Chapter Four - Ways of Thinking About Old Forests

Introduction to the Chapter

Now that students have learned about the old Cedar-Hemlock forest ecosystem, they need a chance to reflect upon what they've learned, and a chance to think about the forest from different perspectives. In this chapter, students learn about the many values inherent in the old forest.

Objectives of Chapter Four

1. Students will understand that old forests have intrinsic value in addition to the values which humans put upon them.
2. Students will see that old forests are valuable to humans in different ways.

This chapter includes four lesson plans:

Lesson One	Perspectives on Old Forests
Lesson Two	Ecological Perspective
Lesson Three	Economic Perspectives
Lesson Four	Recreational and Spiritual Perspectives

This abridged version of the Old Forest Study Unit contains all four lesson plans.

Lesson One – Perspectives on Old Forests

Objectives of Lesson

1. Students will examine the concept that old forests have an inherent value, independent of any values humans place upon it.
2. Students will consider three different perspectives on the value of old forests.
3. Students will understand that the language chosen to discuss old forests can vary with a person's viewpoint and the value they place on the forest.

Materials Needed

None.

Teaching the Lesson

1. Examine the ways in which humans assign value to things. Humans tend to value objects in terms of what purpose the object can serve, or what benefit we can gain from the object.

   Hold up a common classroom item such as a ruler and ask, "Of what value is this?" Do this for several items. Then ask the question of an object which is of no practical use other than for its aesthetic value, such as a painting or humorous item. Extract the idea that things can have no "practical" value but yet still have value.

   Ask the same question of a potted plant. Students will likely give several uses for it, such as oxygen production and aesthetics. Point out that some of these are human-centred values, that is, things that humans can "get out of" the plant, some of the things they've listed are of value to humans plus other creatures, e.g. oxygen production.

   Summarize: Old forests are often thought of in terms of "what good are they?". They are thought of in terms of how we can use them or benefit by them. Yet, they are valuable in themselves and they would still continue to exist even if no humans were around to assign values to them.

Discuss these philosophical questions:

If a tree falls in the forest and nobody is present to hear it,
does it make a sound?
Does a waterfall have beauty even if you are not there to see it?

2. Discuss the fact that there are always many ways to view an issue. Viewpoints can vary but they are all valid. Run through some examples:
   - A dog's trip to the veterinarian could be viewed from the dog's point of view, the owner's point of view, or the vet's point of view;
   - Whether a school dance is a success might vary with the point of view of different students, of a parent, or of the student council.

3. Similarly, there are different perspectives on old forests.
   Three basic viewpoints are:
   - Ecological - views the forest as an ecosystem with its own right to exist, independently of any values humans may attach to it.
   - Economic - a human-centred viewpoint; views old forests as a resource to be used for financial profit.
   - Recreational and spiritual - a human-centred viewpoint; views old forests as a place where human needs for recreation or spiritual renewal can be satisfied.

4. Discuss the naming quandary.
   Old forests bear various labels, according to the perspective of the speaker. Draw the following headings on the blackboard, then have the students tell you under which heading to place these phrases describing old forests. Have them suggest more names for each perspective.

Headings: Ecological Economic Recreational or Spiritual

Phrases describing old forests *(and Teacher's notes)*:

Ancient forests

Decadent forest - A forest industry term, refers to site productivity and the fact that the trees are not putting on new wood at a fast rate

Old forest - This refers to the age of the whole forest community, not just the age of the trees. Many generations of old trees have lived here.

Old growth - can be ecological (old tree characteristics) or economic (the forest is no longer young, vigourous, or producing wood at a fast rate.)

Forest of elders

Wildlife trees - These are standing dead trees in various stages of decay, inhabited by various flora and fauna. Wildlife trees are a component of most natural forests, especially old forests. This is an ecological term.

Biological legacy - refers to the diversity of life forms and the stored energy and nutrients in an old forest; this represents an inheritance for the next generation of forest-dwellers.

Living cathedral - The forest communities, and even many of the trees within the communities, are older than our oldest cathedrals.

Trees of Age Class 8 and 9 - standard forestry term for trees that are older than 140 years. Refers to the age of the trees, not the age of the forest.

Widow-maker - term used by tree fallers for certain standing dead trees. Because of rot and other factors, they do not fall predictably when cut down, and therefore they are dangerous to the fallers.

