

Protecting Our Salmon

GRADE 7



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BRITISH
COLUMBIA

Ministry of Education
Education Technology Branch

OVERVIEW

In this unit, students research facts about salmon in order to answer the critical question “How can we make sure there are salmon for the future?”

The unit begins with an activity that gives an overview of the salmon life cycle and illustrates the impact of human activity on salmon stocks. In order to get the information they need for an active citizenship project on helping ensure salmon for the future, students work in groups to each research one aspect of the topic (habitat, life cycle, food web, threats to salmon, or salmon enhancement) and create a mini-lesson for the class on their topic. The class then designs and carries out an active citizenship project.

The technology focus is on using browsers, navigating web pages, and saving information from web sites. There are also suggestions for ways to incorporate word processing, e-mail, PowerPoint, and web site creation into the project.

Unit Goals

In this unit, students can:

- work in groups to use the Internet to research topics related to salmon conservation
- use available technologies to create mini-lessons on topics related to salmon conservation
- plan and carry out an active citizenship project to support salmon conservation

Notes

- Approximate time: nine to 11 hours, plus time for the active citizenship project.
- This unit is adapted from the Salmon Tales Field Trip project conducted in November 2000. For the address of this site, visit the ministry’s web site, at www.bced.gov.bc.ca/technology/6-9.htm, and click on Sample Units.

The web site associated with this project is a good source of information for both teachers and students, but it is not essential for completing the unit. Other electronic and print resources could be used.

- This unit assumes that students are familiar with these key concepts of the Grade 7 science curriculum: food webs, life cycles, habitat, and ecosystems. If students require direct instruction in these concepts, detailed suggestions are provided at the Salmon Tales Field Trip web site.

WHAT THE UNIT OFFERS

Lessons	Approximate Time	Curriculum Connection
<p>1. DEVELOP THE CONTEXT</p> <p>Students become familiar with the problem of dwindling salmon stocks, find out about the task for the unit, and set personal active citizenship goals.</p>	<p>one 45-minute class</p>	<p><i>Grade 7 Science</i></p> <ul style="list-style-type: none"> • propose and compare options when making decisions or taking action • describe all organisms in terms of their roles as part of interconnected food webs • describe ways in which species interact with each other • determine the limiting factors for local ecosystems • describe the growth changes in the development of an organism • outline factors that influence the length and quality of life
<p>2. PLAN THE RESEARCH</p> <p>Students review the research process, discuss the types of information they will need, and make a plan to organize and focus their research.</p>	<p>one or two 45-minute classes</p>	
<p>3. GATHER INFORMATION</p> <p>Students work in their groups to gather information on their assigned topics. This includes accessing web sites.</p>	<p>four or five 45-minute classes</p>	
<p>4. INTERPRET AND REFINE</p> <p>Students work in their groups to select the main ideas and important supporting details that will make an effective mini-lesson.</p>	<p>two or three 45-minute classes</p>	
<p>5. SHARE INFORMATION</p> <p>Students present the results of their research and fill out data-collection sheets to show that they understand all aspects of the issue, not just the topic their group researched.</p>	<p>four or five 45-minute classes</p>	
<p>6. THINK BACK, THINK AHEAD</p> <p>Students think about what they've learned and design and carry out an active citizenship project to help make sure there are salmon for the future.</p>	<p>will depend on the project selected</p>	

Research Emphases*	Technology Opportunities	Assessment
➔ FOCUS	Word-processing documents for student handouts Using the computer calculator function	BC Performance Standards for Social Responsibility (RS 3: Active Citizenship) (page 23)
➔ FOCUS	PowerPoint presentations Word-processing document for project management	Teacher: comments on research plans
➔ FIND AND FILTER	Distribute and share information by e-mail RS 6: Technology Focus: Accessing a Web Site (page 28) RS 7: Technology Focus: Saving Information from a Web Site (page 30)	Teacher: observation of student skills with browsers and web site navigation
➔ WORK WITH THE INFORMATION	Using file naming conventions and organization to keep track of version	Teacher: conference with students to check presentation plans
➔ COMMUNICATE	Transferring documents by e-mail Using a variety of technologies to enhance mini-lessons	Teacher: review of questions and answers submitted by groups and of completed data sheets Peer: comments on mini-lessons Teacher, Student: RS 5: Salmon Research and Mini-Lesson (page 26)
➔ REFLECT	Developing a web page	Student: RS 3: Active Citizenship (page 23) Teacher: observation of student contributions to project

*Based on BCTLA's Research Quest developed in 2000.

1. DEVELOP THE CONTEXT

In this lesson, students become familiar with the salmon life cycle and some of the reasons for dwindling stocks. They also find out about the task for the unit and set personal active citizenship goals.



GET ON - LINE

The ministry web site includes a link to the Salmon Tales Field Trip project from which this unit has been adapted. This site includes a variety of resources for students and teachers, including an electronic version of the Salmon Countdown activity (RS 1). Visit the ministry's web site, www.bced.gov.bc.ca/technology/6-9.htm, and click on Sample Units.

Activate Prior Knowledge

Students recall what they know about salmon and do an activity to give them an overview of the issue.

- Explain to students that for the next few weeks they will research salmon to find out what the threats are to the species and how people can take action to ensure that we have salmon for the future. Ask: "What do you already know about salmon?" Discuss students' ideas. Some students may have considerable knowledge. You may want to start a KWL chart to update after they have completed their research.
- Distribute copies of RS 1: Salmon Countdown. Explain that this describes the salmon life cycle. Review the reproducible and what they need to do to complete it, pointing out that they may need a calculator to help them with the arithmetic. Also point out that the story includes a number of specialized terms to do with salmon. Explain that they will learn more about the salmon cycle later in the unit—for now they should concentrate on the "big picture."
- Ask students to work independently or with a partner to read the story and do the calculations. Ask them to also review the sheet when they are finished and make a list of the threats to salmon.



Technology Opportunities

Research Process

➔ Focus

Find and Filter

Work with the Information

Communicate

Reflect

- When students have finished their work, share the correct answers as a class. Ask: "Are you surprised at how few salmon survived? How did you choose to end the story? Why did you choose that ending?"
- Ask students to share the threats to salmon they recorded. As a class, identify how many of the threats are caused by humans or could be reduced by human actions.



GET ON - LINE

The BC Performance Standards for Social Responsibility are available through the ministry's web site. The standards provide detailed rubrics and examples to help assess student work in the area of active citizenship. Visit the ministry's web site, www.bced.gov.bc.ca/technology/6-9.htm, and click on Curriculum Connections.

Describing the Task

Students discuss what it means to be an active citizen and start thinking about the main research task for the unit.

- Explain to students that many people in British Columbia are concerned about the future of salmon stocks because the total number of salmon in the area has gone down by great numbers in a very short time. As a result, many people are working to improve the situation.
- Write "active citizenship" on the chalkboard. Explain that when people take action to help make the world a better place, it is called active citizenship. Ask students about any active citizenship projects they have been involved in or know about. To help students get started, you might mention any ongoing projects in the school (e.g., contributions to food banks) or environmental projects in the community. Point out that even small actions, such as recycling, can make a big difference if everyone does them.
- Explain that in this unit, you would like them to work in groups to research the information they need in order to design and carry out a small project to help make sure we have salmon for the future. Explain that the critical question is: "How can we make sure there are salmon for the future?"



Technology Opportunities

The Salmon Countdown file could be made available to students in a word-processing document to complete on-line. They could use the computer's calculator function to help them with the arithmetic.

Research Process

➔ Focus

*Find and Filter
Work with the Information
Communicate
Reflect*

- Ask: “What do you think? Do you think our class could make a difference?” Encourage honest discussion, acknowledging any concerns students might have that people their age might not have a great impact. Encourage a positive attitude by giving examples of projects young people in your school or community have been involved in or started.
- Distribute copies of RS 2: Ten Ways to Make a Difference. Ask students to read this sheet through on their own, then meet with a partner to discuss which of these things the class or individuals in the class might do to help make sure we have salmon in the future. Discuss their ideas as a class and record on chart paper for later reference.
You may also want to refer back to the discussion of the interactions between humans and salmon and ask for preliminary ideas about which way of making a difference might work in each case.

Considering Their Role

Students set personal active citizenship goals for the unit.

- Distribute copies of RS 3: Active Citizenship. Explain that they will be asked to complete this sheet at the end of the unit. They can use it now to help them select a personal active citizenship goal.
- Ask students to write one or two paragraphs saying why it is important for young people to be active citizens and describing a personal goal they have for this unit. Review students’ work, commenting on their ideas. Conference with students who seem to need guidance in setting a goal. Remind students to keep their copies of RS 3: Active Citizenship.



