wash them up. Use the cleaner in this can. Be sure and get as much of the oil and grease off the parts as you can." Danny hesitates. He's not sure what he should do.

One Saturday morning Brent was hiking near Cook Creek. He heard familiar voices and saw several of his friends in the water. They each had an ice cream bucket and they were trying to scoop up the young coho fry in the creek. One friend called to him, "Come on over here, Brent. We're going to get buckets full of fry and take them home. Jason has a fish tank."
What do you think Brent should do?

_____ say "hi" to his friends and continue on his hike
_____ join his friends and help scoop up the coho fry
_____ report his friends to the police because he thinks they are doing something illegal
_____ something else

Mr. Lemmen is a Fishery Officer. It is his job to enforce the fisheries act which states that it is illegal to remove fry from a stream. What do you think he would do if he witnesses the same scene as Brent did on Cook Creek?

_____ yell at the kids to get them to drop their buckets and then to run away
_____ arrest the offenders
_____ ask the kids to leave the creek
_____ something else

The day before the kids at Somerset School are to release their fry into Somerset Creek they go down to the creek to make sure it is a good place for fry. When they arrive they notice that there are several dead fish floating on the surface of the water. Nothing else seems disturbed. They don't know what caused the fish to die. They wonder what they should do about releasing their fry.

What do you think they should do?

_____ call the local newspaper and report the dead fish
_____ ignore the dead fish because the fish they were going to release were young and healthy
_____ take all the dead fish out of the creek and bury them because they look so ugly
_____ something else

The grade six class at Uplands Elementary decides they would like to have an end-of-the-year beach party. When they are discussing possible sites, one girl in the class suggests Powell Beach. Several other students object because it is too isolated and too rocky. Another student suggests Sunoka Beach. The class seems to think this is the best bet. Sandra, a new girl in the class, has recently been to Sunoka and although most of the beach seems clean, her mother has been working with other oceanographers on a study involving serious pollution problems just north of the proposed beach party site. Sandra wonders whether she should mention her mother's pollution study. She doesn't want to be labelled a party spoiler. She isn't sure what to do.

Many streams in B.C. are in need of repair. They have been damaged by human activity. It is costly to provide the labour and equipment necessary to fix up the streams, especially the remote ones. It also costs a lot of money to build hatcheries. Hatcheries may not be necessary in the long term if natural streams can be made more productive.

Since commercial fishermen will benefit from more salmon, should they have to contribute to the costs of producing more salmon. They stand to make more money if there are increased salmon stocks. Maybe consumers of salmon should pay for enhancement projects. Some of the money from the sale of salmon, like a tax, could go back to repairing streams or building hatcheries. Commercial fishermen already feel they pay too much for licenses, boats, nets. They think someone else should pay. They don't want to reduce their catch but they want more salmon.

How would you solve the problem of who should pay?

.....

presents

Antifreeze; Anti Fish

A play about

Place:.....

Date: .....Time:.....

For more information contact:

.....

Antifreeze; Anti Fish - Pre-Post Activities

Synopsis:

Two young friends encounter a group of teenagers washing and servicing their cars. The teens are probably unaware that they are practicing a potentially harmful activity in their method of disposing of oil and antifreeze.

This vignette (incomplete skit) provides for an open-ended enthi-reasoning activity. (What would you do if ...?)

Vocabulary:

antifreeze storm drain
Porsche

Suggested Cooperative Learning Strategy:

People Search. Located after the play.

Integration with "The Arts:"

Music

- To set the scene have one character enter before the other, whistling a tune. Have the second character enter whistling a different tune. (The tunes could be from Star Wars.)
- On tape have the sound of a "fast" car (Porsche) or have students simulate car traffic sounds - some far away, some nearby.

Art

- Illustrate the playbill.
- Make cardboard cut outs (life size) for major props (car, storm drain).

Drama

- Have students improvise an ending which provides some resolution.
- Students could practise speaking deliberately (for effect) and making dramatic facial and hand expressions.
- Readers' Theatre.
- After your class has completed the skit (and activities) use the script as a model to facilitate learning in a younger grade.

Integration with Other Subject Areas

Language Arts

- Questions about the skit, located after the play.
- A video (2 1/2 minutes) "Storm Drain Marking Rap" is available from Department of Fisheries & Oceans.

Science

- The Storm Drain Marking Program involves students in marking neighbourhood storm drains and informing the public about how to dispose of toxic substances. Contact your local Community Advisor (Federal Department of Fisheries & Oceans) to find out about getting a storm drain marking kit.

Social Studies

- Intermediate Salmonids in the Classroom, Unit III contains many activities involving urban streams and typical environmental issues.

For other salmon related information and activities (all subject areas) check with Salmonids in the Classroom (Primary and Intermediate). Available through BCTF Lesson Aids.

Antifreeze; Anti Fish

Setting

An urban street.

Characters

Jamie Carlson & Nicole Blanshard - Grade Eight students
Teenager #1 ,Teenager #2 , Teenager #3 - Grade Twelve students

Act I, Scene I

Enter Jamie from side. He is carrying a heavy load of books. Enter Nicole from opposite side, she is carrying a backpack.

Nicole: Jamie, wait up! It's me. (*Jamie stops)* Where have you been? I haven't seen you around.

Jamie: (*Smiling*) Yeah, Hi. I haven't seen you for ages.

Nicole: Well, I have been pretty busy, you know, with school and stuff.

Jamie: It's too bad we're not in any of the same classes anymore, we hardly ever get to hang out together like we used to.

Nicole: I miss that. Remember when we used to go to your house after school and play Star Wars? *(Jamie nods and laughs)* Or that time we got locked in your shed.

Jamie: That was your fault. If you hadn't slammed the door so hard ...

Nicole: Aren't you ever going to let me forget that?

Jamie: Well, I don't see you so often anymore, so I have to make up for it.

Silence. Both students become lost in memories.

Nicole: So, are you still playing hockey?

Jamie: Yes, our team is doing pretty well this year. *(His voice trails off and he looks over Nicole's shoulder, somewhere off the stage)*

Nicole: What is it?

Jamie: Look at that car over there!

Nicole turns around and looks.

Nicole: Wow! That's a Porsche - a Targa Porsche.

Jamie: I'm disappointed, Nicole. I thought you knew your cars. It's a Corvette. A 1982 Vette.

Nicole: (*Sarcastically*) Oh right, you're such a smart guy. *(Matter of fact)* It's a Porsche.

Jamie: You want to put some money behind that big mouth of yours?

Nicole: Yeah. You're on.

Both students walk closer for a better look. From offstage, three teenagers walk on.

Teenager #1: Well, it's all set now. Oil's changed, antifreeze is topped up, looks great and runs smooth.

Teenager #2: I wish my dad had bought me a car.

Teenager #3: (*Laughing*) Hey, I bet the ladies are really impressed by your bike.

Teenager #2: (*Angrily*) Why don't you shut up, it's not like you have a car.

Teenager #3: But I don't need one to pick up the chicks.

Teenager #2: Advances towards Teenager #3.

Teenager #1: Stop it, you two. Let's go downtown. *(Other two relax)* We just have to get rid of the old oil and antifreeze.

Teenager #3: Just dump the gunk down that drain right there.

Teenager #2: That's what my dad does. Hurry up, before the mall closes.

The Teenagers run off stage and return. Two of them carry buckets containing liquids. They walk towards the drain and are about to pour the contents into it.

Nicole: Stop!

All the teens, as well as Jamie, stare at her.

Nicole: Don't do that. Antifreeze and oil are for cars; not for fish.

The teenagers lower the buckets a little.

Teenager #1: *(In a superior tone)* We're not feeding fish, little girl. We're just getting rid of this stuff. That's what this drain is for.

People Search

Find someone who has seen a storm drain.	Find someone who has seen a "marked" storm drain.
Find someone who knows what to do with toxic substances such as oil, antifreeze, or paint.	Find someone who has read an article about the harmful effects of pollution on fish.

Questions

1. What do you think Nicole was so outraged about?

2. List all the ways that Nicole might use to convince the boys not to put their pollutants down the water drain. Choose the one solution that you think would be most workable and give 4 reasons (criteria) for your choice.

3. Research storm drains in your neighbourhood.

   (a) Brainstorm what you want to know about them.

   (b) List sources for information.

   (c) Prepare a telephone interview for the contact person in your community.

   (Remember your introduction and questions.)

4. What does 'toxic' mean? List several toxic products.

5. Which of the products (oil, antifreeze, soapy water) would be most harmful to fish? Explain your answer.

6. How could the boys have gotten rid of the waste products? What would be the safest way to get rid of each of the products?

7. Have you ever seen "marked" storm drains? What did the markings look like? Why do you think the storm drains were marked?

8. Act out an ending for the scenario with Jamie and Nicole.

The Storm Drain Marking Program

Storm Drain Marking is a conservation and education project. It is designed to enhance community awareness about the link between neighbourhood drainage and the health of fish populations in local streams.

Many people do not realize that storm drains often flow directly into streams. In areas where natural streams have been routed into underground culverts, they may not even know a stream exists! Storm drain water is completely untreated, so if someone pours fertilizer, pesticide, herbicide, used engine oil, or antifreeze down the drain, the poison can kill the fish and other organisms that live in the stream.

Children are the front line of Storm Drain Marking. They paint a yellow fish symbol beside drains as a reminder, and distribute information brochures door-to-door. In the process, they learn about fish habitat, the sewer system, and the effectiveness of community action.

The Storm Drain Marking Program is a joint project of Fisheries and Oceans Canada, The B.C. Ministry of Environment, and the B.C. Conservation Foundation. If your group or organization would like more information about the Program and the Kit, please contact:

Department of Fisheries and Oceans
Community Involvement Division
555 West Hastings Street
Vancouver, B.C. V6B 5G3

Fish Talk

Alan Emery talks to fish.

Well, he doesn't actually talk to them. But he can communicate with them using hand positions to mimic their aggressive postures.

He also listens to fish talking to each other in clicking, creaking, and drumming noises. They use these sounds to court and mate, to warn off intruders, to signal danger and to alert comrades that they've found food.

Fish are not overly intellectual, Dr. Emery observed. "The basic necessities of life are the kinds of things they talk about."

Dr. Emery is associate curator of ichthyology (the study of fish) at the Royal Ontario Museum. His research focuses on the behaviour and ecology of various fish species and he has been taping their sounds.

He said few species have been taped; until recently, scientists were not really aware of the wide variety of communication sounds made by fish. "This whole dimension of so many species of fish has been completely missed."

Fish use sounds for a variety of purposes, Dr. Emery said. One is aggression. Male fish of some species, defending their territory from other males of the same species, will make creaking, chirping, clicking or scraping sounds to warn an intruder off. These sounds, he said, are "mildly aggressive." In essence the fish is saying: "I'm a sunfish. If you're a sunfish, beat it."

If the intruder comes closer, the guarding fish will emit a more threatening drumming sound.

In certain cases, a fish may even attempt to fight the intruder by making a sound that would be the aquatic equivalent of screeching in the opponent's ear. This can damage the other fish's sound-sensing organs.

Schooling fish will sometimes use clicking sounds to alert others that they have found food. This sound, however, is emitted involuntarily; it is not a matter of choice.

Fish make sounds in two different ways - they use either a set of teeth or grinding plates in their throats or - if they have one - their swim bladder, a gas bag located inside their bodies and used for buoyancy.

Parts of these sounds are also carried by compression waves, but for the most part, they are carried by actual movement of water particles. Creatures who hear in air have no mechanism to pick up the movement of air caused by sound, but fish have a secondary set of ears (called a lateral line) that allows them to pick up the water movements. These consist of scales with holes in them, beneath which are small pits with tiny hairs somewhat like those in the semi-circular canals of human ears.

Life Cycle of the Salmon

Teachers should familiarize themselves with this overview of salmonids in preparation for Readers' Theatre and Drama.

Pacific Salmon begin their lives in fresh water. Each female salmon digs a nest or redd and deposits thousands of tiny pink eggs under the gravel of the streambed. This depositing of eggs occurs during the fall months. The spawning process is repeated in hundreds of small streams throughout British Columbia.

Over the winter months, embryos develop within the eggs. The duration of the incubation period depends on water temperature and on the species. First (7 - 10 days), the head and body regions begin to form. The eggs are very fragile at this stage. Any movement may prove fatal to the little creatures which are covered only by a thin shell-like membrane. About one month after they have been deposited in the gravel, eyes begin to appear. This eyed stage means that the embryo is developing normally and is now able to withstand considerable movement.

There is a great deal going on within this sheltered nursery. The embryo is receiving its nourishment from a yolk sac which is attached to its underside. The yolk is made up of a mixture of water, fats, protein and salts. This yolk sac supplies the young salmon with all the food it needs for its development. Besides food, the tiny being needs oxygen as part of its growing process. As the young incubating salmon grows, it needs more and more oxygen from surrounding water. Many biologists believe that at some point the egg shell becomes limiting. The animal may not be able to extract enough oxygen from surrounding water. It is at this point that the hatching process takes place.

The hatching process is a very well timed event. When the organism within the egg has grown and developed to the point that its transparent capsule is too confining it is ready to break out. Enzymes are released which dissolve the egg shell. When the shell is broken a wiggling little alevin (ā-lĕ-vĭn) emerges. Once the alevin has discarded the membrane of the egg it can absorb oxygen from the flowing water directly through its gills.

Assuming that there is an adequate supply of oxygen, the alevin's growth rate will be determined by temperature. Alevins are wholly dependent on their yolk sac for nourishment. This fixed food supply must last for two to three months. Changes in the environment can affect the rate of development in young salmon. Higher water temperatures will make the alevin develop faster. However, faster development may be coupled with a reduced total growth. This happens because in warmer waters metabolic processes such as digestion and respiration are much less efficient.

Emergence

Once the yolk sac has been absorbed, the alevin, now called a swim-up fry, must leave the gravel in search of new food sources. The fry leaves the depths of the sheltering gravel guided by two systems: gravity and stream flow.

The fry emerges from the streambed by swimming straight up, against gravity. These tiny free-swimming fish maintain a nearly vertical position in the water on their journey upwards. They gain altitude in short stages. A steady, vibrating, tail motion is the force which enables them to reach the surface of the water. At this point the young fry is still heavier than water. Its main aim is to reach the surface and inflate its swim bladder.

This upward journey under ideal conditions presents no real problems. However, if the gravel is covered with silt or heavy debris, the young salmon will actually attempt to 'tunnel out'. The fry is fairly well equipped for this since its skin is tough, scaleless and covered with mucous. Its gravelly surroundings have made it adaptable to being fairly mobile in very cramped quarters. The fry is capable of:

- backing out of an unsuitable passage
- butting against barriers such as sand
- burrowing through the ground for considerable distances
- curving its body and moving snake-like through narrow passages.

On breaking the surface, the fry snatches air with a sideways snapping motion of its head. Then it drops back, keeping its mouth and gill covers tightly closed. Several gulps of air may be necessary before the tiny creature achieves its goal - neutral buoyancy. When it gulps, some of the air is transferred through a duct in its upper gut, into the swim bladder. Any fry that takes in too much air may be seen swimming head down to avoid floating to the surface. Tiny bubbles trail from their mouths as they get rid of the extra air.

The typical daily fry run begins shortly after dusk. It continues until around midnight. Sometimes there is a second peak of emerging swim-up fry shortly before dawn. A few hours after emergence all the fry will have achieved neutral buoyancy. Hundreds and hundreds of fry will be swimming in a normal horizontal position before dawn in their home stream.

Survival (Imprinting)

Every stream is unique. Water temperatures, rate of flow, size and porosity of the gravel are all obvious factors which influence a stream's uniqueness. All the users of the water affect the quality of the stream. The quality of the water, therefore, differs from stream to stream and from one area of a stream to another. Young salmon are able to detect immeasurable traces of elements present in their environment. Odours from the rocks, plant life, other aquatic organisms, all have an everlasting influence on the young salmon.

During evolution each animal has adapted to the symphony or combination of all these stimuli. There are critical stages in all animals' lives. At a very early stage salmon imprint on the odour of their home stream. Young fry absorb the key elements of its stream. They retain this sense of "having-been-there-before" so that after years in the ocean most salmon will be able to navigate successfully back to the stream of its origin.

A very complex interaction occurs between the tiny salmon and its environment. Stimuli from the water actually "program" the salmon to return to the home stream.

From the time the young fry emerges it is constantly receiving imprinting cues. The cues received from the water in one part of the stream are slightly different from those absorbed a little farther down or upstream. Rearing fry establish territories in the stream. Less aggressive or smaller fry will be displaced and forced into areas where the food supply is limited. Some fry are even displaced from the stream.

Throughout the freshwater rearing stage, which varies from species to species, the fry receive a succession of cues which may assist them in returning to the natal spawning grounds. Young salmon may undergo a series of imprinting processes. Recent research reveals that imprinting may take place within a very short period of time (24 hours).

Biologists are still not certain exactly when the imprinting process begins. Some studies have shown that the salmon are most affected by their surroundings after they have emerged from the gravel. It could be important that the sequence in which imprinting occurs may correspond exactly to the reverse sequence of stimuli that the returning spawner receives on the way home. In other words, the fry are influenced in freshwater by the natal stream first, and lastly, by the estuary just before they enter the ocean. On the return migration they enter the estuary first then follow their nose back to the natal stream.

Fry Migrants "Escape into Large Size"

Simple explanations of salmon fry behavior are not possible. Some species or stocks within species, migrate downstream to reach their rearing areas. Some others must go upstream. There are five species of Pacific salmon: pink, chum, sockeye, coho, chinook. They are all anadromous (an-ăd-ro-mous). This means that they hatch in freshwater, migrate as fry or smolts to the ocean, spend some time in salt water and return as adults to freshwater to spawn.

The five species of Pacific salmon spend varying amounts of time in fresh water. Sockeye spend the longest (1 - 3) years, whereas pink and chum salmon depend the least on freshwater. Along with chum fry, the pink immediately set out for the sea. Coho remain in freshwater on the average one year. Chinook usually have a freshwater residence time of between three months to a year.

All young salmon face the same biological hazards: starvation, predation, disease. All young salmon have two defence mechanisms: the panic response and seeking cover.

Smoltification; Ocean Migration; Ocean Distribution

Salmon fry need food. Salmon fry need to avoid predators. Many animals in the estuarine area are predators of the salmon (e.g. birds, snakes and larger fish). The ideal spot to accommodate both these needs is found in the estuary (ĕs-tū-ar-y). Estuaries are the zones where fresh and saltwater mix. When freshwater flows into seawater the outflow creates a circulatory effect. Nutrients from the ocean are brought to the river mouth area.

This wealth of nutrients supports teaming populations of microscopic organisms. The peak of plankton production occurs during the late spring when salmon juveniles are migrating through this food abundant area. The length of time spent in the estuary is very species - specific.

Some species such as the pink salmon appear to pass through very quickly. Chinook salmon may spend months in the area. A lot depends on the estuary itself. For the species which spend any time in estuarine waters their growth rate is astonishing. When the salmon is in the estuary it is known as a smolt.

The distance that salmon will travel in the ocean varies as much as the direction. The extent and direction of the salmon's travel depends on time and size when they enter the ocean and the marine conditions they encounter. The growth rate in the ocean is very rapid.

Homing

Each of the Pacific Salmon species has its own life history and habits. Each species divides itself into separate runs in different river systems. There is an even further division into stocks, or races, within the watersheds. The stocks intermingle while they are in the ocean. As the salmon approach maturity they begin a movement to coastal waters. As they leave the ocean pastures and head closer to land the stocks disperse.

Each salmon is seeking its home or parent stream. The ability of most salmon to navigate accurately from the ocean to a particular spawning ground is astonishing. Some salmon stray, that is, they migrate to and spawn in a stream other than the stream in which they were born. This occurrence may have some very positive effects on the survival of a particular stock of salmon. Straying ensures that the stock may survive even if some environmental or human-made disaster has threatened the natural spawning site. For some stocks of salmon the stream of origin lies thousands of kilometres from the sea. Other species spawn in coastal waters very near the ocean.

The environmental cues used by adult salmon to migrate from the ocean feeding grounds to the nearshore areas are not well understood. It is known that its not a random occurrence. It is also known that the event is well timed and well directed.

It is apparent that once migrating salmon reach the coast they congregate in the shallow waters near the mouth of their river of origin. Distinctive home stream odours assume great importance. Studies show that the sense of smell is the most significant factor in homing. Visual cues are of secondary importance.

Spawning

When the salmon enter the mouths of their rivers in order to begin their upstream journey they cease feeding. They swim more or less as a group. Some species have long treks to make; others do not need to travel so far inland to reach their destination. The species which must cover 30 - 50 km per day have to swim at incredible rates. The long journey to their ancestral spawning grounds is a remarkable feat. The trip upstream can present many obstacles. Both natural and human-made hazards face the fish. Swimming against the current, the salmon may encounter waterfalls, dams, fallen trees, droughted portions of river, adverse water conditions and predators.

Since the salmon have been 'programmed' to return to the same tributary of the river and even the same stream and gravel shallow in which their parents spawned and they themselves were hatched, they swim on.

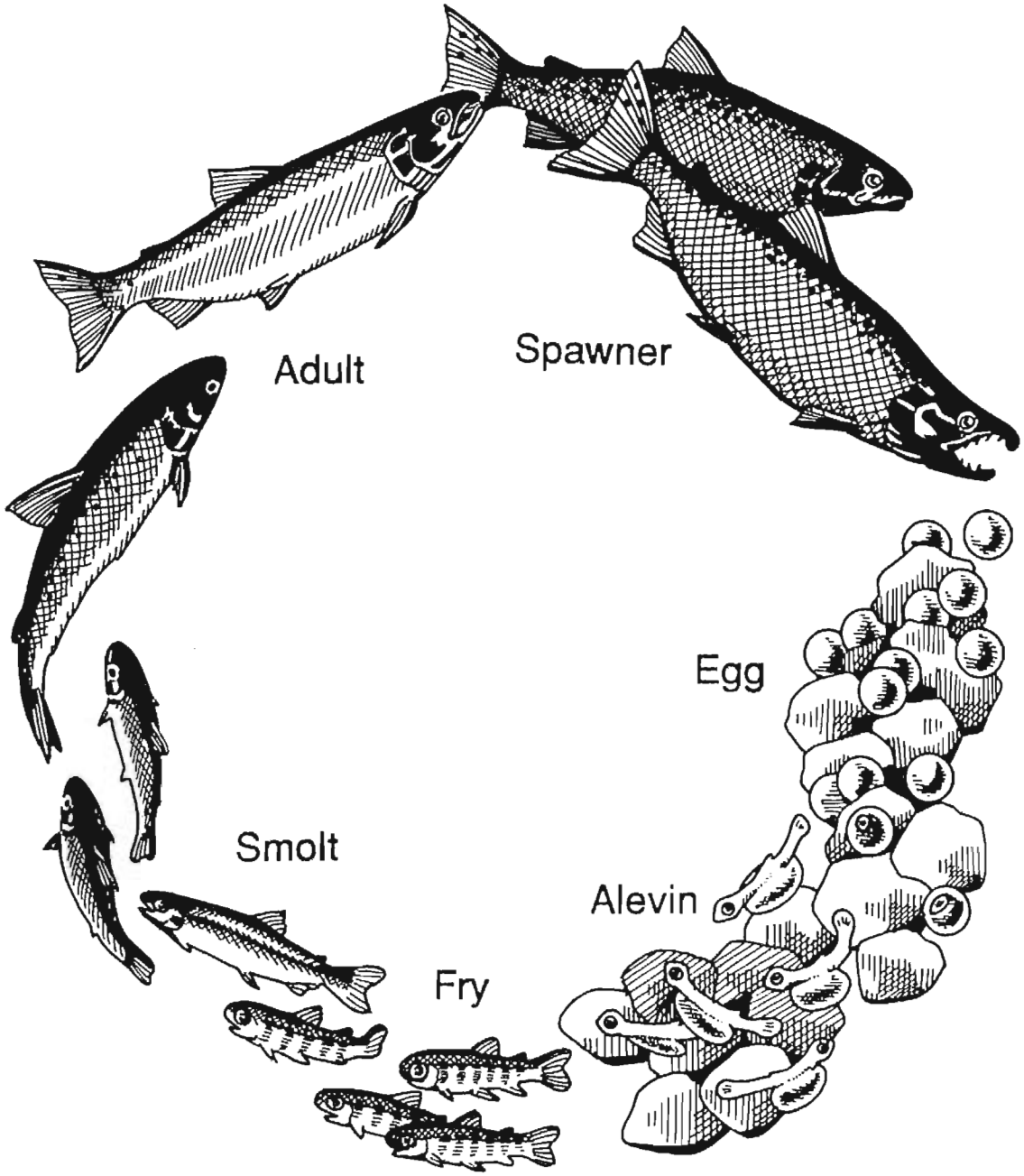
At the spawning grounds, the females swim slowly along the bottom, touching the gravel with their extended lower fins. They are searching out suitable places for their nests (redds). It is not certain exactly what influences the female's choice of sites. The males are occupied watching for unattended nest-building females. The female is the dominant partner. The male responds to her actions. The male also aggressively guards their territory against other male intruders.

There are six phases included in the spawning process.

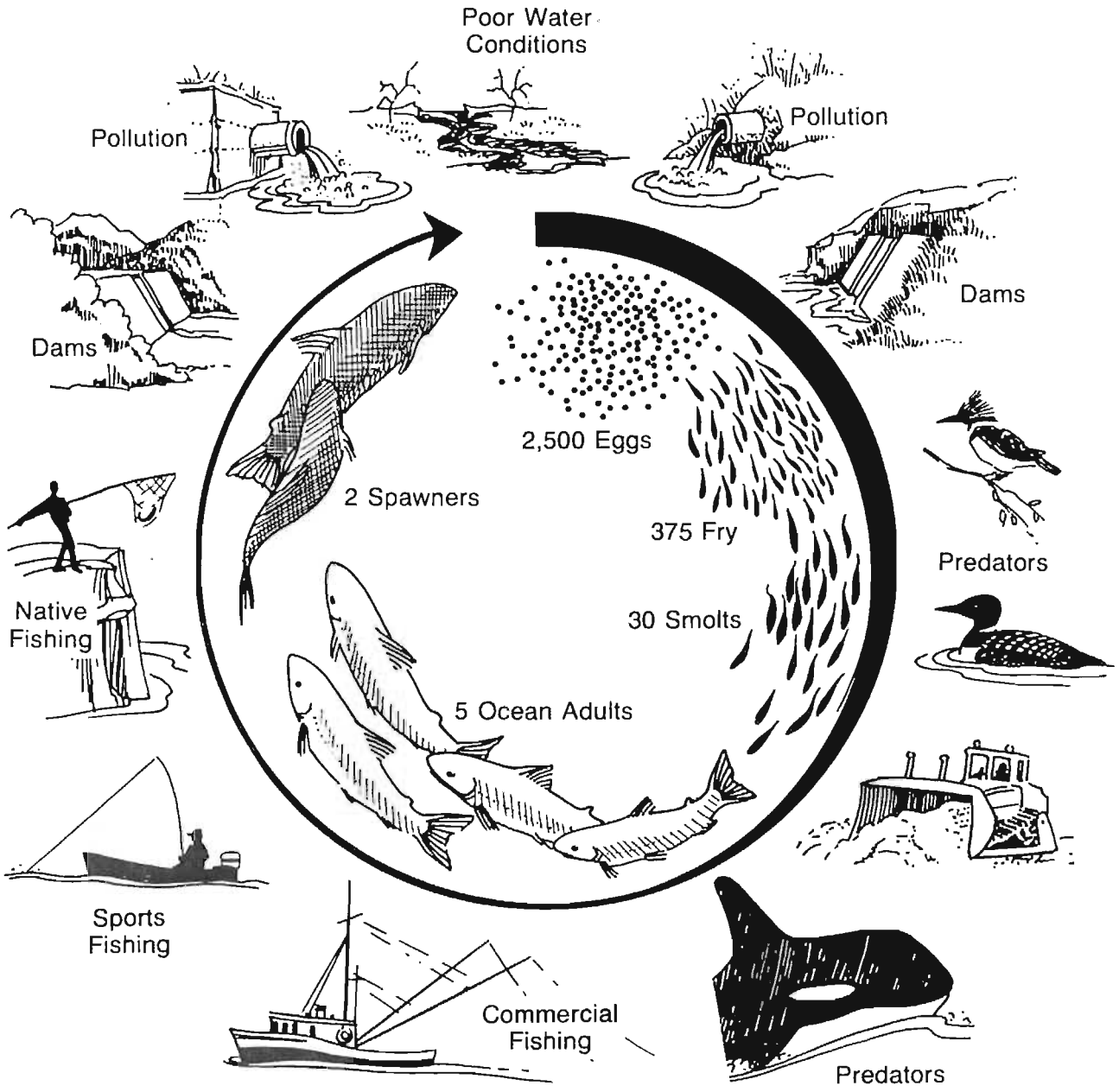
- Selecting the nest
- Digging
- Probing
- Spawning
- Covering
- Guarding.

After spawning, all Pacific Salmon die. The death of the adult fish feed the environment into which their young will be born. The life of a river depends upon the death and decay of many organisms. The nutrients and minerals released through decomposition are essential to the energy/food web of the stream and, in turn, the river and the entire water system that makes up the watershed.

Life Cycle of the Pacific Salmon



Hazards in the Life Cycle



Glossary of Salmon Terms

alevin:	newly hatched fish with yolk sac attached
aquatic habitat:	an area in water that provides an organism's needs for food, water and shelter or cover
chinook salmon:	spawn in August and October, in large rivers or tributaries; while some fry rear in fresh water for around 3 months, others remain in fresh water for 1 year before migrating to the ocean; spend 2 - 5 years in the ocean; very variable life-cycle; largest of all salmon; live longer than other salmon; probably the least abundant of all species
chum salmon:	spawn in the fall and winter in the lower tributaries; fry emerge and migrate to the sea immediately; spend 3 - 5 years in the ocean; chum develop green sides with vertical purple bars; almost all chum are harvested by nets
coho salmon:	spawn from September to February; although most fry rear in rivers or lakes for a year before migrating to the sea, some fry remain in fresh water for a second year; live in the ocean for 15 - 18 months; normally 3 years old at maturity; one of the most sought after by the sport fishery
commercial fishery:	fishing for profit using gillnetters, purse seiners or trollers; fishing restricted to certain times of the year and to certain size fish
cover:	anything that helps to protect the fish from predators (ie. deeper water, turbulence; shadows on the water; nooks and crannies formed by branches, trees, rocks, roots, etc.)
drift net:	fish net used in open ocean in commercial fishery; hangs like a curtain and moves with the current or tide; can be several kilometres long; environmental concerns have been raised because marine mammals and fish, other than those wanted by the fishermen, get caught in the net and die
ecosystem:	community of organisms in a given area combined with their physical environment and its characteristic climate
egg:	the round reproductive body, orange-pink in colour, produced by the female salmon
embryo:	the developing salmon contained within the egg
emergence:	process where an alevin becomes a fry by swimming up out of the gravel after its yolk sac is absorbed
estuary:	mouth of a river where fresh and salt water mix through tidal ebbs and flows
eyed stage:	the embryo stage at which pigmentation of the eyes becomes visible through the egg shell
fertilize:	to unite egg and sperm; essential for egg development
fisheries biologist:	a biologist who studies plant or animal life connected with salt or fresh water environments and the impacts on that life from natural or human activities

fish hatchery:	a facility for incubating eggs and rearing fry under controlled conditions
food chain:	the transfer of food energy from the source in plants through a series of animals, with repeated eating and being eaten; for example, a green plant, a leaf-eating insect, and an insect-eating bird form a simple food chain
fry:	young fish after emergence from the gravel when the yolk sac has been absorbed
gillnetter:	commercial fishboat 9 to 11 metres long, operated by one person, usually at the mouths of rivers; gillnetter drifts for 1 to 4 hours; fish caught when their gills become tangled in the net that hangs like a curtain from the surface; as net is pulled in mechanically, the fisherman pulls out the salmon; a good catch is 200+ salmon a day
habitat:	an area that directly or indirectly provides an organism's needs for food, water, shelter, cover, reproduction and migration in order for it to complete its life cycle.
hatch:	the process that occurs when an alevin breaks out of the egg
homing instinct:	in salmon, an urge in mature adults to return to their river of origin to spawn
incubate/ incubation:	to develop through the stages from egg to swim-up fry; to keep the eggs or fry at the optimum temperature and supplied with moisture and oxygen so they will hatch and grow
life cycle:	the continuous sequence of changes undergone by an organism from birth to reproduction to death
life history strategies:	the ways in which a species adapts to its particular environment; these strategies minimize competition with similar species and maximize survival
migrate:	to move periodically or seasonally from one region or climate to another, as in fish moving downstream to the ocean, moving to different parts in the ocean or moving upstream at spawning time
natal stream:	stream where fish was born
native fishery:	a long held tradition within the native Indian community; spawning salmon are harvested and preserved by the Indian people for food during the winter; native Indians using traditional methods to fish for salmon; in British Columbia, recent changes to the regulations governing the native fishery allow some native tribes to harvest the salmon for commercial purposes
nest:	small depression dug in the gravel of the streambed; female spawner digs a series of nests and lays between 300 and 1200 eggs in each nest; the area of the nests is called a redd
parr marks:	dark circular markings on sides of salmon fry

pink salmon: spawn mostly in coastal rivers and streams from August to October; fry emerge and migrate to the ocean immediately; reside in the ocean for 1 year; smallest of all the salmonids; shortest life cycle of all species; there is no variability in the length of the life-cycle, pinks are all 2 year olds at maturity; almost all pinks are harvested by nets and used for canned salmon products; most abundant of all salmonids

purse seiner: commercial fish boat, 12 to 33 metres long, with a 4 to 8 person crew; net is long and deep and is drawn in a large circle around school of fish, then closed at bottom to trap fish; salmon are scooped from the "purse" and into the ship's hold

rearing habitat: places in a stream that provide food, resting places and shelter for young fish to grow or 'rear'

redd: an area of gravel streambed containing all the separate nests (and eggs) from a single female spawner

riffles: fast, shallow waters of a stream

salmonid: a fish in the salmon or trout family; the Pacific salmonids include chinook, chum, coho, pink and sockeye salmon and cutthroat and steelhead trout

Salmonid Enhancement Program (SEP): a program run by the Canadian Department of Fisheries and Oceans to restore West Coast salmon stocks to their pre-1900 levels of abundance; SEP is involved in many different activities, including: building hatcheries and spawning channels, promoting community involvement, developing educational materials, restoring habitat

sediment: solid particles carried and deposited by water

silt: tiny, fine particles, smaller than sand, suspended in and deposited by water

smolt (n): a juvenile anadromous fish that has undergone physical changes to prepare for life in saltwater; (v) process of physiological changes enabling a juvenile salmonid to migrate from fresh water to salt water

sockeye salmon: spawn from September to November in rivers either below or above a lake; fry rear for 1 to 2 years in lakes before migrating to sea; reside in the ocean for 3 - 4 years; known for the vibrant red colouring that develops on their back and sides during spawning and their tendency to migrate upstream 'en masse'

spawning: in fish, the act of laying and fertilizing eggs

spawning habitat: area a fish needs to spawn; frequently refers to gravel beds

species: a population of individuals that are more or less alike, and that are able to breed and produce fertile offspring under natural conditions; a category of biological classification immediately below the genus or subgenus

sport fishery:	fishing for recreation from boats or shore with rods or small nets; usually year round; can be marine or freshwater; can be catch and release (do not keep fish)
storm drain:	a pipe used to carry runoff to a ditch or stream, such as off a roof, a road, a parking lot, etc.
streambank:	edges of the stream channel
streambed:	bottom of the stream over which a column of water moves
swim-up fry:	term used to describe fry when they emerge from the gravel and begin activity swimming in search of food
toxin:	material that is poisonous to life
troller:	a commercial fishboat around 12 metres long, with four long poles, operated by one or two people; the poles drag stainless steel fish lines, with lures and weights behind the boat to lure the salmon; many trollers are equipped with sophisticated equipment to allow them to ride out storms in the open ocean and refrigerate their catch for a week
velocity:	the speed of water travelling from one point to another, usually expressed in metres per second
water quality:	characteristics of water that help determine its usefulness for whatever purpose desired; e.g. pH, temperature, DO, ...
watershed:	a drainage system; made up of the area of land from which groundwater and surface runoff drain downhill to a common waterway (stream, river) or body of water (pond, lake, ocean); within one large watershed there may be many smaller watersheds
yolk sac:	food sac attached to a newly hatched alevin which contains a balanced diet; the yolk sac shrinks in size as the fish uses up the nutrients until it is gone

Doing Drama

Category of Learning	Level 1	Level 2	Level 3
Drama Elements	The student should be able to	The student should be able to	The student should be able to
Observation and Sense Awareness	• identify and use all the senses; • make selective observations;	• focus on one or more senses; • retain the memory of observations;	• focus on two or more senses simultaneously; • use remembered observations in dramas;
Listening	• listen to specific sounds/ speech;	• demonstrate the ability to focus listening;	• listen attentively to, and interpret, sound/speech;
Imagination	• create and respond to personal images;	• create, accept, and respond to more than one image;	• accept images from others; • accept images from many sources; • create multiple images;
Trust	• develop trust in others; • identify own strengths and achievements.	• present work in class; • demonstrate self-confidence; • accept risk in drama; • demonstrate leadership.	• present work to peers and others; • believe in own ability and skills; • choose to risk in drama; • share leadership.
Concentration	• concentrate and not be distracted by others; • identify focus in the drama;	• concentrate and not be distracted by other students or other stimuli; • identify changes in focus;	• concentrate and remain involved in drama activities; • create focus in the drama; • give focus to others;
Speech	• speak clearly; • use speech that is appropriate to the situation; • explore alternate vocal sounds;	• speak clearly, using pitch and dynamics to aid meaning; • use formal and informal language; • use sound to express meaning;	• use the voice to convey mood, emotion, and meaning; • use a variety of vocal styles; • use various styles of language; • make effective oral presentations;
Movement	• move freely; • move with control; • express meaning through movement; • move in different ways;	• participate in group movement; • move with control in a group; • interpret feelings through movement; • compare and contrast different kinds of movement;	• develop complex movement sequences; • interpret ideas and feelings through movement; • explore the dynamics of movement (rhythm, line, shape, level, direction); • originate movement appropriate for the drama;
Drama Structures	The student should be able to	The student should be able to	The student should be able to
Role Playing	• assume a role; • accept others in role; • contribute to the drama in role;	• develop a role; • create and develop situation in role; • demonstrate commitment to a role;	• maintain a role; • accept situations developed by others while in role; • remain committed to a role in an extended drama; • use multiple roles;

Category of Learning	Level 1	Level 2	Level 3
Drama Structures — *Continued*	The student should be able to	The student should be able to	The student should be able to
Improvisation	• participate in dramatic play;	• create individual and group improvisations; • present original ideas through improvisation;	• develop complex improvisations; • originate and develop improvisations; • maintain focus; • explore multiple solutions;
Mime	• represent imagined objects physically; • believe in imaginary objects and locations; • communicate feelings without speech;	• demonstrate the use of imagined objects; • believe in imaginary objects presented by others; • communicate feeling and ideas without speech;	• interact with others using imagined objects; • create stories without speech; • explore dance/drama;
Storytelling	• share stories and anecdotes with others;	• tell stories to small groups; • tell stories based on written sources; • dramatize stories as they are told;	• tell stories to large groups; • tell stories based on aural or visual sources; • use the dynamics of speech and movement to augment stories; • create character while telling stories; • create stories to tell;
Puppets	• operate a puppet; • accept the limitations of a puppet;	• define the character of a puppet; • accept puppets presented by others; • create speech appropriate to a puppet;	• present ideas and feelings using puppets; • interact with others using puppets; • create speech and movement appropriate to a puppet and the situation;
Theatre (optional)	• accept an external source for character and speech; • accept having personal work viewed by others;	• build a character based on an external source; • use speech provided in a script; • present work to peers; • repeat actions and speech to improve them; • accept direction;	• interpret a character presented; • memorize and interpret a script; • present work to an appropriate audience; • rehearse movement, speech, and/or song for maximum effectiveness; • accept direction to improve character, speech, and movement; • use elements of set, costume, and light to enhance presentations;
Film and Television (optional)	• present drama for film and/or T.V.	• use film and/or T.V. cameras to record drama; • plan drama suitable for film and/or T.V.	• use the characteristics of film and/or T.V. to enhance drama done in this media; • plan, write, and perform drama for film and/or T.V.

Responding to Drama

Category of Learning	Level 1	Level 2	Level 3
Drama Discussion	The student should be able to • describe sensory experiences; • describe what has occurred in the drama; • identify the main idea in a drama; • reflect on own participation in a drama; • discuss film and/or T.V. presentations.	The student should be able to • interpret reactions to sensory experiences; • discuss how the drama developed; • discuss plot and character in a drama; • reflect on own work with others; • discuss and compare film and T.V. presentations.	The student should be able to • anticipate reactions to sensory experiences; • identify changes in attitudes or beliefs that result from the drama; • discuss mood, conflict, and presentation of a drama; • analyse and discuss constructively the work of self and others; • discuss the relationships of stage, film, and/or T.V. productions to each other; • discuss the use of plays, film, and/or T.V. to persuade or teach; • discuss how stage, film, and/or T.V. productions reflect real life; • discuss drama presentations using appropriate vocabularly.
Drama and People	The student should be able to • listen attentively to individual and group presentations; • attentively observe individual and group presentations; • see others' point of view through drama; • respect others' interpretation; • observe people in their different environments.	The student should be able to → → → → • interpret the effects of the environment on people.	The student should be able to → → → → • observe and understand the changes people make in their environment.
Drama and Other Disciplines	The student should be able to • participate in choral speaking; • dramatize music and song; • dramatize visual images; • use movement/dance to respond to visual and musical images; • dramatize ideas and stories.	The student should be able to • initiate choral-speaking projects; • create drama based on music/song; • use visual images in a drama; • use movement/dance to present drama; • explore social studies themes through drama.	The student should be able to • create visual, movement, and/or musical reinforcement for choral speaking; • select and use music/song to enhance the drama; • select visual images that enhance the drama; • create dance drama using music, speech, and visual elements; • explore other curricular themes through drama; • develop drama based on student information gathering.

Drama teaches necessary life skills such as speech and concentration and helps interpret curriculum and motivate learning. The different subject areas in the curriculum should not exist in isolation. Drama is a method that can bring concepts together in practical and meaningful ways and develop skills appropriate to development in all the subject areas, for example

- observation,
- sense awareness,
- listening,
- imagination,
- trust,
- concentration,
- speech,
- movement,
- comprehension,
- thinking in sequence,
- self-expression,
- self-confidence,
- co-operation,
- problem solving,
- organization, and
- criticism.

The following chart shows examples of the drama skills that are used in other subject areas.

Subject Area	Drama Skills Involved
Language Arts	• stimulus for writing • vocabulary and oral language development • presenting
Mathematics	• role playing (clerk and customer) • describing (steps and processes)
Science	• memorizing • classifying, categorizing • mime (safety rules, different seasons) • role playing (pollution, building machines)
Social Studies	• role playing, improvising, mime (understanding other cultures, communities, historical and current events) • problem solving with moral and ethical issues
Physical Education	• control (small and large motor skills) • confidence • following directions • movement/dance
Art	• image making of all kinds
Music	• breathing and voice control • moving • interpreting rhythm, high and low notes
Second Language	• practise vocabulary in context • ear training through dialogue • practise thinking in the new language structures

Oral Language in Drama*

The development and enhancement of oral language is a major strength of drama in education. Since oral language fluency precedes the development of thinking skills and written language, teachers should pay particular attention to developing oral language and, therefore, to the regular assessment of oral language.

An informal analysis of oral language includes

- fluency (total number of words, flow or smoothness),
- volume (loudness),
- projection (speaking to large groups or to a whole room of people),
- articulation (the voicing of individual sounds),
- enunciation (separation and clarity),
- pronunciation (i.e., to common standard),
- usage (appropriate choices, colloquial expressions),
- vocabulary (appropriateness, succinctness, specificity),
- sentence structure (variety and effectiveness),
- intonation (expression),
- sensitivity to feedback,
- non-verbal reinforcement (use of gestures, facial expression),
- effectiveness (structure, sequence and organization, originality).

* NOTE: The material presented under this heading was developed by Dr. R. Armstrong for School District No. 61 (Greater Victoria).

Dramatic Literature*

Developmental drama is directed dramatic play. It is natural for children to dramatize, to act with things and at being things. Because written language comes from the fullest possible use of oral language, we can use this natural desire on the part of our children to help them learn about themselves and about their relationships to society.

Students evolve in understanding, concentration, and self-discipline through participating in drama to a point where they are ready for the challenge of theatre and script. After sufficient work with developmental drama, children will have an intuitive understanding of dramatic action to bring to dramatic literature. This understanding and this intimate involvement through action can lead children into the more abstract concepts.

The following chart outlines the areas of a dramatic play that the students might be made aware of.

Elements	Possible Areas of Response
Plot	• Where does the dramatic action begin? • Where does the introduction end? • What is the conflict in the plot? • What event is the climax (i.e., resolves the conflict)? • Is there more than one climax (i.e., a minor climax followed by a major climax)?
Character	• Is the character revealed by his or her actions, or by description, or both? • Is the character fully developed, stereotyped, etc.? • What change has occurred in the characters through the action? • What assumptions do we make about these characters? Are they supported in the script?
Style	• Is this a realistic play? Is it a drama, a comedy, a farce, a melodrama? • What elements of the play make it a drama, a comedy, etc.? • Is the situation believable? • Is the language stylized, poetic, or natural? What are the effects of different language styles? • Is this a stage play, a puppet play, a radio play, or a TV play? What differences are there? • Is there an historical context? • What elements of staging are called for and assumed (e.g., lighting, costumes, set, make-up masks)? • Could this play be done in a different medium (i.e., if it is a radio play, would it work on stage)?

* Material presented under this heading is taken from the *Literature Resource Book*, Vol. I (Victoria: Ministry of Education, 1982).

There are many approaches to reading plays. The following are some examples.

- Teachers can read plays aloud to students. This requires a sense of character from the teacher and the ability to project the various characters. Different voices or small costume changes (e.g., hats) can be used.
- Filmstrips or slides may be used along with a reading of the dialogue to augment the visualization.
- Some plays are available as films or videotapes. A teacher may show these either before the reading to place the script in context or after the reading to allow free use of student imagination during the reading.
- Students can watch dramatic performances. Drama-in-education troupes are available in many areas to perform standard children's plays. An alternative is to work with local secondary drama classes to have a play on the children's reading list presented.
- Students may read the parts with book in hand. This assumes that the readability level is appropriate for the grade involved.
- Sections of the play may be memorized to present highlights performed in combination with any of the methods above.
- A play may be read and then a similar one improvised. This removes the necessity to memorize lines while maintaining the direction and characterization of the script. This process also ensures an understanding of the elements of the play.

Factors Related to Teaching Drama

Drama is a developmental process centred on the learner. It involves the spontaneous dramatic play of young children, and the games, characterizations, and dramatizations arising from children's imagination and experiences.

Theatre is an art form involving the presentation of dramatic literature to an audience. The theatre entertains and makes a statement. A communication between audience and performers is intended, in which the skills of actors, directors, designers, and technicians are focussed toward an aesthetic ideal.

Students can have a positive learning experience through either drama or theatre, but drama has more potential for creating a safe, dynamic environment. Theatre, by its very nature, entails greater risk since it is subject to standards of excellence imposed from the outside. Students within a drama define their own expectations and are therefore free to experiment and to grow. Success in a drama comes from the depth of the experience for the participants and the new understanding that emerges.

Both drama and theatre are part of this curriculum, with students learning about the art of theatre through their work in drama. Drama experiences can lead to theatrical presentations; and certainly, students, who have drama experience are most often better prepared for the theatrical skills demanded by performance before an audience.

The fine arts curriculum has clearly prescribed goals but allows flexibility as to how much time should be allocated to each of the arts and to each content area. The actual division of fine arts time into art, drama, and music "periods" is a professional judgment made by teachers and principals. In addition, because drama is so closely supportive of language arts objectives and is an excellent teaching/learning "method" for language skills, activities can be integrated to maximize the use of time.

Many drama activities in each level can be done individually using those five-or ten-minute periods that occur when a lesson in another subject is completed sooner than expected, or when the class just needs a change of activity to improve readiness for learning. Also, many of the activities are ideal tools to use in the learning of concepts in other subjects. In these cases the amount of "drama time" is related to how long the teacher feels it is effective.

Like art and music, drama should have some specific periods of longer duration. In these drama lessons, the teacher would likely include warm-up exercises, a major lesson activity, and end-of-lesson relaxation. Such periods would probably be thirty to forty minutes in length.

Children with Special Needs

Dramatic play is natural to all children, and drama activities are therefore appropriate for all children, including the gifted, the learning disabled, and the physically handicapped. Obviously, there may need to be modification of certain activities, but often the activities given in the "Sample Activities" section may be presented as they are.

Children with learning disabilities may in some cases require more time to do an activity and may not be able to progress to Level 3 activities. Children in gifted and/or enrichment programs may move more quickly through Level 1 and Level 2 to Level 3.

Creativity, though difficult to measure in objective and quantitative terms, will be evident in atypical learners as much, if not more so, as in typical learners.

Drama offers opportunities to fulfill the responsibilities that the public school system has toward atypical learners as outlined in the B.C. Ministry of Educations' Guide to the Core Curriculum (1977).

Evaluation of the Learner in Drama

Evaluation is an important part of the instructional process and an integral part of work in drama. As the drama progresses, teachers are called upon to evaluate the depth of learning in order to make choices in guiding the drama. Students must evaluate their own commitment and risk taking, and that of others, in order to participate in the drama.

When called upon to make formal written evaluations, teachers should make judgments on the basis of selected learning outcomes that form the basis for the preceding instruction. Ideally, the students are aware at all times of the outcome of the drama and, through reflection, have already come to understand their rate of growth.

Teachers are encouraged to make regular assessments of their students and to record these impressions so as to have a benchmark against which they may judge progress. Evaluation should deal with all aspects of the curriculum, including personal growth, skill development, and aesthetic growth. Comments should reflect improvement in the student's ability to work in drama, to discuss and understand drama, and to reflect on and make judgments about drama. Anecdotal comments in addition to symbols are strongly encouraged.

The following charts provide sample evaluation formats that deal with different aspects of drama learning. Note that these are offered as samples only. Teachers are encouraged to modify them, or to create new formats, to serve their own styles of instruction.

Please refer to Ministry of Education's Fine Arts Curriculum Resources for Evaluation and Assessment Samples.

Looking at the Play

Student Name: _____

Play title: _____

The play was performed by: _____

What I liked about *preparing* our production:

1. _____

2. _____

3. _____

4. _____

What I liked about *presenting* our production:

1. _____

2. _____

3. _____

4. _____

For next time, when *preparing* for our production,

1. _____

2. _____

3. _____

4. _____

For next time, when *presenting* our production,

1. _____

2. _____

3. _____

4. _____

Evaluation Sample 1: Individual Development

Student _____ Division _____

Grade _____ Age _____ Date _____

Course _____ Teacher _____

The following are the elements of personal growth and responsiveness that are developed by fine arts courses. Indicate the appropriate place on the scale for each element.

	High — Low
1. Self-awareness	Is able to understand the meaning of his or her behavior and feelings during the lessons
2. Sensitivity to others	Shows concern and empathy for others and alters behavior accordingly
3. Creativity	Uses skills and knowledge in unique and interesting ways. Willingly explores different media
4. Self-discipline	Demonstrates appropriate behavior and responsibility to meet demands of class
5. Independence	Is able to be self-sufficient with minimal dependence on other or on location
6. Tolerance for ambiguity	Accepts or adjusts to open-ended situations. Is able to accept value or information conflicts
7. Openness	Accepts his or her own and others' experience and solutions
8. Flexibility	Is able to modify behavior to meet changes or new situations

Evaluation Sample 2: Skills and Concepts

Student _____ Division _____

Grade _____ Age _____ Date _____

This student's progress at this grade level	Shows achievement and effort below expectations	Demonstrates satisfactorv growth and achievement	Shows notable progress and achievement
Drama Elements			
• Trust—shows self-confidence and trust in others			
• Concentration—remains focussed, not easily distracted			
• Observation/Sense Awareness—able to use all senses to observe the world and to select detail			
• Movement—shows control, flexibility, and understanding of gesture and physical relationship			
• Speech—speaks clearly and effectively, selects language appropriate for the situation			
• Listening—is able to understand oral language, appreciating both literal meaning and nuance			
• Improvisation—demonstrates imagination, spontaneity, and involvement			
• Imagination—originates ideas, develops new approaches to situations			
Drama Structures			
• Is able to assume a role			
• Works with commitment			
• Accepts others in role			
• Presents original ideas			
• Accepts multiple solutions			
• Can communicate ideas and feelings through movement			
• Is able to tell stories effectively			
• Is able to present dramatic ideas using puppets			
(Optional)			
• Accepts audience/performer relationship			
• Interprets character from a script			
• Is able to rehearse a role to develop it			
• Is able to create dramatic images using film/T.V.			

Evaluation Sample 2: Skills and Concepts

This student's progress at this grade level	Shows achievement and effort below expectations	Demonstrates satisfactorv growth and achievement	Shows notable progress and achievement
Drama Discussion			
• Participates in class discussions			
• Demonstrates insight from the drama			
• Is open to others' ideas			
• Can discuss ideas and/or concepts presented in drama or in film, T.V., and theatre			
• Can offer constructive discussion of self and others			
• Uses appropriate vocabularv in discussion			
Drama and People			
• Listens attentively to individual and group presentations			
• Discusses ideas and attitudes coming out of the work of others			
• Discusses the values and ideas seen in theatre, film, and T.V.			
Drama and Other Disciplines			
• Discusses common themes found in drama, music, art, social studies, language arts, P.E., etc.			
• Is able to use elements of art, music, and literature in drama			
• Develops research for drama			
• Develops work in various media from drama experiences			
• Dramatizes work from literature, social studies, music, art, etc.			

Audience Evaluation

Student name: _____

Play title: _____

Outline 4 things that you liked about the play.

1. _____

2. _____

3. _____

4. _____

Outline 4 things that would make the play better.

1. _____

2. _____

3. _____

4. _____

Puppetry Ideas and Patterns

Salmon Life Cycle Puppets (6 sock puppets) can be purchased from BCTF Lesson Aids ($45.00).

Puppetry is an activity that is often associated with both the visual arts and drama. However, it helps develop skills that can be used in many other curriculum areas as well. It is a natural way to expand communications skills. Through puppetry, children may learn to speak with freedom from self-consciousness. The variety of puppets that can be used encourages a variety of speech styles. Listening skills are also an integral part of puppetry. Puppetry also helps develop co-operation and audience skills. It is an especially valuable activity in that it can take place within the limited area of the puppet theatre and yet involve the entire class.

Working with puppets may also encourage writing skills, as children learn to draft their own plays. Art activities can also result in puppets made by the students being used in a puppet play.

- Favourite Stories: Approaches to this activity involve having puppets act out a favourite story silently as it is read, having a narrator read the story with the puppets filling in the speaking parts, having a puppet tell a favourite story, or dramatizing a favourite story but adding a surprise ending.
- Television Puppets: Have puppets act out a T.V. show, commercial, news broadcast, or the sports or weather report.
- History: Have puppets enact a famous historical scene.
- Customs: Have puppets show a custom from a different country.
- Human Puppets: Group the children in pairs, with one child as the puppet and the other as the puppeteer, controlling the other by means of invisible strings. This is most effective done in front of a mirror.

I. Puppets can be made from:

stuffed toys
paper bags
coat hangers
egg cartons
pant lets
mittens
gloves
scissors
wooden spoons
paper plates
pipe cleaners
ping pong balls
toilet paper rolls
bleach bottles
envelopes

II. Stages for Puppetry can be made from:

cardboard box
card table on its side
two ladders and a sheet
doorway
lampshade
folding screen

SALMON LIFE CYCLE PUPPETS

Supply List (for 8 puppets)

2 - 3" styrofoam ball	1 - red sock	wire
2 - small eyes	1 - pale blue sock	thread
2 - medium eyes	1 - green sock	glue gun/sticks
12 - large eyes	1 - brown sock	felt (black, grey,
blue feathers	3 - grey socks	green, orange,
brown fun fur	1 - pink or tan sock (flesh)	2 - orange socks

Craft shops have supplies plus hats or whatever you might want to use for characterization. A glue gun is a must. It is fast and glues securely. Shop for "seconds" in socks, they're cheaper and have interesting colours. *Measurements are non-metric because craft store supplies are usually non-metric.*

Egg Puppet

Items:

1 orange sock, 1 - 3" styrofoam ball, 2 small eyes, 2 eyebrows

Method:

- Put styrofoam ball into toe of sock
- Make a hole in the ball so that finger may be inserted to move "the egg"
- Glue eyes and eyebrows on.

Alevin Puppet

Items:

1 grey sock, 1 orange sock, 2 large eyes, stuffing, white felt.

Method:

- Turn grey sock inside out and machine stitch across the heel (to "streamline" underside of salmon)
- Cut cardboard mouth shape, (fig. a) fold and place fold line on fold of sock, glue one-half of shape to top of sock and one-half on bottom
- Cut cardboard on fold line; turn sock
- Trim edges of mouth and glue to inside of mouth
- cut white felt in mouth shape and glue inside mouth
- using orange sock stuff toe and part of foot just above the heel
- cut sock (to resemble yolk sac) and hand sew to close
- hand sew to underside of alevin body (grey sock)
- glue eyes on, (eye lashes may be made from black felt and glued on).

Fry Puppet

Items:

1 grey sock, grey felt, white felt, 2 large eyes.

Method:

- sew heel up, as for alevin
- complete mouth and eyes as described in alevin
- cut fins from grey felt (2 pieces for each fin, glue together)
- glue onto sock in appropriate places
- cut grey felt into oblong shaped parr markings and glue to side of fish body.

Adult Puppet

Items:

1 grey sock, grey felt, 2 large eyes, white felt

Method:

- sew heel up
- complete mouth and eyes as described in alevin
- complete fins as described in fry.

Fisherman Puppet

Items:

1 tan or pink sock, green felt for jacket, 2 medium sized eyes, fun fur for hair, flesh coloured felt, thread, 1 - 3" styrofoam ball, small stick.

Method:

- flatten back of head by cutting 1/8th of the styrofoam
- put ball into toe of sock
- cut 2 jacket pieces (fig. b), sew together, turn
- cut 4 hand pieces (fig. c) from flesh coloured felt, glue together and glue onto cuff of sleeve
- place jacket onto sock (do not secure)
- put hand into sock with 3 middle fingers on back of head, determine where to cut sock for thumb and small finger to come out to form arms of fisherman
- remove jacket, cut small holes in sock and stitch to avoid large holes forming
- put jacket back on and glue/stitch securely to the sock
- glue mouth, eyes, nose, ears, hair, hat to fisherman's head (lures, hooks, tackle etc. make interesting details)
- make a rod and line from stick and thread; glue on hand.

Spawning Adult Puppet

Items:

1 red sock, 1 green sock, grey felt, black felt, 2 large eyes. *This is for sockeye salmon - use local species.

Method:

- sew up heel
- cut toe off red sock, cut green sock in front of heel
- sew green sock onto red sock on sewing machine
- complete mouth and eyes as described in alevin but use black felt to line the mouth
- stuff and glue some material into the snout of upper and lower mouth (a more fierce look)
- add grey fins as described in fry
- glue bits of styrofoam in mouth to make teeth

Bear Puppet

Items:

1 brown sock, brown fun fur, 2 large eyes, flesh felt, black felt, 8" of wire

Method:

- complete mouth as for spawning adult
- cut flesh coloured tongue and glue into mouth
- cut black felt (size of a quarter), stuff and sew on nose
- cut fun fur 10" x 8"; machine sew a 8" long sleeve
- hand stitch fur sleeve to sock (3" behind mouth)
- cut two ears from fun fur and line with flesh coloured felt
- stitch bottom together to "cup" ear, then stitch onto bears' head (glue may also be added)
- glue two eyes on and fierce looking lashes of black felt
- front legs could be added by using fun fur and wire.

Blue Heron Puppet

Items:

1 blue sock, blue feathers, orange felt, 2 large eyes

Method:

- sew up heel
- complete mouth as described in alevin, but line the mouth with orange felt
- cut a beak shape, (fig. d) from cardboard and roll into a cone shape - glue securely
- cut cone in half length wise, glue orange felt on inside and outside (do not flatten while drying, try to maintain a curved shape)
- glue beaks to top and bottom of mouth on sock end; keep hand in mouth to maintain the curve
- glue eyes in appropriate location
- glue blue feathers all over heron's neck (it is best to keep the sock on the arm while doing this).

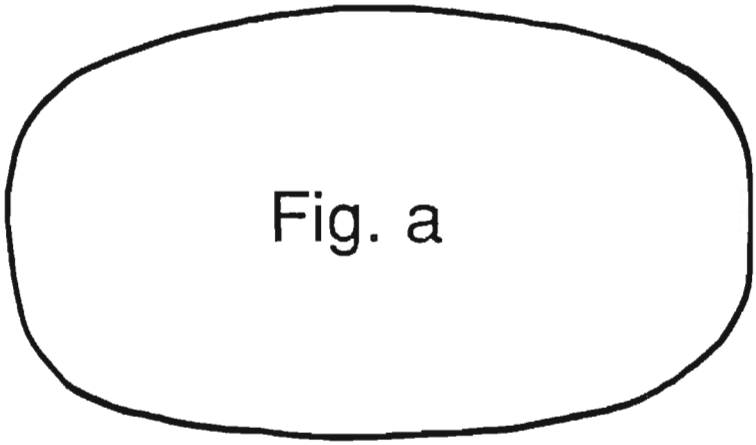
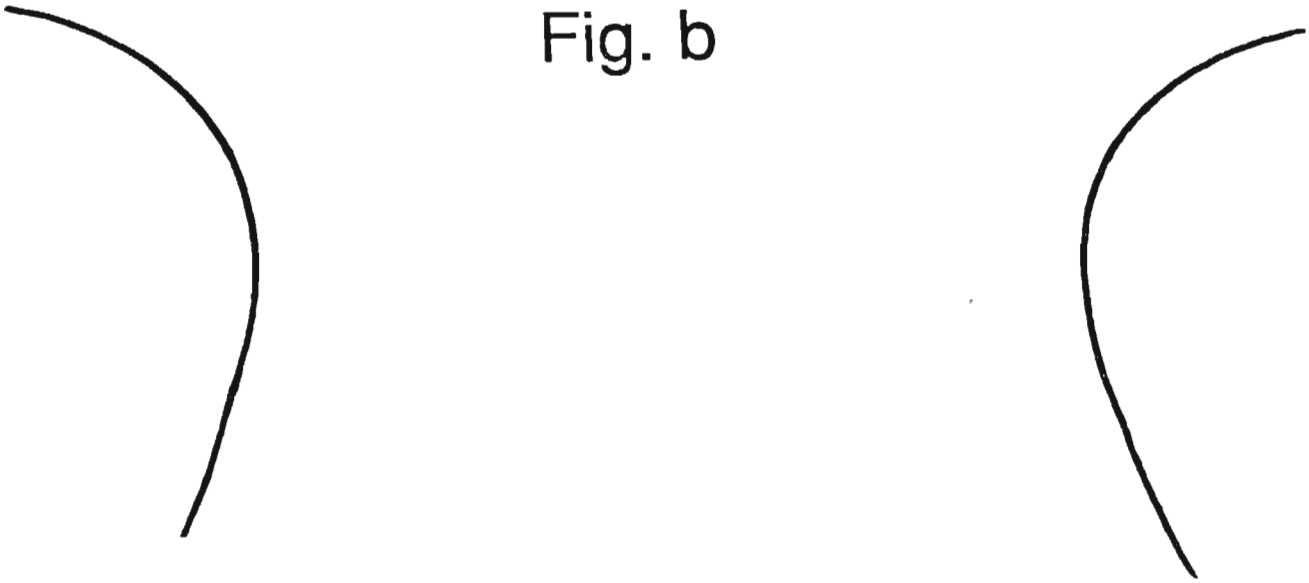


Fig. b



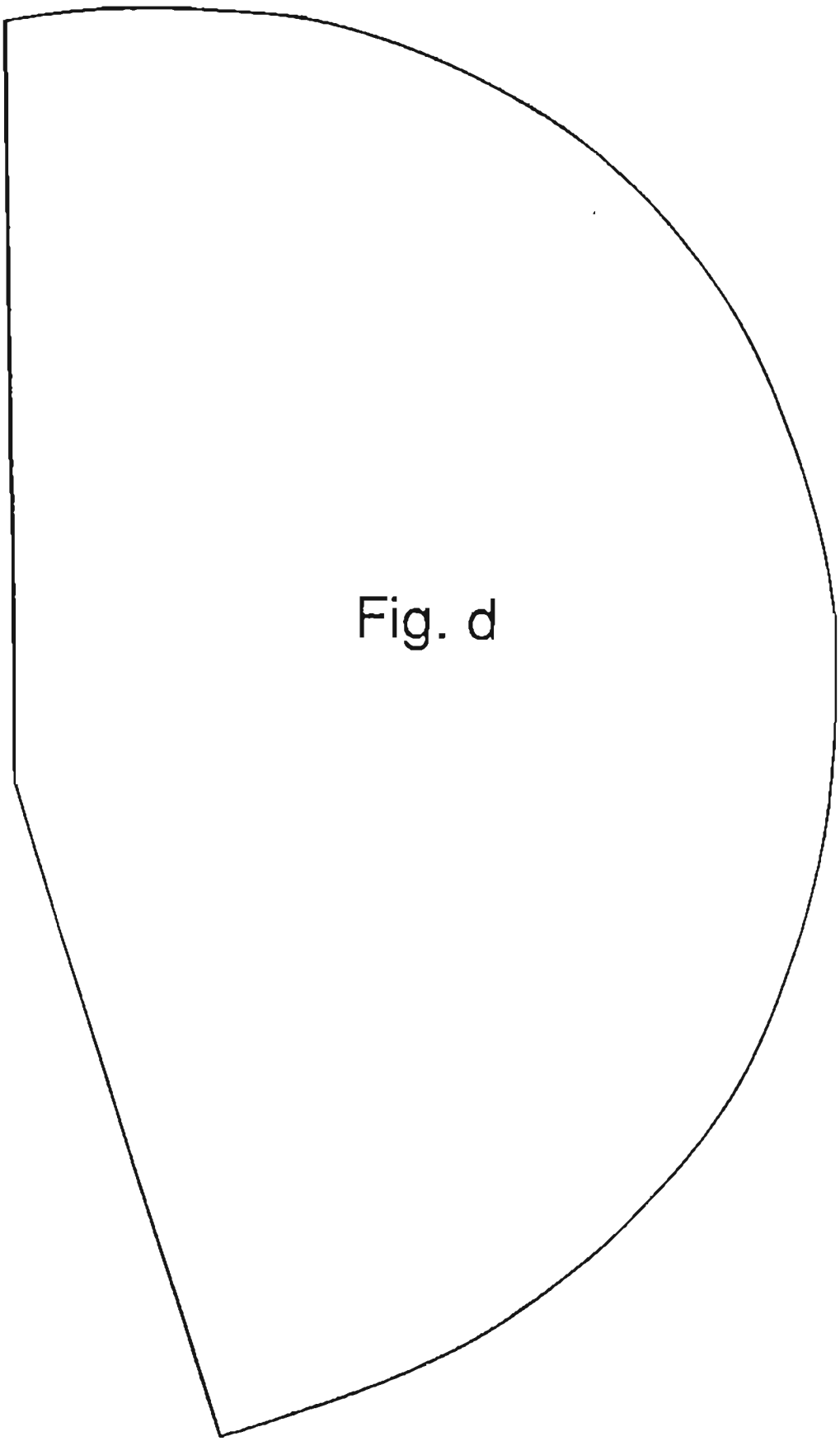


Fig. d

Finger Puppets

Faces drawn on fingers with felts.

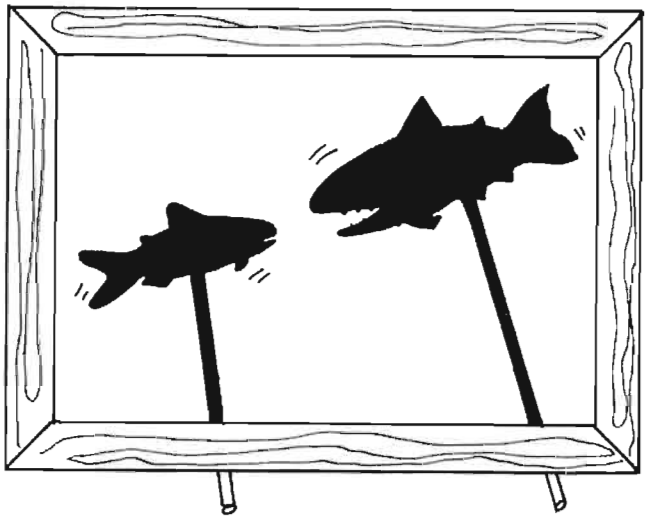
Shadow Puppets

a) Shapes cut out (may use tissue paper for colours)

b) Attach shapes to sticks

c) Stage: glass picture frame, paper covering it,

light from behind



Paper Plate Masks

You will need three large white paper plates, a pencil or pen, scissors, scraps of cardboard, glue, poster or tempera paints, water, paintbrushes, and plastic food trays for mixing the paint.

i) On the first plate, draw and cut out the eyes, nose and mouth (or whichever features you wish to be cut away on your mask).

ii) On the second plate, draw your chosen features. Cut the plate, but this time leave the cut cardboard attached so that it can be bent outwards to form eyelashes, nose and teeth.

iii) On the third plate, draw and cut out the eyes and mouth only (cut the shapes right out or leave the cardboard attached, as you prefer). To make a nose for this mask, fold a suitable piece of scrap cardboard in half and cut to shape.

iv) Squeeze a little glue on the two sides of the cardboard nose which will touch the paper plate.

v) Press the nose firmly into position.

vi) Paint your plate masks in such a way that the features stand out. If you want to wear the masks, attach some hat elastic to them.

Flat Cardboard Masks

You will need a sheet of cardboard (or card from a cardboard box), a pencil or pen, scissors, glue, scraps of net or muslin, poster or tempera paints, paintbrushes, water, plastic food trays for mixing the paint, strips of coloured paper, a blunt kitchen knife, a dowel rod or flat stick, and masking tape.

i) Cut out a piece of cardboard bigger than your face.

ii) Draw and cut out large eye and mouth holes. Make a nose for the mask using a piece of scrap cardboard.

iii) Cut pieces of net or muslin to fit over the eye and mouth holes, and glue these in position.

iv) Paint your mask. Paint over the net as well as the cardboard with a dry brush so that you don't fill too many of the net holes with paint. When you hold the mask in front of your face, you will be able to see out but people will not be able to see you!

v) Make some hair for your mask from paper strips. You can make the strips curl by stretching them over the blade of a blunt knife. Pull and stretch in one movement. If they don't look curly enough, pull them over the knife a second time.

vi) Glue the curled paper strips on to the back of the mask. Glue the dowel rod or stick to the back of the mask and secure with masking tape.

Salmonid Education Resources

The Department of Fisheries and Oceans has sponsored the development of a wide range of curriculum materials to enhance a study unit on salmon. Most of the following materials are available for purchase from BCTF Lesson Aids.

Salmonids in the Classroom	These guides, (primary and intermediate versions) contain complete units of study with background information about the British Columbia salmon species, reproducible handouts for students, and suggested teaching activities. There are ideas for integration in all subject areas (Social Studies, Music, Art, Science, Language Arts, Math).
Board Game	Chase and capture game which highlights the dramatic upstream migration of the salmon to the spawning grounds.
Puppets	Six well-made stylized sock puppets of the salmon life cycle stages (egg, alevin, fry, smolt, adult, spawner).
Fish in the Floodlights	Nine short scripted dramatic pieces suitable for students in the intermediate grades. The materials are intended to provide teachers with "launching pads" for initiating theme units involving such topics as: Stewardship, Resource Use Conflicts, First Nations and Fishing, and Salmon Enhancement. Suggestions for integration with Science, Social Studies and the Arts are also provided.
SIC: Science Supplement	Seven hands-on/minds-on investigations with emphasis on cooperative small group learning. The experiments combine scientific information with skills such as observing, communications, relating, inferring and applying. May be suitable for grades 8–10.
Primary Update (1993)	Teachers in Burnaby have revitalized the student activities in the primary *Salmonids in the Classroom*. The emphasis is on cooperative learning strategies.
Salmon Alphabet Poster	A full colour poster, with illustrated salmon words from A-Z.
Egg-to-Fry Display	Wooden display rack holds four securely mounted glass vials. Each contains salmon at an early developmental stage.
Gently Down the Stream	(contact your local hatchery or community advisor) Field trip guide for teachers who wish to take students to a local salmon stream or hatchery. Information on: preparing students for the outing, the on-site visit, and wrap-up activities.
Scales & Tales	(available free from the Department of Fisheries & Oceans, Community Involvement Division) A series of salmon-oriented information/game sheets suitable for ages 8 to 12.

Bibliography

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Tarlington, Carole & Verriour, Patrick. **Offstage, Elementary Education Through Drama**. Oxford University Press, Toronto, 1983.

Wagner, Betty-Jane. **Dorothy Heathcote: Drama as a Learning Medium**. National Education Association, Washington D.C., 1986.

Walker, Herb & Lois. **Teacher's Guide Readers' Theatre in the Classroom**. Take Part, Production, 1990.

Wright, Lyndie. **Masks**. Franklin Watts Publishing, London, 1989.

Audio Visual Materials

Check educational audio-visual catalogues in your area for current listings.
DFO: Department of Fisheries & Oceans, Vancouver, Canada
IMS: Image Media Services, Ministry of Education, British Columbia
NFB: National Film Board, Canada

1987 video DFO/IMS: **A Good and Careful Harvest 12 min.**
Part one of a trilogy, narrated by children. A young girl and boy discuss the gear and operations of commercial salmon boats (gillnetter, seiner, troller). Filmed in B.C. See Fishing is Fun (Part 2) and Silver Swimmers (Part 3).

1970 video/film IMS/NFB: **Adaptation to Ocean Environments** 11 min.
This program explores the adaptations that are found in animals that live in the open ocean, on the sandy floor, and on the rocky reefs.

1965 video/film IMS: **Among Fish** 11 min.
Good photography and slow pacing give young children an opportunity to study a number of different fish including their anatomy and the function of their parts.

1986 video IMS: **Aquarium** 23 min.
This program tours a large city aquarium for a close-up look at fascinating aquatic life and the people and technology behind the scenes. Intermediate, secondary.

1976 film/video DFO/IMS: **Birth of a Salmon** 6 min.
The complex workings of salmon embryology are simplified and beautifully photographed in this short presentation. A "must see" for teacher and students of all ages.

1988 video DFO/IMS: **Classroom Dissection (Student Version)** 25 min.
This may be used as a substitute for the real thing if specimens are not available or it can be used to prepare or follow up an actual classroom salmon dissection.

1988 video DFO/IMS: **Classroom Dissection (Teacher Version)** 27 min.
A guided "how to" for classroom salmon dissections. Background information is provided on external and internal anatomy.

pre 1960 film DFO: **Dammed Forever** 24 min.
Strong anti-dam bias. Based on the American experience on the Columbia River. Although dated, its message (and the dams) are irrevocable. There are many presentations available from B.C. Hydro which present a different perspective.

1992 film/video NFB: **Ecology Series** 81 min. 20 sec.
A compilation of five excellent videos: Land Above the Trees, The Temperate Rain Forest, Wild in the City, The Intertidal Zone, Estuary. This is a "must see" for anyone interested in a comprehensive look at the entire B.C. ecology scene.

1979 film/video DFO/IMS/NFB: **Estuary** 11 min.
Superb footage of several of the inhabitants of the Fraser River estuary. The ecology and importance of the estuary: the natural forces that control its various forms of life and the estuary's place in the environment are examined. This one gets four stars!

1967 film DFO/NFB: **Fisherman's Fall** 14 min.
Roderick Haig-Brown demonstrates the art of salmon fishing and articulates his philosophy of watching and learning but not harming anything in or around the stream.

1987 video DFO/IMS: **Fishing is Fun** 12 min.
Second in trilogy narrated by children. The intrinsic as well as the extrinsic aspects of sport fishing are examined through a young boy's experience. See A Good and Careful Harvest (Part 1) and Silver Swimmers (Part 2).

1982 video/slide show DFO: **Fishways and Heath Trays** 12 min.
Several of the techniques used by the Department of Fisheries and Oceans to enhance British Columbia's salmon are examined.

1979 video/slide show DFO: **Fragile Web** 13 min.
The Fraser River marshes and the creatures which inhabit them are threatened by the conflict between human use and nature's needs.

1979 slide show DFO: **Incredible Salmon** 5 min.
An historic look at enhancement techniques before and after the Salmonid Enhancement Program was implemented in 1977.

1978 film DFO/NFB: **The Incredible Upstream Struggle** 24 min.
The chinook salmon's upstream once-in-a-lifetime attempt to return to its home stream to spawn is followed by the camera.

1986 film/video: **Jacques Cousteau Special on Salmon** 60 min.
Spectacular photography. Should be available through local television stations.

no date available film IMS: **Life Cycle of the Salmon** 10 min.
The film shows the sockeye salmon returning to spawn in a river with spectacular shots of leaping salmon and of spawning behaviour.

1975 film DFO: **Life of the Sockeye Salmon** 25 min.
The presentation follows the sockeye salmon from freshwater to salt and back to freshwater again as each stage of its life cycle is explained.

1974 film DFO: **Living River** 28 min.
Filmed entirely on Vancouver Island, by Dick Harvey, this is the story of a Pacific river and the life which it supports.

1979 film/video DFO/IMS/NFB: **Man Who Digs For Fish** 14 min.
Twenty-five years after Frank Jenkinson started helping the salmon in the stream that runs by his place, the number of fish has increased from 600 to 25,000. This presentation shows the dedication of one man in performing a task for which there is little glory and no money.

1979 film/video DFO: **My Fish, Your Fish** 9 min.
The camera follows a biological technician and his crew around Rivers' and Smith's Inlets as they gather biological data for Fisheries and Oceans.

1973 film DFO: **New Channels for Sockeye** 20 min.
The Babine Lake Sockeye spawning channels in northern B.C. were constructed to increase sockeye salmon stocks to 1,000,000. Excellent footage of the Skeena and Babine Rivers and the Prince Rupert area.

1980 film/video DFO/IMS: **Pacific Highliner** 20 min.
A day in the life approach to examining seine boat operations. The narration and the on site interviews provide information about the economic side of salmon fishing.

1982 video DFO/IMS: **Role of a Fishery Officer** 12 min.
This day-in-the-life presentation illustrates the duties and responsibilities of every Fishery Officer.

1985 video IMS: **Salmon on the Line** 60 min.
This is an incredible story of the complex life cycle of the salmon and their fight for survival.

1979 video/slide show DFO/IMS: **Salmon River** 10 min.
This presentation uses the Salmon River, near Langley, B.C. to illustrate the common problems and common potential of many small streams. It presents the factors (negative and positive) which influence fish productivity in a stream.

1971 film DFO: **The Sea** 29 min.
The oceans of the world are being strained to capacity and of all the world's resources the greatest is water - it is not surprising that Canada has a keen interest in life in the ocean. This film is of general interest and contains excellent footage.

1987 video DFO/IMS: **Silver Swimmers** 12 min.
Third in a trilogy of videos narrated by children. A young native Indian boy observes and comments on the traditional and modern day fishing and preserving methods. See A Good and Careful Harvest (Part 1) and Fishing is Fun (Part 2).

1980 video/film DFO/IMS: **Steelhead** 22 min.
The main theme of the film is stated as a question - "Where have all the steelhead gone?"

1987 video DFO/IMS: **Stony Creek Incubation Project** 19 min.
Hundreds of teachers and their students throughout British Columbia are involved in incubating and rearing salmon in their classrooms. All aspects of this popular program are shown. Developed by teachers for teachers.

1987 video DFO: **Storm Drain Marking Program** 30 min.
Explains the program by which volunteers (school children especially) may become involved in marking storm drains to alert people to how harmful some common household products are to fish.

1969 video IMS: **The River: A First Film** 10 min.
This program follows a river from the rain and snow that falls on the highland, through streams, to the river and on to the ocean. It shows why many cities have developed alongside waterways.

1979 film DFO/IMS: **Two Hundred Mile Limit** 26 min.
A thorough, relatively, non-technical explanation is provided of the how and why of Canada's 200 mile/320 km. fishing limit.

Related Curriculum Materials

Coss, L. et al. **FOREM**. Vancouver, British Columbia: Council of Forest Industries, 1989.

Department of Fisheries & Oceans. **Salmonids in the Classroom**. Vancouver, British Columbia: Canadian Department of Fisheries and Oceans, 1988. This is a comprehensive curriculum package about pacific salmon in B.C., with a separate primary and intermediate resource guide.

Salmonid Enhancement Program
Department of Fisheries & Oceans, Community Involvement Division
555 West Hastings Street
Vancouver, B.C. V6B 5G3
Phone: 666-6853
Fax: 666-0292

Dingham, C. et al. **Give Earth A Chance: A Newspaper in Education Environmental Program**. Vancouver, British Columbia: Canadian Daily Newspaper Publishers Association, 1990.

Dyckman, C. & Way, A.W., **Clean Water, Streams and Fish: A Holistic View of Watersheds.** Seattle: Washington State Office of Environmental Education, revised 1982. This is an excellent resource. For further information, contact:

Mr. Tony Angel,
Supervisor of Environmental Education,
Washington State Office of Education,
17011 Meridian Avenue North,
Seattle, Washington
98133

Farthing, P. **The Stream Scene**. Portland, Oregon: Aquatic Education Program Council, 1990. Written for high-school students, but may provide some background information for teachers.

Fisheries Education Coordinator et al. **Fishways: Primary/Junior.** Ottawa, Ontario: Ontario Ministry of Natural Resources, 1990. A well organized curriculum based activity manual about fish and fish management for teachers in the primary and junior grades. It includes a wide range of activities that promote thinking skills and decision making. The Ontario Ministry of Education provided guidance in the development of this program.

Fisheries Education Coordinator et al. **Fishways: Intermediate/Senior**. Ottawa, Ontario: Ontario Ministry of Natural Resources, 1990. A well organized curriculum based activity manual about fish and fish management for teachers in the intermediate and senior grades. It includes a wide range of activities that promote thinking skills and decision making. The Ontario Ministry of Education provided guidance in the development of this program.

F.R.E.M.P. (Fraser River Estuary Management Program). **Conflicts of Interest**. 1992. A simulation/role play package based on actual case studies. The emphasis is on conflict resolution/decision-making. Available from FREMP office, 525-1047, New Westminster, B.C.

Kristritz, R.U. **Discover Your Estuary: Understanding and Exploring the Aquatic Environment of the Fraser River Estuary**. Vancouver, British Columbia: Environment Canada, 1992.

Environment Canada,
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224 West Esplanade
North Vancouver, B.C. V7M 3H7

Miller, M. et al. **Encore**. Victoria, British Columbia: Ministry of Environment, 1975. Excellent environmental education activities for students in the intermediate grades.

Seagrant Marine Education Specialists. **Gateway to the Pacific: The Columbia River**. Corvalis, Oregon: Oregon State University, 1986. This is part of a curriculum developed by the Oregon Sea Grant program for the intermediate grades.

Snively, G., et al. **Vancouver Bays & Harbours**. Western Education Development Group. University of British Columbia, Vancouver, 1986. Teacher's guide and student worksheets (separate) as well as video all contribute to "paint" a comprehensive picture of Vancouver as a major port in the Pacific Rim.

Society, Environmental & Energy Development Studies Foundation. **The Water Literacy Program**. Edmonton, Alberta: Alberta Ministry of the Environment, 1988. An extensive and sequential program to introduce students in the intermediate grades to water, the water cycle, water as a resource, how water is controlled and managed, and how water influences human use of land.

University of Alaska. **Alaska Sea Grant Curriculum Series.** Fairbanks: Sea Grant Publications, 1980.

Wallin, G. et al. **Forest Choices.** Vancouver, British Columbia: B.C. Forestry Association, 1992.

Western Regional Educational Council, **Project Wild**. Ottawa, Canadian Wildlife Federation, 1990.

Western Regional Educational Council. **Project Wild: The Aquatic Supplement**. Ottawa: Canadian Wildlife Federation, 1985.

Yates, S. **Adopt-A-Stream.** Seattle, Washington: Adopt-A-Stream Foundation through the University of Washington Press, 1989. An indepth look at Northwest stream life as well as an overview of streams and their watersheds. This eleven chapter soft cover book describes action-oriented educational activities and stream enhancement projects that groups can initiate. It is clearly written, with excellent illustrations.