Lesson Two - Ecological Perspectives

Objective of Lesson

1. Students will examine the ecological values of an old Cedar-Hemlock Forest.

Materials Needed

None.

Teaching the Lesson

1. Have students brainstorm to develop the following list of ways in which forests have ecological value, then review the associated points:

   Energy cycle - Big trees capture and store enormous amounts of energy, which is released slowly into the ecosystem as the tree dies and rots.
   Oxygen cycle - Forests produce huge quantities of oxygen as plants photosynthesize.
   Carbon cycle - Forests take huge quantities of carbon dioxide from the air and fix the carbon into sugars as part of photosynthesis.
   Water cycle- Soils and forests regulate runoff from rain and snowmelt, and through their leaves, add great quantities of moisture back into the air.
   Energy cycle - Sugars assembled in the process of photosynthesis fuel the chemical reactions of many cellular processes.
   Nutrient cycles - Nutrients extracted from the soil and air are cycled over and over within the ecosystem, and benefit other linked ecosystems as well.
   Biodiversity - Many of the flora and fauna found in old Cedar-Hemlock forests cannot be found elsewhere, or cannot survive over the long term in other forest types. Without these old Cedar-Hemlock forests we would lose these species forever.
   A link in a chain of ecosystems - Old forest ecosystems are linked into other ecosystems, for example: those of nearby rivers and lakes; adjacent forest types; even on the global scale through their role in energy and nutrient cycles.

2. To whom are these values important?
   To all the inhabitants of the old forests, plus those of us linked to it by larger ecosystem functions such as water and oxygen cycles

Lesson Three - Economic Perspectives

Objective of Lesson

1. Students will examine various economic values of an old Cedar-Hemlock forest.

Materials Needed

None.

Teaching the Lesson

1. Brainstorm to develop the following list of ways in which old Cedar-Hemlock forests are of economic values to humans, and discuss the associated points.

   Timber harvest - Trees which have grown under old forest conditions have very tight growth rings and thus dense, strong wood. This wood is highly prized by the forest industry. Wood of old trees sometimes has heart rot, which decrease the value of the log, but much of this wood can be used for pulp. Along with the direct value of the trees, there are many jobs generated in building roads, harvesting, transporting and processing wood products.

   Hunting and trapping - Old forests are important as homes for many fur-bearing animals such as Pine Marten.

   Fishing - The forest's ability to shade streams regulates the temperatures of fish-bearing streams. The vegetation regulates rain and snow runoff. Large logs falling across streams act as sediment traps to purify the water, and create pools for fish to rest and feed in. These features are very important because the Cedar-Hemlock forest receives lots of rain.

   Tourism - Many of the physical attributes of old forests are of interest to the growing eco-tourism industry, and play a role as a backdrop for many recreational activities.

   Agroforestry - Pine mushrooms and other mushrooms are harvested annually. Note that these mushrooms are the fruiting bodies of certain root rots, which are slowly damaging the trees. Harvested correctly, an old forest ecosystem will provide a virtually perpetual supply of mushrooms. But the big trees can be harvested only once, and the next generations of smaller trees only every 100 years or so.

2. Who benefits from these values?
   Only humans. In fact, our use of the forest for these purposes, especially timber harvesting, compromises the ecosystem's integrity.

3. Have students contact a local District office of the Ministry of Forests or a forest industry representative to find out the current dollar value of an old forest hemlock log - for a saw log and for a pulp log. Find out the same information for a Cedar, a Douglas Fir and an Engelmann Spruce.

4. Have the students contact the District forest office to find out what agro-forestry products are harvested in your forest area. Find out what these items require for their habitats, and what kind of income is generated by this industry.

5. For more information about the commercial harvesting of wild mushrooms and a pamphlet on harvesting of wild mushrooms, contact:
   Integrated Resources Section
   BC Ministry of Forests
   1450 Government Street
   Victoria BC
   V8W 3E7
   Phone 250-387-6656

6. Invite the owner or manager of a local milling operation to your classroom. Have him explain where he gets his wood, how many and what type of jobs the wood processing creates, and where the wood products are shipped.

7. Take the class on a trip to an actual logging site.
   - Have the students compare the forest adjacent to the logging site to the logged site;
   - Interview the workers to see what jobs are being done and what tools are being used;
   - Find out how much money the logs are worth; and
   - Learn about what silviculture will be carried out at the site after logging.