Technology Opportunities

If students write their comments and goal statements in a word-processing file, they can easily review and update at the end of the lesson. Students could e-mail the files to you, and you could write your comments in another colour.

Research Process

➔ Focus

*Find and Filter
Work with the Information
Communicate
Reflect*

2. PLAN THE RESEARCH

In this lesson, students review the research process, discuss the types of information they will need, and make a plan to organize and focus their research.

The Research Process

Students discuss what they know about the research process.

- Remind students of the critical question and their task of thinking of a way to help ensure salmon for the future. Explain that in order to design an effective active citizenship project, they will need to know a lot about salmon and how salmon interact with people. That means research.
- Ask students: "What are the main steps in the research process?" Record their ideas as they are suggested. Use the Research Quest chart as required. Also discuss with students what they think are the most challenging and most fun parts of doing research.

Categories of Information

Students discuss as a class what they know about the categories of information they will need to research.

- Write the following categories on the chalkboard or chart paper.
 - Habitat
 - Life Cycle
 - Food Web
 - Human Threats to Salmon
 - Human Help for Salmon



GET ON - LINE

The Salmon Tales Field Trip site includes lesson plans and interesting activities for focused instruction for each category of research, should the class discussion reveal a need for that. Visit the ministry's web site, www.bced.gov.bc.ca/technology/6-9.htm, and click on Sample Units.



Technology Opportunities

You might want to present the information about the categories of research in an illustrated PowerPoint presentation. This would help students become aware of this technology as an option for their mini-lessons.

Research Process

➔ Focus

*Find and Filter
Work with the Information
Communicate
Reflect*

Discuss each category in turn, ensuring that the students understand the key terms (e.g., *life cycle*). Suggest that students take notes during the discussion as a “head start” to their research.

- Ask: “How can researching these topics help us make sure that we come up with a good plan to help protect salmon stocks?”
- Remind students that in this unit, they will work in groups to research one of these topics and create a mini-lesson to present to the class.
- At this point, you may want to post the categories and invite students to sign up for a topic of interest. Alternatively, you could predetermine the groups and assign topics or randomly distribute pieces of paper with the various topics on them. One advantage to predetermining the groups is that you can ensure that each group has a mix of students with different levels of experience with technologies.

Getting Organized

Students get together in their groups to make plans for their research.

- Ask students to get together in their groups.
- Distribute one copy of RS 4: Project Plan and RS 5: Salmon Research and Mini-Lesson to each group. Discuss and clarify both sheets, being sure to point out to students how both relate to the research process.
- Point out that the Project Plan asks for the group to name a contact person. Other groups who want to share information or ask questions can e-mail this person. The contact person should add his or her e-mail address to a list posted in the class. Also discuss timelines for completing each phase.
- As a class, discuss what would be the structure of an effective mini-lesson. Help students to see that it is similar to reporting on a topic. This could be explained as:
 - Begin by making sure the audience understands what the lesson is about.
 - Identify and explain three to five main ideas.
 - Support main ideas with accurate and relevant facts and examples.
 - Conclude with a summary of the main ideas.



Technology Opportunities

Research Process

➡ Focus

Find and Filter

Work with the Information

Communicate

Reflect

- If possible, show and discuss several different types of visuals or displays they could use as part of their mini-lessons. Also show examples of effective handouts. Aim to show how a variety of technologies could be used (e.g., paint programs to create graphics, spreadsheet programs to create graphs, PowerPoint presentation, Inspiration web).
- Invite students to contribute ideas on ways each type of visual could be used to enhance a mini-lesson. This might also be a good opportunity to ask student volunteers who are familiar with any of the technologies to offer their help to others who might want to learn.
- Ask students to get together in their groups and do the following tasks.
 - Refer again to RS 5: Salmon Research and Mini-Lesson, and discuss which criteria they think will pose the biggest challenges. As a group, they should identify one important thing they want to work on and record this in RS 4: Project Plan as their goal.
 - Then complete the rest of RS 4: Project Plan. Remind them to consider how they will share in presenting the mini-lesson once it is developed.
- Circulate as students are planning, to check that they are developing reasonable plans and are able to identify a goal. If some groups are having trouble focusing, you might want to discuss effective group-work strategies.
- Students may have some difficulty identifying or articulating research questions. You might want to work as a class to brainstorm possible questions for each topic.

Review and Assessment

Review and provide written comments on students' plans.



Technology Opportunities

If you provide the Project Plan as a word-processing document, students can easily alter the table to include as many rows as they need. They can also go back in and modify their questions as they work.

Research Process

➡ Focus

Find and Filter

Work with the Information

Communicate

Reflect

3. GATHER INFORMATION

In this lesson, students work in their groups to gather information on their assigned topics.

Locating Web Sites

Students do some preliminary work to identify web sites that might be useful for their topics.

- Remind students that for this research project, they are required to obtain information from at least one web site. You will work as a class to make sure everyone knows how to access web sites and can find some information useful to their topic.
- Write on the chalkboard or distribute by e-mail copies of a list of web site addresses related to salmon and conservation. Ask students to work in their groups to use the browser to access each of the sites and write a brief summary of what kinds of information it has that might be useful for their topic. At this point, they are not expected to review the site in detail or save material from it. They should base their ideas on the home page information and a review of the various menus.

They should decide for themselves on a useful way to record this information, such as a chart or list. Ask them to bookmark the three sites that look the most useful to them.

- After students have had some time to access the sites, have them share what they found as a class. Give them an opportunity to look again at sites and update their bookmarks.

Working with Web Sites

Students evaluate web sites in more depth and begin locating and recording information.

- Explain to students that when you are using the Internet to do research, it is important to go about selecting information in an organized way. The first step they followed in the last class was to take a preliminary look to find out what web sites might be useful. Now you would like them to look in more detail at the web sites they've bookmarked.
- Ask students to work in their groups to review their research questions and update if they have new ideas. They should then look at the web sites they



Technology Opportunities

The list of web site addresses could be put in a word-processing document and distributed to each group-contact person by e-mail.

RS 6: Technology Focus: Accessing a Web Site provides focused instruction in the basics of using a browser and navigating a web site.

RS 7: Technology Focus: Saving Information from a Web Site provides focused instruction that some students might need for working with the information they locate.

Research Process

Focus

➡ Find and Filter

*Work with the Information
Communicate
Reflect*

bookmarked and gather information that could help them answer their questions. They could do this by working individually or in pairs to identify relevant information and save it in some way (e.g., printout, web document, text document).

- As a class, discuss what you do with the information you have gathered from a web site. Ask: "Can you put this information directly into your projects?" Help students to understand that they can reuse some material (graphics, for example) if they give the source, but that most of the writing in their presentation and handouts should be in their own words.
- Ask each group to select one piece of information they have gathered and give a brief presentation describing what research question it helps answer, what kind of information it provides, and how it might be useful in the group's mini-lesson. Comment on students' understanding of the need to avoid plagiarism and their ability to select information relevant to their topic.

Note: The Grade 7 unit *Egypt's Greatest Legacy* has a more in-depth discussion of the issue of plagiarism, as well as an activity to help students learn to take notes from web site material (see Summarizing Information, in Lesson 3). It also describes how to correctly cite a web site, if you would like students to provide that level of detail for this project.

Completing the Research

Provide students with adequate library and computer time to complete their research. Encourage groups to share information. Also remind students to refer frequently to their research questions and to update as needed.



Technology Opportunities

Students could use e-mail to share web sites that might be useful to other groups in the class. This would be an opportunity to demonstrate that with some systems, it is possible to click on a web site address within an e-mail message and go directly to the site.

Research Process

Focus

➡ Find and Filter

Work with the Information

Communicate

Reflect

4. INTERPRET AND REFINE

In this lesson, students work in their groups to select the main ideas and important supporting details that will make an effective mini-lesson.

Considering the End Product

Students decide on a way to present the results of their research, and they sort the information they have gathered accordingly.

- As a class, discuss how you go about turning the information you have collected into an effective mini-lesson. Ask: “How do you decide which are the three to five main ideas you want to get across? How do you choose supporting facts and examples? Can pictures, diagrams, and graphs help get across your main ideas?”

To help students identify main ideas, refer to RS 5: Salmon Research and Mini-Lesson. Point out that this assessment sheet makes it clear that the natural systems related to their topics (e.g., food web, growth and change, interactions between species, ecosystems) are important main ideas.

In discussing the use of visuals, point out that different types of information are best presented in different ways. For example, it is hard to describe what a salmon looks like, but easy to draw a picture. Statistics on the declining fish stocks are not as effective as a bar graph showing the same thing.

- Ask students to now meet in their groups and make final decisions on how they will present the results of their research. They may or may not choose to go with the ideas they originally recorded on their planning sheets. Suggest that they begin by deciding on the three to five main ideas they need to communicate and thinking about the best way to do that. They should consider what technologies can help them do the best job.
- Students should then work to sort their information and write it in their own words. Point out that they may find that they need to do some more research to “fill in the gaps.” Encourage students to ask other groups if they have found information that might help.



Technology Opportunities

Point out to students that if they are working as a group with word-processing or other files, they will need to have a system in place to make sure everyone knows which is the current version of each file and where it is located.

Research Process

Focus

Find and Filter

➡ **Work with the Information**

Communicate

Reflect

Conference and Assessment

Conference with each group to ensure that their plans are reasonable and that they have collected sufficient accurate information to do the job.



Technology Opportunities

Research Process

Focus

Find and Filter

➡ **Work with the Information**

Communicate

Reflect

5. SHARE INFORMATION

In this lesson, students present their mini-lessons and fill out data-collection sheets to show that they understand all the elements of the issue, not just the topic their group researched.

Compiling the Data-Collection Sheet

Students contribute questions to a class data-collection sheet.

- Explain to students that it is important for everyone to have some understanding of all topics so that they can contribute to the class discussions of an active citizenship project. Students can learn about the other topics during the mini-lessons. To help them check whether they're getting the main ideas, you will create a data-collection sheet that asks them five to 10 questions on each topic. However, you'd like the groups to contribute the questions.
- Ask each group to submit to you a set of five to 10 questions that focus on the main ideas concerning their topic and that they expect others could answer after hearing their mini-lesson and reading their handout. They should submit both questions and answers.

Assessment

The questions and answers students submit can be used as evidence of their understanding of their topic. If you notice any serious inaccuracies, meet with the students and ask for revisions before compiling the data-collection sheet.

Creating Their Materials

Provide students with the class and computer time they need to create the materials for their mini-lessons.

Presenting

Schedule mini-lesson presentations over a period of several days. Distribute data-collection sheets before the first presentation, and have students update them after each presentation.



Technology Opportunities

If students e-mail you their questions in a word-processing file, it will be easy to compile the data-collection sheet.

Support and encourage the use of a variety of technologies in their mini-lessons.

Research Process

Focus

Find and Filter

Work with the Information

➡ **Communicate**

Reflect

Review and Assessment

Provide opportunities for peer feedback in the form of a comment sheet submitted at the end of each mini-lesson. Each group should be responsible for commenting on the work of two other groups. Their comments should include one thing that worked well, one suggestion for improvement, and one question about the topic.

Ask groups to use RS 5: Salmon Research and Mini-Lesson to complete a self-assessment after reviewing comments. Add your own comments. Conference with groups whose assessments are significantly different from your own.

Post the correct answers to the data-collection sheet and ask students to mark their own work. As a class, identify any questions that seem to be most often answered incorrectly. Discuss why this might be. Some possibilities include a difficult concept, a poor explanation in the mini-lesson, a poorly worded question, or students not paying close enough attention to the presentation.



Technology Opportunities

Research Process

Focus

Find and Filter

Work with the Information

➡ **Communicate**

Reflect

6. THINK BACK, THINK AHEAD

In this lesson, students think about what they've learned, and they design and carry out an active citizenship project.

Note: This part of the unit could be expanded to become a major project on its own. Some simple projects that would be an effective conclusion to the unit are:

- Create posters to put near sinks used in art and science classes to remind people not to pour poisons down the drains.
- Stencil fish outlines on pavement to remind people that storm drains lead to fish habitats.
- Write letters supporting salmon enhancement to provincial and federal government ministries.
- Have a bake sale or "fish crafts" sale to raise money for salmon stream enhancement projects.
- Volunteer with a local project to help clean up a stream.

Selecting a Project

Students review their original ideas for helping to protect salmon, brainstorm new ideas, and select one or more ideas for their project.

- Discuss with students the scope of the active citizenship project you'd like them to undertake—that is, how much time it should take, how complex it might be, and what kinds of resources they could use.
- As a class, review students' ideas for ways to help make sure there are salmon in the future (recorded on chart paper in Lesson 1). Eliminate the ones that are beyond the scope of what you would like students to undertake at this time. Brainstorm any new ideas that they have.
- Have students suggest or vote on the two or three most likely ideas. For each, create a pro/con chart to help students think through which ideas are most likely to work. Some of the factors they need to consider are:
 - How much time would it take?
 - What kind of resources would it need (financial and otherwise)?



Technology Opportunities

Students could set up their own web page on salmon that tells about the research they've been doing and provides suggestions to people on how to keep salmon habitats clean.

Research Process

Focus

Find and Filter

Work with the Information

Communicate

➡ **Reflect**

- What help would we need from others (to do work and provide permissions)?
- Who else might it affect?
- What do we already know that will help us? What new information do we need?
- Come to a consensus on which project or projects to do. The entire class could participate in the same project, or students could select projects to do in groups or as individuals.

Carry Out the Project

Provide time as needed for students to carry out the active citizenship project. This will involve planning and organizing, and may involve gathering information.

Before students start, review as a class RS 3: Active Citizenship (distributed in Lesson 1).

Assessment

At the end of the active citizenship project, ask each student to do a self-assessment on RS 3: Active Citizenship. Also ask them to write a paragraph explaining how the research they did on salmon helped them select and work on the project. Review students' assessments and paragraphs, adding your own comments based on your observation of their contributions to the project and to class discussions.



Technology Opportunities

Research Process

Focus

Find and Filter

Work with the Information

Communicate

➡ **Reflect**

VARIATIONS

Salmon and Culture

One group in the class could research the significance of salmon in the culture of a specific Aboriginal group. Their research should include traditions and modern practices.

Other Topics

The basic approach outlined in this unit could be applied to a variety of environmental topics, such as air or water quality, preservation of native plant species, or endangered animals.

Displays and Presentations

Instead of mini-lessons, students could develop displays or various forms of oral presentation (e.g., skits, Readers Theatre) to present the results of their research.

Fish in Art

Salmon, or a fish theme in general, could be carried into visual arts through projects such as fish prints or salmon mobiles. Students could also research images of fish in art.

RESOURCE SHEETS

RS 1: Salmon Countdown

RS 2: Ten Ways to Make a Difference

RS 3: Active Citizenship

RS 4: Project Plan

RS 5: Salmon Research and Mini-Lesson

RS 6: Technology Focus: Accessing a Web Site

RS 7: Technology Focus: Saving Information from a
Web Site



RS 1: SALMON COUNTDOWN



Pacific salmon have to face many dangers on their journey from an egg to adulthood. To investigate how many salmon will make it through their life cycle to spawn, follow the journey of these sibling salmon. This

example looks at how many salmon will survive from one redd, or nest area. Many females will lay eggs in several nests.

A female Pacific salmon has returned to her home stream to spawn. She lays 5500 eggs in several small nests.

Male salmon come along ready to fertilize the eggs, but one-tenth of the eggs (550) do not get fertilized. This leaves _____ fertilized eggs in the nests that have now been properly covered with gravel by the female.

As the eggs are developing over the winter, a new road is constructed further up the stream. Lots of loose soil is left behind. A large rainstorm washes gravel, mud, and silt into the river. Nests upstream have been totally smothered. At this point in the stream, 800 eggs from this group are smothered and killed. The remaining eggs hatch into alevins that stay hidden in the gravel for another month. There are now _____ alevins.

This stream runs through a farmer's land. She has been very busy making sure that the fences are repaired, but one of the fences has fallen down. The farmer's dairy cows have waded onto the gravel bar in the stream to drink the water. The cows trample on 1020 alevins. The number of remaining alevins is _____.

A brother and a sister are helping their father paint the house. When they are finished, they pour the unused paint into a storm drain next to their driveway. The drain empties directly into the stream and kills 530 alevins. There are now _____ alevins.

The remaining alevins become fry and swim up out of the gravel. After two weeks the small fry begin their journey downstream to the ocean. People who live close to the streams have been using lots of chemicals on their lawns and gardens this year. Each time it rains, more chemicals are washed into the river, which kills 245 salmon. Now there are _____ salmon to travel to the ocean. These salmon are called smolts and are silvery in colour.

The salmon smolts finally reach the ocean. As juveniles, they try to avoid predators, but 1430 of them are eaten by seagulls, mackerel, and other fish. This leaves _____ salmon.

As adults in the open ocean, killer whales feed on the group and 500 more are lost. There are now _____ salmon.

People like to eat salmon! Commercial fishing boats in the ocean using different nets catch 375 of the sibling salmon. This leaves _____ of the original salmon to begin the journey home.

As the salmon swim upstream toward the spawning grounds, hungry eagles and bears eagerly eat 24 salmon as they pass by. The bears will use the fat and protein the salmon provide to help them through the long winter's hibernation. _____ salmon are left to continue the journey.

Recreational sport fishers catch another 14 salmon. This leaves _____ salmon to travel up the fish ladder constructed around a dam.

continued...

RS 2: TEN WAYS TO MAKE A DIFFERENCE

Here are 10 ways people your age can make a difference in the world.

Tell others about an important issue and positive actions they can take.

- 1 Make posters.
- 2 Write letters—to members of the government, to newspapers, to the local council.
- 3 Get a spot on a local radio or television program.
- 4 Perform skits for other students.
- 5 Set up a web site.
- 6 Talk at community meetings.
- 7 In conversations with friends, speak up about what you think is right.

Take action.

- 8 Raise money to help an organization that works on an issue that concerns you. This could be a local, national, or international organization.
- 9 Volunteer in a local organization.
- 10 Organize a group to do something small but important in your community.

RS 3: ACTIVE CITIZENSHIP

Note: The criteria in this assessment sheet are based on the Grades 6 to 8 BC Performance Standards for Social Responsibility.

Name: _____ Date: _____

How to Contribute	How I Did
<i>Offer ideas for ways to use our salmon resources wisely.</i>	Great Okay Had Trouble For example:
<i>Be willing to take part in positive actions suggested by others.</i>	Great Okay Had Trouble For example:
<i>Take responsibility for your part in the project and offer to help others.</i>	Great Okay Had Trouble For example:
<i>Apply what you learn about the importance of conservation to your own life.</i>	Great Okay Had Trouble For example:

RS 4: PROJECT PLAN

Date: _____

Topic: _____

Members of the group: _____

Contact person for the group: _____

The finished project is due: _____

The purpose of the research is: _____

The questions we need to answer are: _____

Our first ideas for ways we might display or present the results in a mini-lesson:

(Include ideas for the presentation and the handout.) _____

One goal we have for improving our researching and reporting skills is: _____

continued...

RS 5: SALMON RESEARCH AND MINI-LESSON

Group Members: _____

Date: _____

Parts to Complete

Research Plan. Mini-lesson presentation.

List of resources used. Handout.

Criteria

Rating: 4 = Excellent 3 = Good 2 = You've got the basics 1 = Needs some work

Criteria	Ratings/Comments	
	Self (Group)	Teacher
Research		
<ul style="list-style-type: none"> Included information from at least two sources, one of which was a web site. 		
<ul style="list-style-type: none"> Developed research questions and revised them if necessary as we worked. 		
<ul style="list-style-type: none"> Correctly identified main ideas in a way that shows a good understanding of the natural and human-made systems involved.* 		

* Different topics involve different factual knowledge.

continued...

RS 5: SALMON RESEARCH AND MINI-LESSON...continued

<i>Criteria</i>	<i>Ratings/Comments</i>	
	<i>Self (Group)</i>	<i>Teacher</i>
Mini-Lesson		
<ul style="list-style-type: none"> Supported main ideas with accurate and relevant facts and examples that show knowledge of the topic.* 		
<ul style="list-style-type: none"> Created a well-organized and easy-to-follow presentation. 		
<ul style="list-style-type: none"> Created a clear handout that effectively summarized the main ideas. 		
<ul style="list-style-type: none"> Included written information plus at least two different forms of visual representation. 		
<ul style="list-style-type: none"> Used technology effectively in the mini-lesson. 		

* Different topics involve different factual knowledge.

RS 6: TECHNOLOGY FOCUS: ACCESSING A WEB SITE

This technology focus assumes that students have limited experience in using the Internet for research. There is a basic explanation of the Internet in the Getting Started document, if you require more background information in this technology.

Because there are a variety of browsers in use, the support provided here focuses on key concepts. You will need to provide examples of the specific software available to your students, either by printing out screen displays or by using an LCD projector to work through examples.

Before you start, you will need to have Internet access set up for your students and you will need to pre-select two web sites: one for class demonstration, one for student practice. The demonstration site should have a site map as one of its features. One obvious choice for the practice site is the Salmon Tales Field Trip project site. You will also need to develop five to 10 questions that can be answered by accessing the practice site.

Web Sites

- Explain that when you are doing research, you need to look for information from a variety of sources. Often, useful information can be found at *web sites*. As a class, discuss what students already know about web sites. Clarify as needed that a web site is a specific location on the Internet that offers information on a particular topic. Explain that every web site has an address. Write the address of the site you are going to access on the chalkboard.

Browsers

- Then explain that in order to get to a web site, you need a *browser*. Clarify that a browser is a little like a telephone system when you make a telephone call. The browser takes the address you give it and connects you to the site you want to visit. (It may help to sketch this relationship on the chalkboard.) Show the browser that students

will be using. Explain how to run the browser, where to enter the address of a web site, and how to shut the browser down. Point out that the site address is like a phone number—it has to be exactly correct or it won't work.

- Demonstrate entering an address and going to a web site *home page*. Explain that the first page you see at a web site is called the home page. Ask: "What information does this page give you?" Help students identify that the home page tells you what is at the site and gives you a menu to choose from. Explain that at a site, the information is organized in pages that you get to by making choices from a menu. (Note that keyword searches are discussed in detail in the Grade 7 unit *Egypt's Greatest Legacy*.)

Navigating a Web Site

- Identify the menu of choices and demonstrate moving to a page. Point out to students that with most web sites, the menu stays in the same place but the choices may change as you move to different pages. If you are doing this with an LCD projector, move back and forth a few times—from the menu selections, back to the home page, and back to the browser—until it is clear that students understand.
- Go to the web site's site map and point out that this gives you a picture of how the pages are linked at the site. This is most often a hierarchical structure, with the home page at the top. It may, however, be represented as a web.

Bookmarks/Favourites

- Point out that browsers have a feature that will keep a record of sites for you so that you don't have to key in the address every time. Demonstrate how to use the "favourites" or "bookmark" feature on the system students are using.

continued...

RS 6: TECHNOLOGY FOCUS: ACCESSING A WEB SITE...continued

Practice

- Distribute your list of questions and the address of the practice site. Ask students to work with a partner to access the site and find the answers to the questions.
- Circulate as students are working, and provide support as required. You might want to pair students so that more experienced users can provide support for others. Point out that if they get a message saying the page cannot be found, they should check the accuracy of the address they keyed in.
- After students have had some time to locate the answers, discuss what they found as a class. Ask: "What pointers about navigating a web site would you give a friend?"
- Some students might enjoy the challenge of creating a site map for a web site that does not have one. (The Salmon Tales Field Trip site does not have a map.)

RS 7: TECHNOLOGY FOCUS: SAVING INFORMATION FROM A WEB SITE

This technology focus assumes that students are able to run a browser and access a web site.

There are a variety of different ways for students to create their own copies of information they find at web sites. What is possible will depend, to a certain extent, on the technology available. This technology focus suggests three that are relatively common and useful in different ways.

Use an LCD projector to illustrate how to save the same information from a web site in three different ways. After demonstrating each, discuss the pros and cons. Alternatively, you could just discuss printing and the one electronic format you would like students to begin using.

• Printing Out a Page

Pros

- *easy to do*
- *you have the information when you don't have the computer*

Cons

- *you can't cut text or graphics from it to paste into your own word-processing files*

• Saving a Page as a Web Document

Pros

- *gives you a file that has the same layout as the original*
- *you can look at it (with the browser) whenever you want, without an Internet connection*
- *you can edit it or cut information from it and paste it into another file*

Cons

- *sometimes the file doesn't work perfectly—parts will be missing or the display confused*
- *you need a computer and a browser to see the information*

• Cutting from the Page and Pasting into a Word-Processing Document

Pros

- *lets you pick just the information you want (text and, usually, graphics)*
- *you can put the information straight into your word-processing document*

Cons

- *you might get confused and forget it is someone else's work*
- *you might later wish you had other information from the file*
- *some graphics and some types of displays cannot be cut and pasted*