Lesson Four - Recreational, Spiritual and Heritage Perspective

Objective of Lesson

1. Students will examine the recreational, spiritual and heritage value of old Cedar-Hemlock forests.

Materials Needed

None

Teaching the Lesson

1. Develop the following list of values with the students and discuss the associated points:

   Recreational values - hiking, picnicking, wildlife viewing, fishing
   Spiritual - A general feeling of well-being is experienced by many people in a natural setting. Reconnection with natural surroundings can be calming, energizing and/or inspirational. Old Cedar-Hemlock forests, because of the size of the trees and quiet, cathedral-like surroundings, bring out spiritual feelings in many people.
   Heritage - Many people feel that the variety of species living in the old forests (the biodiversity of the forest) form a part of the heritage of all humans. To use up or destroy the ecological values of the old forests would deprive future generations of humans the chance to know this magnificent forest as we do.

2. Who benefits from these values?

   Only humans: recreation, spiritual and heritage value relate to *use* of the forest, to what humans "get out of" the forest, even if they are non-consumptive uses.

> *Recreational and spiritual values do not have tangible worth - but they are still valid.*
> *Not all values can or should be expressed in monetary terms.*

3. Have the students do research to find out what parks are near your community and how they are used for recreation; whether the parks' forests are part of the recreational experience; and if any of the parks have an old forest component.

4. Expressing these intangible values.

   Spiritual and aesthetic values are often expressed in art and creative writing. The following is a list of activities through which students can express these feelings. These activities can be tied in with a visit to an old forest. Some are best done on-site with no polishing-up afterward.

   - Use some of the products generated by these activities to compliment the mural on old forests produced in Chapter Three.
   - Depending on the experiences your class has had in the forest, they may or may not already have a "mental word bank" to draw from. You might wish to brainstorm a master list of adjectives, verbs, words that describe feelings, etc. to get them started before doing written activities.

Word Art

- Choose a plant or animal that lives in an old Cedar-Hemlock forest.
- Brainstorm a list of all the adjectives you can think of, that describe your chosen organism. Think of descriptive words that apply to all of your senses, plus movement, size, colour, etc.
- In pencil, draw an outline of your plant or animal. Replace the pencilled outline with the printed name of the plant or animal, done over and over again in very small printing, which is curved to fit the shape of the animal or plant.
- Choose your best adjectives and print them inside your outline to "fill in" the shape. Choose short words for the narrow parts and fit your longer words into the wide parts.

Form Poem

This structured poem begins with a noun, which is followed by nine verbs that tell about a process or event in an old forest, and then the poem is completed with a short statement summarizing the process.

Log
living, breathing, growing,
slowing, rotting, failing,
standing, leaning, falling,
Food for the next generation.

Caribou
birthing, stumbling, suckling,
growing, searching, eating,
reaching, ripping, chewing,
Eater of Old Man's Beard.

Cinquain

This five line poem follows a set structure:

Line one	One word, names subject
Line two	Two words, describes subject
Line three	Three words, action phrase
Line four	Four words, an opinion or statement about it
Line five	One word, a synonym or another name for subject

Salamander	Old growth	Cathedral
little amphibian	enormous hemlocks	towering trees
scuttling around logs	falling before chainsaws	my spirits rise
needs to eat bugs.	soon to be gone	worthy of my respect
Predator.	Grandfathers.	Old growth.

Free Verse

Use free verse as a tool to focus feelings or impressions. Free verse isn't writing a poem just any old way. Imagery, one central thought or feeling, musical flow of words - these are ways of appealing to the senses. All contribute to a stronger poem that communicates your feelings or impressions more effectively.

Here are some suggested themes for free verse poetry. Have the class write on a variety of themes; no two poems will be the same and you will compile a vibrant set of images and thoughts to post in your classroom.

- Sensual descriptions: visual images, touch, smells, sounds
- What would the forests be like with no old trees? What would our human society be like if we had no senior citizens?
- Pretend that it is one hundred years from now, and all the old trees are gone. How would you describe the old forests to your grandchildren? What will you give them as the reason for forests' disappearance?

Summary of Chapter Four:

Create a web on the board to show all the values of an old forest. Here is a framework to get you started: