

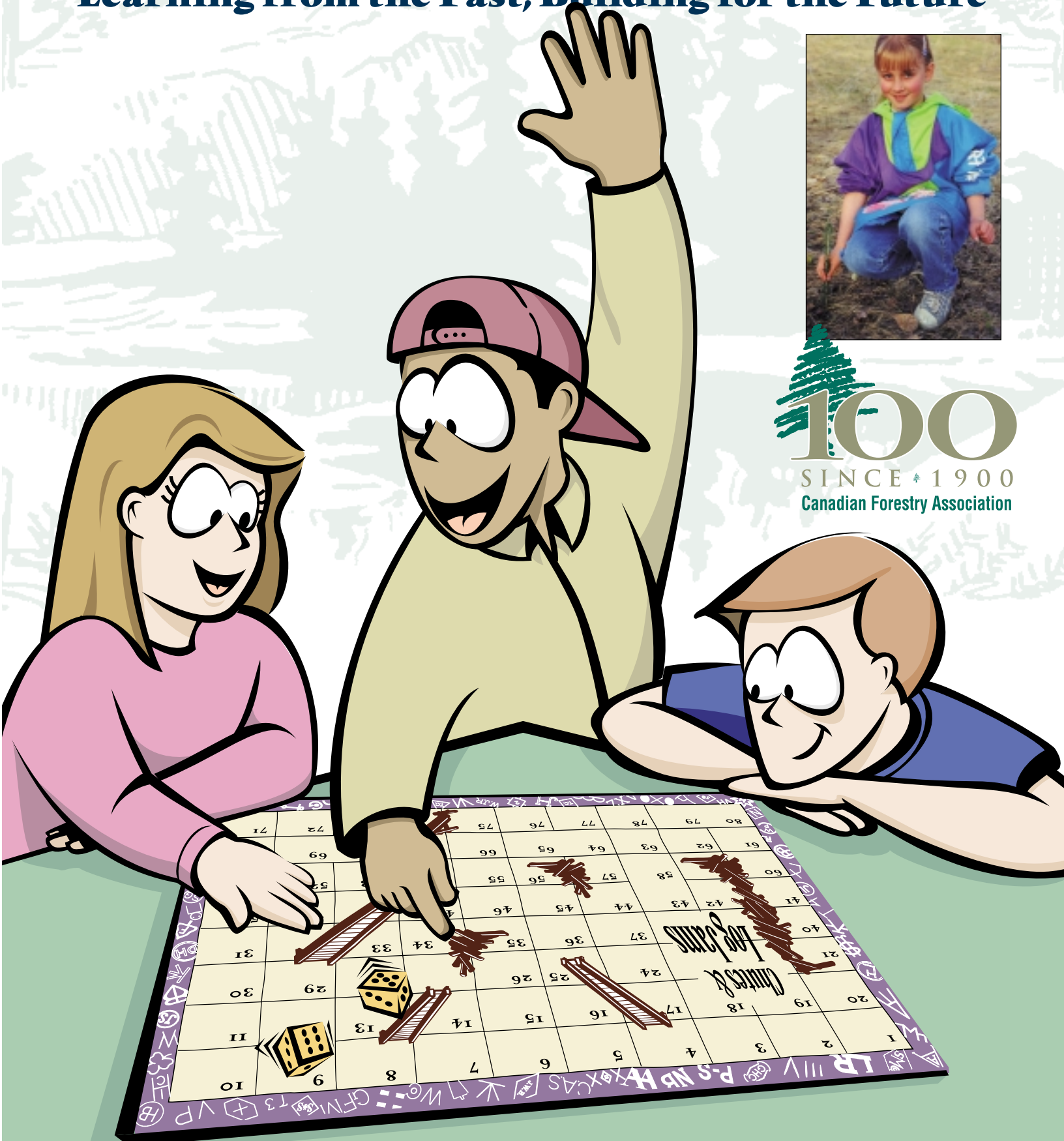
A TEACHING KIT

Canada's Forests

Learning from the Past, Building for the Future




100
SINCE * 1900
Canadian Forestry Association



Celebrating National Forest Week in Canada: May 7 to 13, 2000



100

SINCE 1900
Canadian Forestry Association

Welcome to this special edition of our annual National Forest Week guide for educators. This year the Canadian Forestry Association is celebrating its 100th Anniversary and the very important role that it has played as one of Canada's oldest conservation organizations. Since its beginnings, the CFA has worked to promote understanding and cooperation in the protection, wise use and sustainable development of Canada's forests and related resources. It does this through the promotion of sound forest management practices and public education.



Above: Teachers take part in Western Newfoundland Model Forest's Summer Institute 1999, one of many professional development activities designed to help educators deal with complex issues such as sustainable forest management. A wide range of organizations offer similar programs and, in recent years, partners with widely varying viewpoints have worked together to develop workshops that present a balanced look at local forests and forestry issues. Upper left: Ontario's Envirothon.

ENVIROTHON

Envirothon is an environmental education program for secondary school students. In Canada, it is administered by the Canadian Forestry Association (CFA) and participating provincial forestry associations. Envirothon is delivered through local schools with the assistance of cooperating organizations, agencies, companies and individuals. There are three components to Envirothon:

1. School-based learning guided by a set of learning expectations, and key references.
2. Workshops and field trips led by local professionals.
3. Regional, provincial and international team competitions, including an outdoor component and group oral presentations.

Goal

To increase secondary school students' knowledge of environmental issues and ecological sustainability principles through practical studies in their own communities.

Program Overview

- Envirothon is an environmental education program based on teamwork, collaboration and competition.
- Teams consist of five students from grades 9 to 12.
- Teams compete on their knowledge of four environmental areas through studies in aquatic ecology, forests, soils and wildlife.
- Teams also compete on a fifth topic which changes annually — in 1999 the fifth topic was Wildfire Management; in 2000 the fifth topic is Wetlands.

Nova Scotia hosts the international competition in the year 2000; for info: envirothon@nacdn.net

Benefits of the Program

- Students gain current, practical knowledge of local ecosystems and sustainability issues from environmental professionals.
- Students increase their understanding of basic science concepts in the areas of forests, wildlife, soils and aquatic ecology.
- Students gain a practical understanding of the impact of human activities on the environment and ways of minimizing negative effects.
- Envirothon creates a forum for secondary school students to explore environmental issues from a variety of viewpoints with their peers, natural resources professionals and community leaders.
- Communities benefit from the involvement of young people in local environmental issues.
- Society benefits from a citizenry educated in the principles of environmental stewardship.

If you are from Nova Scotia, Ontario, Manitoba, or Saskatchewan please contact your Provincial Forestry Association for more information about Envirothon. Contact the Canadian Forestry Association in the rest of Canada.

A Long-Time Partnership with Educators



One of the Canadian Forestry Association's primary goals is to provide a balanced approach to forest education. To do this, the CFA works to create opportunities to expose educators and, through them, their students to a variety of perspectives about Canada's forests. By providing information and activities from diverse sources, the CFA works with educators to help students hone their critical-thinking, decision-making, and problem-solving skills.

National Forest Week

For 70+ years the CFA has sponsored National Forest Week as one way to encourage greater public awareness of Canada's Forests. Each year the CFA works with the provincial forestry associations and a broad network of partners to offer forest-related activities and resources to educators, community groups and others.

National Poster Challenge *[see page 31]*

The National Poster Challenge has been operating for more than 20 years through the CFA and provincial forestry associations. It reaches more than 800,000 students, 13,500 educators and a range of community and youth organizations and offers prizes in two categories: Junior [Grades 4 to 6] and Senior [Grades 7 to 10].

Envirothon *[see facing page]*

Envirothon, **Environmental Education for Youth**, is geared for secondary school age youth through schools or community groups. It encourages hands-on learning and includes resource kits, workshops and field trips run by natural resource professionals and participation in regional, national and international team competitions.

Resources

In partnership with others, the CFA works to develop, or provide access to, forest-based educational resources. The CFA developed its National Forest Education Resources Catalogue in response to a need identified by educators attending an **Edufor** conference. Currently, the National Forest Week teachers' guide, the CFA website and other publications are designed to provide educators with current forest education resources.

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Historic woodcuts reproduced throughout this document are from Forest and Outdoors, originally published by the Canadian Forestry Association, 1938.

About this Guide

Learning from the Past — Building for the Future is the theme for National Forest Week 2000. Within the pages of this booklet you and your students will be given the opportunity to look at the past, present and future of Canada's forests and forest industries. Special text boxes throughout the booklet highlight some of the new and innovative forest management practices in which Canada is taking a leadership role. The student activities are taken from resources developed in cooperation with educators nationwide.

Sponsors

This publication is made available through the assistance of various sponsors and longstanding partnerships with provincial forestry associations. The Canadian Forestry Association is most pleased to acknowledge the valuable support of the following agencies:

Natural Resources Canada,

Canadian Forest Service

Model Forest Network

Ontario Ministry of Natural Resources

Environment Canada

International Model Forest Secretariat

Herb Shaw & Sons Ltd.

Alberta Environment

Canadian Wood Council

Tree Canada

Canadian Pulp and Paper Association

Curriculum Links

The activities are designed to integrate school curriculum and to meet the needs of educators. However, given the national scope of this booklet, we have specified only broad grade level and subject area categories. Each activity outlines specific learning outcomes for your students and provides information to help with teacher preparation.

The materials in this book are drawn from many sources involved in forest-based education. They have been developed and tested by educators in different regions across Canada.

Instruction Key

In an effort to make this document user-friendly for both educators and students, a series of icons has been implemented to guide one through the document:



The **pencil icon** indicates **student activity instructions** within the body text. This icon also flags the **student activity sheets** which have been designed for photocopying and distribution to students.



The **lightbulb icon** indicates supplementary teaching ideas: **hints**, **options** and **instructions** on how to enhance the student activity.



The **magnifying glass icon** indicates options for investigating different aspects of an issue.



While the Canadian Forestry Association grants permission for the photocopying of this entire booklet, the pages marked with the **photocopier icon** are designed for use specifically by students.

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Learning from the Past, Building for the Future

We are recklessly destroying the timber of Canada, and there is scarcely the possibility of replacing it.

PRIME MINISTER

SIR JOHN A. MACDONALD 1871

Canada's Forests in 2000

- **Canada has 10% of the world's forests — covering 4.5 million square kilometres, an area larger than the landmass of Eastern and Western Europe combined.**
- **90% are publicly owned.**
- **Canadian forests help to protect 20% of the world's fresh water.**
- **Forestry employs 800,000+ Canadians.**
- **350+ communities have forestry-based economies.**
- **Of Canada's 453 million hectares of forest, 26.7 million hectares are heritage forests, protected by law to remain in their natural state and another 24 million are conservation forests protected from harvesting.**

Canada's Forest Heritage

The early pioneers who reached North America were greeted by diverse communities of indigenous peoples, living in harmony with their natural surroundings. The newcomers saw nature as something different, often inhospitable and frightening, yet also seemingly limitless. These attitudes, and the perceived need to improve their surroundings, resulted in dramatic changes to the Canadian landscape.

Large tracts of virgin timber were cleared overnight to free the land for crops and livestock. Settlers used wood for everything — tools, furniture, water buckets, sewer collectors — and they burned it for fuelwood, charcoal and potash. What they did not use, they simply tossed onto huge bonfires. Vast tracts of land were cleared for homesteading and, during the 19th century, to meet the British Navy's heavy demands for timber. Later, timber became an essential part of Canada's economy and by 1918, this country was already the world's largest producer of pulp and paper.

Today's Forests

Today, our attitudes and our treatment of the forests have changed. We recognize the essential role forests play in our health and well-being but we no longer see them as inexhaustible. Reforestation has increased steadily since the Second World War and what were once wastelands are now productive forests. Genetic research is identifying and producing healthy, faster-growing trees. Wildfires that once damaged huge tracts of forest have been reduced and the value of fire to many forest ecosystems has been recognized. And, while the demand for forest products is rising around the globe, it is balanced by a recognition that forests have many other values — environmental, social, recreational and even spiritual. We have acknowledged that, while our forests are a renewable resource, they are not indestructible.



Looking to the Future

Canadians are working to play a leading role in developing ways to manage forests sustainably, both at home and abroad. National, provincial/territorial, local and international initiatives exist, driven by improvements in our knowledge and understanding of forest ecosystems, by improvements in technology, by increasing global awareness of environmental issues and by a sincere desire by all parties to manage forests in a responsible way.

Canada Forest Accord and National Forest Strategy, 1992

Signed by national, territorial and provincial ministers responsible for forests and representatives of 15 non-government organizations, the Canada Forest Accord states that *“Our goal is to maintain and enhance the long-term health of our forest ecosystems, for the benefit of all living things both nationally and globally, while providing environmental, economic, social and cultural opportunities for the benefit of present and future generations.”* The **National Forest Strategy** identifies ways of reaching these goals and it, in turn, is translated into forest strategies at the provincial or local level.

Legislation and Regulations

Since 1992 new legislation and regulations have been put in place across the country to strengthen the protection of sensitive areas, regulate the size of timber harvests, ban harmful pesticides, and ensure the logging companies prepare their long-range plans with input from key community members.

Partnerships

Forest management partnerships are probably the most promising and exciting aspects of caring for Canada’s forests. Groups, some with widely varying interests, are now working together for the benefit of the environment. Partnerships range from small-scale projects, such as one involving local naturalists surveying birds on forest company land, to larger, more formal, multi-partner arrangements, such as those of **Canada’s Model Forests** and the **International Model Forest Network** [see pages 5 to 8].

Sharing Research and Knowledge

Although sharing information is nothing new, modern communications make it easier than ever before. There are many formal and informal research networks that work to study and improve the way our forests are managed. Sharing research is not limited to researchers and other professionals; today, schools are connected across the globe via the Internet.

Certification

Certification programs exist to identify forests or forest products that are managed in a sustainable or environmentally-friendly way. The most widely recognised of these is ISO certification. The ISO [International Organization for Standardization] consists of 100 member countries and creates globally recognised standards for industry. The **ISO 14000** series deals with international standards for environmental assessment and performance and will include Sustainable Forestry Management Certification.

Other certification programs, for example, **SmartWood^{CM}** a program of the not-for-profit Rainforest Alliance, exist and verify that wood products or forest products are managed according to established criteria. [www.smartwood.org]

Protected Forests

Millions of hectares of forests are protected from harvesting or left in their natural state because they are unique, a special part of our heritage. Some are set aside as national, provincial or territorial parks or nature reserves. Others may be designated for special protection because they have international significance.

Model Forests in Canada and Around the World

Model forests are about the health and productivity of forests but it goes beyond the trees and the forests — **model forests are about people**. They are about how people use and interact with the forests and related resources such as soil, water and wildlife. They are about communities that depend on the forests and the landbase for their livelihood and well being. They are about forests in a defined area where the forests may be under multiple use for economic benefits both for traditional wood products and non-wood products. Model forests may include preserved areas such as parks or conservation areas



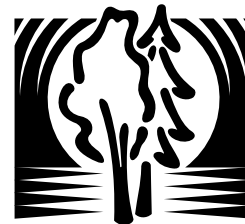
and, as well, lands that are not forested and being used for other production purposes such as agriculture.

Model forests are about community based partnerships and about learning to make decisions together. The partnerships are as broad based as possible and include, among others, local industries, environmental groups, community associations, indigenous peoples, landowners, and governments. The partnership shares a common vision of sustainable development and of sustainable forest management.

A model forest is a process in which the partnerships collectively make decisions about the use of forests and the related resources on the landbase for all their values. Model forests are large-scale experiments covering a landbase of significant size such as a watershed area.

Model forests are about networking. The model forest approach enables the groups that form the partnership to share their knowledge and understand better the sometimes conflicting practices used to manage the multiple forest values. They experiment and collectively find new approaches to meet their needs in the context of sustainable development, and to effect technology transfer. Networking occurs at all levels, including within the model forest itself, regionally and nationally within a given country, and globally.

Networking is an essential part of the model forest picture. This interaction provides for sharing knowledge and experience, and gives meaning — in the context of sustainable forest management — to the phrase “*think globally, act locally*”.



MODEL FOREST
NETWORK

RÉSEAU DE
FORÊTS MODÈLES

Canada's Model Forests

Initiated in 1992 by the Canadian Forest Service, Canada's network of model forests stretches from the temperate rainforests of British Columbia to the boreal forests of Newfoundland and Labrador. There are 11 model forests covering over 22 million acres of land and representing all of Canada's forest regions:

- Long Beach Model Forest, British Columbia
- McGregor Model Forest, British Columbia
- Foothills Model Forest, Alberta
- Prince Albert Model Forest, Saskatchewan
- Manitoba Model Forest, Manitoba
- Lake Abitibi Model Forest, Ontario
- Eastern Ontario Model Forest, Ontario
- Waswanipi Cree Model Forest, Quebec
- Bas-Saint-Laurent Model Forest, Quebec
- Fundy Model Forest, New Brunswick/Nova Scotia
- Western Newfoundland Model Forest, Newfoundland

International Model Forest Network

The IMFN links practitioners in model forests around the world. Its mandate is to foster cooperation and collaboration in advancing the management, conservation, and sustainable development of forest resources. Its Secretariat serves as a channel for coordination, facilitation of networking, promotion, administration, technical advice and guidance.

The IMFN Secretariat is based in Ottawa at the International Development Research Centre [IDRC]. It is supported by the IDRC, the Canadian International Development Agency [CIDA], the Department of Foreign Affairs and International Trade, and the Canadian Forest Service of Natural Resources Canada.

Learning in the Model Forest

The Model Forest Program is an experiment that allows us to appreciate and understand the many benefits our forests provide to our society. At the same time, we work together to learn how to best manage them in ways that will ensure their health and viability for generations yet to come.

Educators and their students can be part of this experiment and learn with us as we go. Model forests and their partners provide a wide range of opportunities from teacher in-service programs, to field trips, to Internet links in model forests continents apart.

If you and your students are interested in learning more about the Model Forest Program educational services or if you would like to develop partnerships with students in other regions of Canada, or globally, contact your local model forest.

The challenge is to bring balance into the competing demands under the objective of sustainable forest management and to understand the consequences and trade-offs of actions and activities so that informed decisions can be made.

INTERNATIONAL MODEL FOREST NETWORK SECRETARIAT

Global Partnerships

Manitoba - Mexico Partnership

Students from Rockwood School and Little Black River First Nation, located in the Manitoba Model Forest, were linked with students from Nino Artillero in the indigenous community of Donaciano Ojedo, located in the Monarch Butterfly Model Forest in Mexico. Using the Internet, the children talked about their experience with monarch butterflies, a migratory species that summers in Canada and winters in Mexico.

The Model Forest is helping to facilitate partnerships between different regions of Canada, and between Canadian students and those abroad using the Internet. New technology is helping to create a global Village where children can become active participants in improving the forests they inherit.

New Brunswick-Chile: Collaborating to Build the Future

The Fundy and Chiloé Model Forests, even though on different continents, share a common belief in educating children about the importance of sustainable forest management. They have been exchanging information and ideas, and have joined forces to promote educational activities at both sites through their school partners. In this context, students in the Sussex Elementary School [Fundy] have contributed to helping students of the Quíao School [Chiloé] to re-discover the art of woodcarving and the use of wood as a multi-purpose material. As their teacher explains, ". . . [what is created] will depend on the skills, dexterity and talent of humans and what we will be able to do to increase the capabilities of future generations."





Canadian Model Forests

Long Beach Model Forest
 McGregor Model Forest
 Foothills Model Forest
 Prince Albert Model Forest
 Lake Abitibi Model Forest
 Manitoba Model Forest
 Eastern Ontario Model Forest
 Waswanipi Cree Model Forest
 Bas-Saint-Laurent Model Forest
 Fundy Model Forest
 Western Newfoundland Model Forest

International Model Forests

Chile: Chiloé Model Forest

Japan: Hokkaido Model Forest, Shimauto-gawa Model Forest, Ishikarin-Soracht Model Forest

Mexico: Calakmul Model Forest, Chihuahua Model Forest, Monarch Butterfly Model Forest

Russia: Gassinski Model Forest

United States: Applegate Adaptive Management Area [AMA], Cispus AMA, Hayfork AMA

Other countries interested in joining the IMFN include: Argentina, Australia, China, India, Indonesia, Pakistan, Vietnam, and countries within the Southern African Development Community such as Malawi and South Africa.

Teaching Idea



Divide into groups to compare Canada's forests with those of other countries

[United States, Mexico, Brazil, Russia, Nigeria, Malaysia or others] using **Canada's Forests** as a model.

Ask the groups to present their findings to the class and compare information. Does this information support Canada's role as a world leader in sustainable forest management? Why or why not?

Where to look: atlases, Microsoft Encarta™ or similar encyclopaedia, library books, the country's website or Internet connection with a school in that country.

Model Forest Crossword


Canada:

Bas-Saint-Laurent
 Foothills
 Fundy
 Manitoba
 McGregor
 Prince Albert
 Waswanipi
 Western Newfoundland

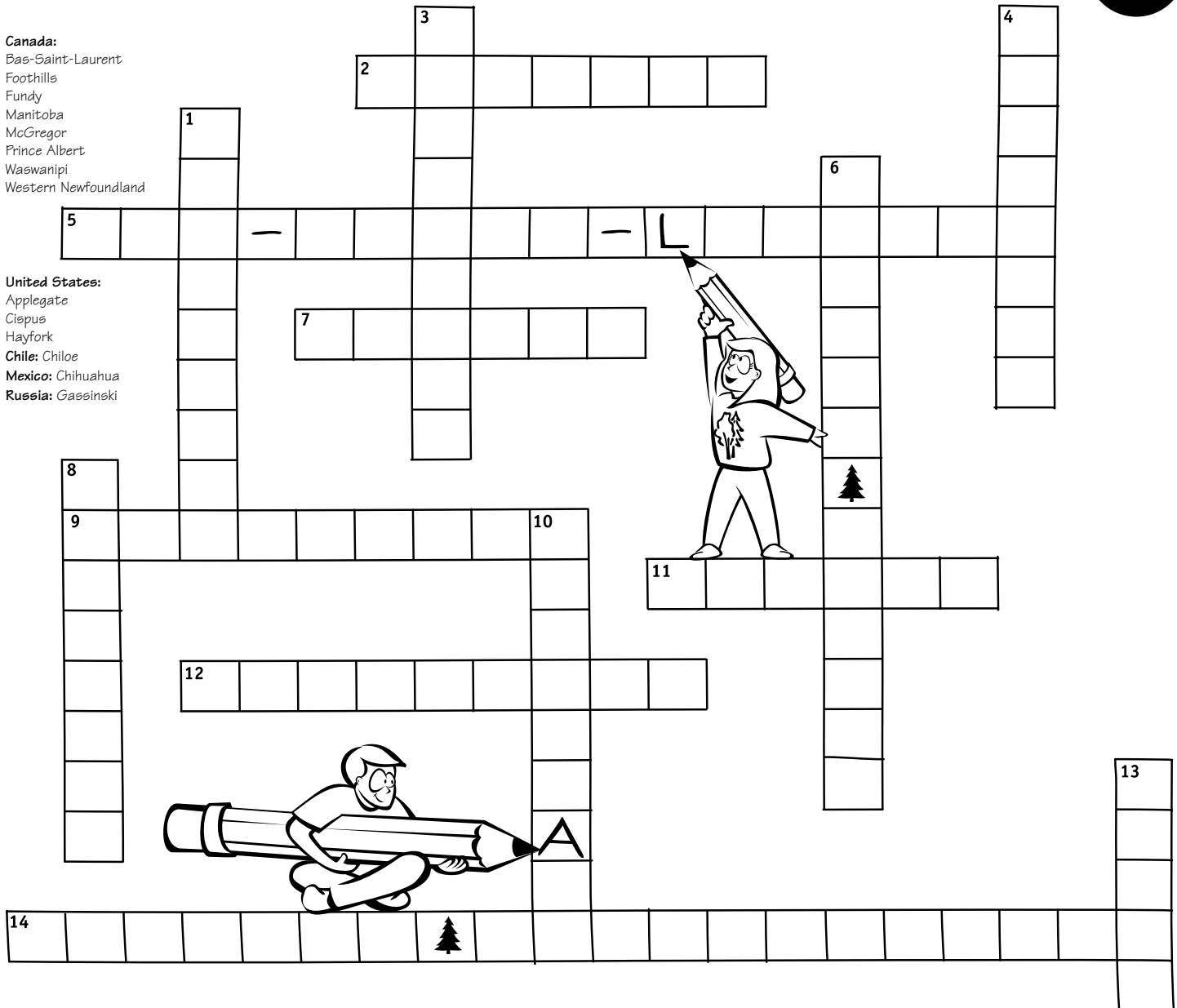
United States:

Applegate
 Cispus
 Hayfork

Chile: Chiloe

Mexico: Chihuahua

Russia: Gassinski


Down

- working to use the traditional ecological knowledge of the local Cree
- offering Forestry Clubs for Russian students
- using satellite tracking to learn more about the woodland caribou
- located in Saskatchewan's boreal forest
- work to manage the mountain forests of British Columbia
- located in the Cascade Mountain and Coast range of Oregon and California
- located in a forest region named for the Acadians

Across

- located in northwestern California, this model forest includes a diverse range of vegetation
- this Quebec model forest is experimenting with tenant forest farms
- nestled among the volcanic peaks of Mount St. Helen, Mt. Ranier and Mount Adams
- this Mexican model forest is conducting research to protect the endangered spruce tree, the Chihuahua
- a South American MF working with a New Brunswick MF
- Jasper National Park is part of this model forest
- conducting studies on the endangered pine marten

See answers on page 32

Trees in Our Community: Past, Present and Future



Activity Info

Level: primary/junior

Subject: environmental science, language arts, visual arts, history, human geography

Skills: observing, noting patterns, interpreting and communicating information

Duration:

Part 1: one class + field trip or independent observation time

Part 2: one class + research time

Group: individual or small groups; class

Setting: outdoors and classroom

Preparation: Copy of activity sheets; if you are planning a field trip or walking tour, make the necessary preparations.

Optional: obtain *The Man Who Planted Trees* [book or video format]



Summary

Students will observe trees in their local community and follow up with an in-class discussion about past and present patterns of trees and tree communities. Students will then apply this information through a creative story, drawing or mapping exercise. In Part 2, students will explore the role that trees have played in the lives of local residents — the early Native community, the early settlers and today.



Learning Outcomes

Students will:

- make, record and discuss observations about the trees in their community, past and present
- discuss the roles trees played in the lives of local residents — past and present
- imagine what the tree communities will look like in the future



Background

Although there are parts of Canada where trees are scarce, to most Canadians, trees are a part of everyday life. You may live in a rural area or one of more than 350 communities that depend on forestry, directly or indirectly, or you may live in a town or city, seemingly far away from our forests. But no matter where you are, trees are a vital part of life.

Adapted from activities appearing in a variety of sources including Ontario's Focus on Forests and materials produced by the Canadian Pulp and Paper Association.

Part One: Trees in our Community

1. **Using the enclosed *Trees in Our Community* activity sheet**, ask students to observe the trees in your community — they should observe individual trees, and groups of trees, noting patterns, types of trees, ages, sizes and so on.

Option: You may wish to take your class on a field trip to the highest point overlooking your town or city [e.g. a tall building, or a high ridge overlooking town] or do an on-the-ground walking tour.



If you live in a rural area or forest community, ask your students to look at the following:

- Is there a woodlot[s] or forest near your community? Where is it located? Is it set aside for any purpose [e.g. maple syrup, nature reserve, firewood]?
- Are there signs that a local forest or woodlot was planted [e.g. trees in rows, all the same type, or age]?
- Are there signs of natural regeneration taking place [seedlings sprouting along roadsides, or growing up under the larger trees]?
- Has there ever been a forest fire in this area? How do you know? What signs are left behind?

2. **After the students have completed their observations**, discuss their findings. As a group draw some conclusions about your community before and after people settled here. Where are the trees located and why are they here? What patterns can you see?

3. **For younger students:** Identify the oldest tree in your school yard. Why do you think it is the oldest? Draw a picture or write a story about its life. Some ideas to get started: What was happening the day it was planted? What events has it seen in its life? Who shares its world? Look closely. Does it produce nuts or berries? Are there nests in its branches? Who sits on its limbs?

For older students: Ask the students to draw a sketch map of the trees and forests in your community today and at one time from the past. Pick a time appropriate to your community — in some places, there may have been big changes in 10 or 20 years, in others, change may be more gradual. For additional information your students may want to interview a long-time resident of the area, or visit a local library or museum may have historic photos, maps or a county atlas that might show what your community looked like in the past.

4. **Your students have looked at the changing patterns of trees**, past and present. Ask them to look into the future 50 years from now. What do they expect their community to look like? Will there be more or less trees? Are there ways they can affect this future?

Part Two: Valuing Trees

1. Using the *Valuing Trees* activity sheet, ask students to research the way wood was used by local residents — past and present [a few examples are provided to help them].

2. After the students have completed their research and filled in their activity sheets, discuss their findings in class. Do not forget to discuss a range of values for our forests - spiritual, aesthetic, recreational, wildlife and so on. [If you need some help see *Forest Values*, page 23]

3. **Canada's Model Forests and others** look at opportunities to value the forest in different ways. Ask the students to look at the different ways that trees were and are used in their community. If these uses have died out, are there benefits to bringing back this use? [See *insert* Relearning Old Skills.]



The City Forest

When people first think of cities they think of buildings, pavement, sidewalks and other human signs but, in a healthy city, there are also trees. Lots of them. You can see them lining the streets, in yards, parks, ravines, and greenspace corridors, and there are other green patches such as wetlands and even woodlots. This is the urban forest.

It is only recently that we have recognized the urban forests' value to people and the environment. Think about the important role that a single tree plays in nature and then imagine the combined effect of the trees in our yards and greenspaces. City trees combat air and noise pollution, provide oxygen, protect soil, filter water and provide food and habitat for wildlife. On the human front, trees provide the often-harried city dweller with a touch of nature and with places to stroll and unwind. A city's natural areas have recreational, aesthetic and even health benefits for its human residents.

Relearning Old Skills

There are numerous examples of partners in the Model Forests and other communities working together to redevelop old skills that will benefit their forests. Akwesasne First Nation, a partner in the Eastern Ontario Model Forest, is one example. They have revived a thriving commercial basket- and snowshoe-making enterprise using locally grown black ash as the raw materials.



Trees in Our Community



1. When was your neighbourhood built? What do you think the community looked like before then?

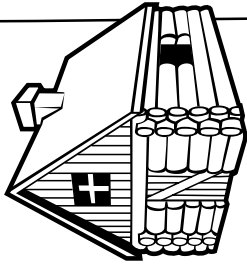
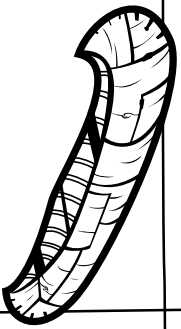
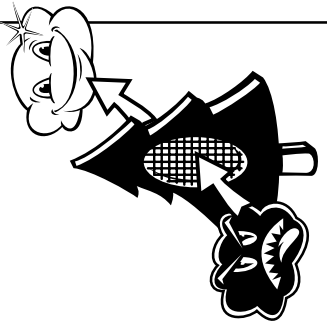
2. Look closely at the trees in your community. Make a list of all the places where trees were found [along streets, in backyards, golf courses, in parks].

3. Are there more trees in your neighbourhood now than when you were born or moved here? Explain your answer.

4. Are there trees in your school yard? Do they look healthy? How old are they? What kind of trees are they? Are they native trees [trees that would have grown naturally in this area three centuries ago] or do they come from another country? [You may need to check a tree guide.] Look for signs of trees that have been cut, or have blown down. What are the signs that tell you what happened to them?

5. Do you think there will be more trees or fewer trees in your neighbourhood 20 years from now? Why?



USING TREES			
Community Name:	Building	Energy	Three Other Examples of How Trees Were/Are Used
Who lived here?			
Who lived here?	<p>In most Canadian communities, settlers built their first homes from local logs.</p> 		<p>Transportation: Canoes were built by aboriginal people in most parts of Canada.</p> 
Who lives in your community?			<p>Trees provide oxygen and help to clean the air.</p> 

350 YEARS AGO

150 YEARS AGO

TODAY



Forestry Issues: Critical Thinking



Activity Info

Level: grades 7 to 9

Subject: media literacy

Skills: Internet research, observation, analysis and critical thinking

Duration: class period

Group: 3 to 5 students per group

Setting: classroom or computer lab

Preparation: none



Summary

Students will research organizations and their mandates as they relate to sustainable forest management. They will try to identify biases in materials regarding a specific forest-related issue.



Learning Outcomes

Students will research and discuss groups involved in forest-related issues, identify a specific forest issue and analyse the materials that different groups produce about the subject, and through this, develop improved critical thinking and media literacy skills.



Background

Every day we deal with issues where opinions vary — from the effects of global warming to gun control to school uniforms. Often we form our opinions based on our reactions, or those of our friends, to the way in which these topics are presented to us. But is this a valid way of forming an opinion? People, whether intentionally or not, present information in biased ways to reflect their own beliefs, or to convert others to their points of view.

In forestry there are wide ranging views, especially about topics such as clearcutting and old growth forests. When you are trying to form your opinion about any subject it is important to look at the information that is presented to you, to recognize the view of the person or organization that produced it and to look out for ways that it might be manipulated to affect your response. Once you do this, you will be better able to judge the information and to make your own decisions based on critical thinking and a balanced interpretation of the actual facts.

1. In small groups, use the Internet to look up the organizations who signed the 1992 Canada Forest Accord [see page 4 also]:

- federal, provincial and territorial Ministers responsible for forests [excepting Quebec and Nunavut]
- Canadian Pulp & Paper Association
- National Aboriginal Forestry Association
- Canadian Nature Federation
- Council of Forest Industries of British Columbia
- Wildlife Habitat Canada
- Canadian Forestry Association
- Canadian Institute of Forestry
- Association of University Forestry Schools of Canada
- Canadian Wildlife Federation
- Canadian Federation of Woodlot Owners
- International Woodworkers' Association - Canada
- Prince Edward Island Nature Trust
- Maritime Lumber Bureau
- Ontario Forest Industries Association
- Alberta Forest Products Association.



Hint: You may want to assign only a few students per group and to include Greenpeace, the Sierra Club or similar group to add their perspective.

- a] Who makes up each group and what are the group's stated goals?
- b] Briefly explain how their goals relate to Canada's forests.

2. **Select two groups with differing goals.** Select a controversial topic [e.g. old growth forests, clearcutting, pesticide use or other] and print off one page from their website that deals with it. Using these, work in groups to identify the possible biases in the way the information is presented by each organization [see *Some Things to Look For*, on page 14].

You may find that some groups are fairly balanced but, if you feel an organization's information is biased, check further. Sometimes




authors use shocking or provocative writing to get you to think.

You may — or may not — discover more balanced, factual information upon which to base your opinion. And, of course, by looking at a number of differing views, you will be even better equipped to make this decision.

Some Things to Look For

Are they presenting facts or simply opinions?

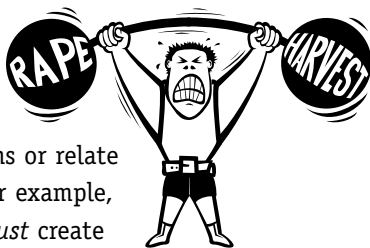
 If they are presenting facts, how good are they? Who did the research and how good are the studies? For example: If you get information from two sources — one a small, independent study of 20 people in one locality, and another coming from 5 cooperative studies by university researchers using 1,200 subjects, which seems a more credible source?



Are the facts relevant to the circumstances?
Remember, you cannot compare apples and oranges — do the facts presented relate to the issue?

But, Mom, everybody else is!

Sound familiar? It doesn't work on your mom and it shouldn't work on you. Are the authors trying to get you to believe something simply because a large number of others do? They know it is difficult to have an opinion that differs from others and, by making it seem like "everybody" agrees with them, they hope to sway your opinion.



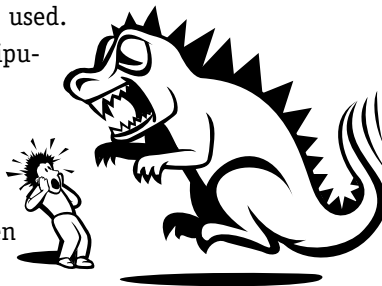
The Power of Words

Words evoke certain emotions or relate to certain points of view. For example, *rape*, *destruction* and *holocaust* create different emotions than *harvest*, *manage* and *plan*. While the first set of words is easy to identify as biased, it is important to realize that the second set of words may be skewed, too, depending on how the words are used and whether they accurately portray the reality. Look for the types of words and the visual images that the authors have used.

Are they using words to manipulate you?

Big, Scarey, Monsters

Are they threatening that something terrible will happen if you do not believe as they do? Watch for statements like these that are not backed up by facts. These are scare tactics. We need to be open to other people's concerns but we also need to recognize if these concerns are genuine.



Learning to Work Together

Model Forests are about partnerships and about involving groups with, sometimes, very differing views. In British Columbia's Long Beach Model Forest [LBMF], the partners came to the table straight from a bitter battle over clearcutting in Clayoquot Sound that had attracted the world's attention and led to dramatic changes in the way the area's forests were managed. Their first step in working together was to develop common goals.

In the past, outside experts would come into the Model Forest, collect data, and then take the information away. Information about wildlife, timber, water quality, recreation, cultural values such as First Nations place names, economics and tourism — was kept in the government and company offices in Victoria or Vancouver. The partners — members of First Nations and other local communities, environmental groups, the logging companies McMillan Bloedel and Interfor, and Pacific Rim National Park — recognized that local people needed access to the same information as forest managers and decided to set information sharing as their goal. To do this, the Model Forest provided Internet access and support for the development of the Geographic Information System [GIS] for the First Nations of Hesquiat, Ahousaht, Tla-o-qui-aht, Toquaht and Ucluelet and other partners.

The GIS project now trains local people to use new technology and it requires that outside experts involve them in their research and add their data to the local, community-accessible database.

This project creates an important foundation for sustainable forest management by laying the groundwork for equitable participation in decision-making and by helping to build trust and respect among partners with differing views.



Harvesting Timber: Old Ways, New Ways



Activity Info

Level: primary/junior

Subject: language arts, science and technology, social studies

Skills: research, cooperation, communication [oral], hypothesizing, noting patterns and relationships

Duration: 1 or 2 class periods

Group size: any size; independent study and small groups

Setting: indoors

Pre-Activity Preparation:

- Obtain the animated short film *The Log Driver's Waltz* from your library or NFB
- *Chutes & Log Jams* board game, 4 markers and die — enough copies for your class to work in groups of 4 [e.g. 6 for a class of 24]. If you wish, have students colour and mount the game on bristol board.
- Set up two demonstrations:
 1. A square container [e.g. shoebox or smaller] and a selection of groups of similar shaped, and similar-sized objects to fill the box [e.g. 20 small 2.5cm styrofoam balls, 20 lengths of 2.5cm dowelling, 20 lengths of 2.5cm x 2.5cm scrap wood]
 2. A large, water-filled basin such as a dishpan. Float a number of craft sticks on top.



Summary

Students will explore the square timber trade, an important part of Canada's early history, and modern forestry practices through discussion, demonstrations, a game, group and independent research and oral presentations.



Learning Outcomes

By looking at past and present logging practices, students will:

- compare and contrast labour-based and technology-based approaches to the same task [i.e. cutting timber and transferring it to the mill]
- explore the reasons for, and the impacts of, change
- make observations about the way language evolves to reflect new ideas and new ways of doing things and the way words can become obsolete as old ways are lost

Adapted from materials from a variety of sources including the Friends of Bonnechere Parks and the Canadian Pulp and Paper Association.



Background

The Square Timber Trade

Lumbering and the forest industry have always been a vital part of Canada's economy and its development. Although Canada was first known for its fur trade, two events outside of Canada — the United States War of Independence in 1776 and the actions of Napoleon Bonaparte in 1809 — led to a sudden shift in Canada's economy. The United States, having just gained independence from Britain, was hesitant to renew trade with England and Britain's access to many of its European trading partners had been cut off by Napoleon's war efforts. Britain needed a new source of wood for its Navy. In 1809 Britain sent the first of her ships to Canada to be loaded with timber and, in a few short years, timber became Canada's primary export.

The wood for Europe was sent as squared timber. Hewers trimmed the rounded sides off huge logs 12m to 20m [40' to 60'] long resulting in a square-sided log. Logs had to measure at least 30cm x 30cm [12" x 12"] on each side but many were much bigger. The square timber had several advantages over logs: it could be more easily stacked in the hull of the ships, took up less space and it would not roll in the high waves of the Atlantic. The prized timber was white pine, eastern Canada's largest conifer, capable of reaching heights of 50m/150' or more. Some of these tree-length logs were left round and sent to England for the masts of the Navy's ships.

After the logs were harvested, they were floated downstream on log drives to main collecting points on the large rivers like the Ottawa and St. Lawrence where they were joined to form huge rafts of square timber cribs which were floated to Quebec City. There, the individual logs were loaded and stacked in ships bound for England.

Modern Forestry

Times have changed and so has the way we harvest and ship timber. Axes are a thing of the past, replaced by cutters using gas-powered chainsaws or by workers using mechanical harvesting equipment that resemble giant tractors or earthmovers. The timber is moved out of the bush using machines, such as skidders and forwarders, or even cables and helicopters in some of the hard-to-reach places in the mountains and coastal areas of British Columbia.

The last spring log drive in Canada took place on the Coulonge River in Quebec in 1982. Although river drives were an inexpensive way to move timber, better trucking and hauling systems became more appealing. As well, concerns about human and water safety issues, the effects of log drives on the river's health, and on the growth of the communities along the rivers' shores have all made the river drive less appealing. Instead, logs or chipped trees are usually shipped to the mills on large trucks.

Resources:

Adams, Peter. *Early Loggers and the Sawmill*. Toronto, Ontario. Crabtree Publishing Co., 1981. ISBN 0-86505-005-8

McKay, W. Donald. *The Lumberjacks*. Toronto, Ontario. McGraw-Hill Ryerson Ltd., 1978.

Websites: Forest company or provincial forestry association site, www.modelforest.net or www.cppa.org/english/

1
Head to lumber camp near Basin Depot in late August.

2
Earn \$1 for a hard day's work.

3
Ottawa Valley's worst camp cook.
Go back to start!

4
Camp has best foreman in Valley — *Bull of the Forest*.
Go to 25!

5
Trees so big it takes 3 men to put arms around them.

20
The liner snaps chalk string along the length of the log.

Chutes & Log Jams

17
The *rosser* removes bark from tree.

16
The *swampers* remove tree tops, crowns, and branches.

21
Scorer chops V's into the log to the chalk line, removes 10cm/4" chunks.

22

23

24
Best hewer in Valley. Log flat as table.
Advance 1!

25

40
Rollaways full and waiting for spring melt.

39
Logs stamped with timber mark for easy sorting at sawmill.

38
Logs stacked at riverside rollways for winter.

37
Teamster drives too fast! Load topples; both horses killed.
Go back to 30!

36
Horses pull record load of 306 logs on sleigh.

41
Saturday night is **PARTY NIGHT** at the *Camboose* Shanty!

42
Fun continues with fiddling and square dancing.
Advance 1!



44
BOIL-UP SUNDAY: wash clothes in boiling water to kill lice.

45
Ice on river breaks late this year.
Go back 2!

60
Man crushed. Bury him onshore. Miss 1 turn!

59
Go back to 21!

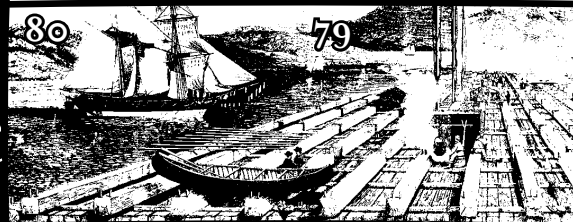
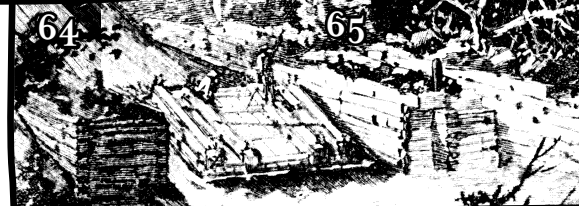
57
Log Jam!

56
Go back to 44!

61
Logs freed. Go ahead 3!

62
Alligator boat pulls boom across Round Lake.

63
Logs float down Bonnechere River.



78
Ottawa Valley white pines sail for England.

77
Timber sorted and graded at Quebec City. Loaded onto ships before freeze-up.

76
Six more weeks of rafting down Ottawa to the St Lawrence.



6 Take top bunk. Heat and smoke suffocating. Go back I!



8 Best lumberjack at camp given top job: hewer. Go to 27!



10 Swampers cut small trees so prime trees aren't damaged as they fall.

15 Ravens find your lunch of bacon, biscuits & molasses hidden in snowbank. Miss I turn!

14 **Timber!**

13 Axemen first notch tree on side to fall on; back cut opposite side to topple.



11 You're cut with axe. Foreman shoves in chewing tobacco and sews cut closed.

26 1/4 of each tree left behind in forest. Fire starts next summer. Go back to 16!

27 Logs too small for square timber are cut into sawlogs.

28 Cook catches men talking at dinner table. Go back I!

29 Make new moose-hide moccasins to keep feet warm and dry. Go to 54!

30 Oxen or horses drag logs along skidway to loading point at main road.

35 Go back to 27!

34 Road monkeys keep roads iced through night. Loneliest job.

33

32 Sleighs of logs pulled along iced roads to river.

31 Sky loader uses cant-hook to flip logs on sleigh like pancakes.

46 Rollaway broken. Camp closes until fall.

47 Some loggers go back to farm for summer.

48 Log drivers take over.

49 **Log Drive!**



55 Trouble ahead at Bridgedam. Be light on your feet and quick-thinking.

54 Drivers in Cockburn Pointer Boats pick-up stray logs.

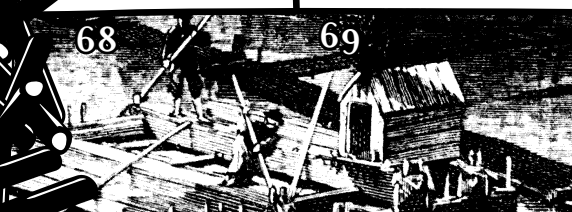
53 Front river drivers direct logs as they spill from rollaway.

52 River pigs use peavey hooks and spiked boots to drive logs down Ottawa River.



66 Wait I turn for enough water to slide logs down chutes at Eganville.

67 White water boys run the logs down the mighty Ottawa. Advance I!



70 Logs sorted at Arnprior: smaller logs for mill; square timber for England.

75 Celebrate with dancing, carousing and drunken fights. Go back to 53!

74 Journey ends for most log drivers at Bytown (Ottawa).

73 Chutes at Chaudiere Falls 1.2km/3/4 mile long. Advance 2!

72 50 men live on raft. Navigate with sails and 30 oars.

71 2000 pieces of square timber make rafts 400m/1/4 mile long to float down river.



Part One

1. **Begin by playing *The Log Driver's Waltz*** video or by reading an extract from one of the children's reference books about square timber logging. Afterwards, discuss as a class what students know about logging in the 1800s and about log drives.



2. **What do they know about logging today?** You may wish to bring in their own experiences — perhaps they have gone to cut firewood with a parent, have visited a logging museum or lumber mill, or have some other related experience.



3. **For younger students:** Working with small groups, use the two demonstrations to help explain the reason for shipping squared timber and to show the challenge of moving logs on a river.

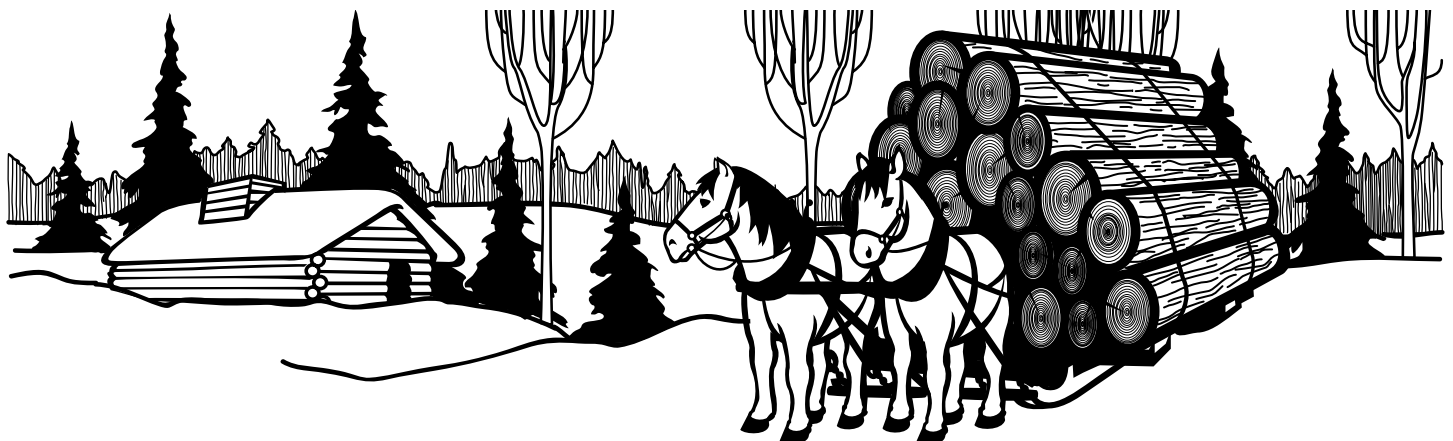
Demo #1: Have the children experiment with placing different shaped objects in the box. Which shape fits the best? Which might change position if the container moves? Which shape allows the most to be loaded?

Demo #2: Ask the children to work in pairs and, using craft sticks, to try to move the sticks together from one end of the dish pan to the other. How hard is it to do this? What are the challenges? Why do they think the river drivers tied the logs into rafts or used booms to surround them? Was this a good idea?

4. **For older Students:** Divide the class into work groups of 3 to 5 students and assign them a number of words from either of these two lists using the activity sheet to guide them. Give them 15 minutes to find out the definitions of as many of their words as possible. Ask the groups to explain the meanings of their words to the class.

Which words are no longer used? New? Have changed their meaning? Are there examples that they can think of from other areas [for example, computer, typewriter, record player?]

5. **Break into groups of 4** and close the lesson by playing *Chutes and Log Jams*.



OLD WORDS

teamster
swamper
axeman
rosser
liner
scorer
hewer
rollaway
loggers
log drivers
sky loader
lumberjack
road monkeys
foreman
timber mark
shanty
river pig
alligator
river drive
white water boys

NEW WORDS

skidder operator
chainsaw
yarding
cutter
harvester
log truck with pup
allowable cut
silviculture
block cutting
selective cutting
clear cutting
rigging-slinger
stockpiling
forewarder
feller-buncher
grapple-loader
high grading
marking [trees]
lop and top
forest management unit

Part Two

1. **Student Assignment:** Times have changed. You are a 101-year-old logger! Choose something important to logging today, such as a chain saw, mechanical peeler, skidder or logging truck. Find out what tool was used in the past to accomplish the same task. How has it changed and evolved over the years? Record your information and be prepared to be interviewed by your class.



A New Way to Harvest Using a Lesson from the Past

In Ontario's Lake Abitibi Model Forest, forest company Abitibi-Consolidated Inc. traditionally clearcut all lowland black spruce sites. It wanted a new way that would cause less damage to the site and reduce the cost and time it took for regeneration — the growth of a new forest. The Model Forest partners had noticed that the stands that had been logged with horses in 1915 to 1918 took less time to come back than those that were clearcut. Perhaps the new forest had received a head start from the young growth which had survived the more gentle horse-logging?

Working with the Canadian Forest Service and Laurentian University they worked to develop a way to mimic horse-logging. They came up with HARP [Harvesting with Regeneration Protection], a system that, like the horse-loggers before them, uses only specific travel corridors and where harvesters leave behind smaller trees to give the new forest a head start.

Costly at first, because the company had to purchase new equipment and train its operators, the HARP method has now shown that regeneration costs are less-expensive and the new forest is thriving.



Is Horse-Logging a Thing of the Past?

No, it's alive and well and, in some cases, it is even on the increase! Both oxen and horses have been used for logging but, nowadays, horse-logging is used mostly in small private woodlots or in areas that are managed for firewood or for extracting very high quality woods, for example removing black walnut or cherry for producing veneer.

Horse logging is as close to nature as you can get. I've been doing it for years.

- JACK NOLAN, SHAMROCK, ONTARIO,
OFF THE HISTORIC OPEONGO SETTLEMENT ROAD

Exploring Canada's Forests

Activity Information

Level: junior/intermediate
Subject: geography, environmental science
Duration: 1 class + research time
Group size: individual and class
Setting: classroom
Preparation: copies of blank maps of Canada for each student

Summary

Using the enclosed map of Canada's Model Forests students will identify the forest regions of Canada and mark the locations of Canada's 11 model forests on a map of Canada. Students will research and discuss the characteristics of Canada's different forest regions.

Learning Outcomes

- Students will:
- be able to describe and identify the characteristics of the different forest regions of Canada
 - locate Canada's Model Forests on this map and be able to identify the type of forest in which each is located

Resources:
Canadian Forests: A Primer, Ken Armson. 1999. KEY Foundation and Ontario Forest Industries Association.
The Natural History Notebooks section of the Canadian Museum of Nature website contains excellent descriptions of Canada's forest regions. See www.nature.ca.



1. Use the map on page 7 to introduce the Model Forests of Canada and discuss their locations. Briefly introduce the different forest regions across Canada.

2. Using a blank map of Canada, ask students to draw on the forest regions and mark the locations of Canada's model forests. Students may refer to the colour map for guidance and should code the different regions by colouring or using different shading techniques. Remind them to include a key.

3. Ask the student to identify the forest region in which they live and to describe its general characteristics [physical features, weather conditions, type of trees, plants and wildlife]. Remind them that boundaries between the different forest regions are not sharp lines and that within each forest region there is still a great deal of diversity.



Option: Assign students the task of researching each different forest region, identifying general characteristics.



4,000/day

An average birch tree gives off up to 4,000 litres of water in one summer's day.



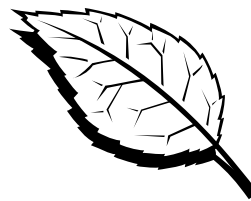
180,000/year

A western Douglas fir can produce 180,000 seeds [3.5 bushels] in a good year.



30,000/year

In a good year, an average white pine can produce about 30,000 seeds [one bushel].



22,000,000 tonnes/hectare

In the average deciduous forest you'll find about 22 million tonnes of leaves per hectare.



8 bushels/spot

A squirrel living in the giant west coast forest may collect and store as much as eight bushels of seeds in one spot.

Creating a Miniature Forest

Activity Information

Level: primary/Junior

Subject: science, geography

Skills: observation, assigning values, mapping, oral presentation skills

Duration: 1.5 to 2 hours

Group: pairs

Setting: outdoors — forest, woodlot or school yard

Materials: For each pair: clipboard, paper, pencil, magnifying lens, and *microworld kit*: a resealable bag with 4 small, numbered flags, 2m piece of string with a stick tied to one end, small card for their sign.

Preparation: Make microworld kits for each pair of students.

Summary

Students will explore the diversity of a natural area at a micro level, identifying its special features.

Learning Outcomes

Students will:

- explore the diversity of life in a natural area, forest or green space
- learn mapping techniques
- be introduced to the basic concept of a Model Forest

From Long Beach Model Forest Rainforest Interpretive Centre.



1. Use the map accompanying this booklet, if you have not already done so, to introduce students to the Model Forests and their locations across Canada.

2. Each pair receives a microworld kit and finds an interesting patch of forest floor. They use the stick and string to scribe the circular border of their microworld — their own miniature Model Forest. Ask them to choose four [or more] wonderful things in their microworld and mark them with their flags. They should then name their miniature Model Forest and write it on a cardboard sign.

3. Ask the students to observe their miniature forest quietly for 5 minutes. They may make a variety of observations about **animals** [remember, insects are animals!], **climate** [breezes, what grows in areas that receive lots of sun or only a little sun], or **lifecycles** [seeds? flowers?] and so on.

4. After they have laid out their forest, identified its main features and observed it, they should then do a sketch map identifying the main features [plants, areas with water, rocks, trails] of their forest and providing a key to each of the **wonders** they have found within it.

5. **Tour the Model Forest.** When everyone is ready, do a tour of their miniature Model Forests. Each team introduces their Model Forest, explains its special features and briefly describes their observations.

Tours: On-the-Ground or via the Internet



If you are interested in touring Canada's forests and forest industries firsthand here are some ideas of who to contact:

For **real-life** tours:

- provincial forestry association or the Canadian Forestry Association
- local offices of government agency responsible for forests
- local Model Forest
 - local forest company, paper or lumber mill
 - national or provincial park or related organizations
 - local outdoor education centre
 - local environment or naturalists groups with an interest in forests

For **virtual** tours:

- check out this website for any of the above
- www.cppa.org/english/wood/tours.htm



Forest Values



Activity Information

Level: junior/Intermediate

Subject: environmental science, social studies, values education

Skills: identifying values, comparing, implying, summarizing, planning and organizing

Duration: 1 class

Group size: individual and class

Setting: classroom

Preparation: copy activity sheets for younger students



Summary

In addition to products from wood, the forest has many values — ecological, economic, cultural and spiritual, and recreational [see insert page 24].

Using the activity sheet and their own research, students will explore these different values.



Learning Outcomes

Students will:

- research and discuss non-timber values from the local forests and look at the different ways that forest users perceive it
- look at these competing values and begin to assign ways to plan a forest based on evaluating and prioritizing these different values

Adapted from a variety of sources including, The Forest Explorers, Canadian Council of Forest Ministers and Ontario's Focus on Forests.

This activity sponsored by:



Ministry of
Natural
Resources
Ontario



1. **For younger students**, begin by asking them to fill in the enclosed activity sheet **Who Wants What From the Forest**, matching the **Forest Users** with **Their Wants/Needs**. After the students have completed the sheets, discuss their answers.

For older students, begin at step 2.

2. **As a class, discuss the different categories of forest values:** ecological, economic, cultural and spiritual, recreational and the more familiar products from wood. Help them to generate a list of the forest values similar to the insert on page 24.

3. **Modern forest managers are faced with many different values** when they plan for the long-term management of the forest. Ask the students to think about the different competing values and how they would work to balance them.

- Whose concerns would they have to consider?
- What would they need to know and what research might they need to do?
- How would they balance different values and in what circumstances would one value take precedence over another? How would they judge this?

Ask the students to make a brief written summary of their key points. You may want to ask older students to present this in the form of a chronological plan or flow chart.

Ontario's Living Legacy

Announced in March 1999, this innovative strategy includes the greatest increase in history of Ontario's parks and protected areas. Ontario's Living Legacy [OLL] also introduced measures to improve the business climate for the forest industry, resource-based tourism, outdoor recreation, mining and northern communities. A key part of OLL is the Ontario Forest Accord, created by representatives of the government, forestry and environmental sectors, which is an innovative approach to establishing protected areas while considering the needs of the forest industry. This represents an important new relationship between the forest industry and the environmental movement towards the protection of natural features. Thus, Ontario's forest industry reaffirms its commitment to promoting an environmentally sensitive resource sector which is managing its forests for sustainability.

For more information: www.ontarioslivinglegacy.com/

Forest Values

Ecological

- capture solar energy and create oxygen
- moderate local and regional climates
- store water and affect water table
- develop and condition soils
- store and recycle nutrients
- provide essentials of life to birds, fish and other wildlife
- add to the planet's biodiversity
- temper the effects of global warming
- act as carbon reservoirs

Economic

- one of Canada's primary industries
- employs 800,000+ Canadians
- support [past and present] Aboriginal people and others through trapping, fishing, guiding, outfitting

Wood Products

- more than 5,000 products are produced from wood
- traditional wood products [lumber, furniture, tissue, packaging]
- pulp and paper
- maple syrup
- fuelwood
- lesser known by-products — *vanillin* [a flavouring in food and pharmaceuticals], shatterproof glass, adhesives, upholstery, rayon, turpentine, nature crafts

Cultural and Spiritual

- interwoven into our culture
- provide links to our historic past
- play a significant spiritual role for Aboriginal peoples
- used as source of artistic materials and inspiration

Recreational

- hiking, camping, skiing, photography, bird-watching, canoeing and so on
- recreational fishing, hunting
- ecotourism
- provide wood products used in recreation [hockey sticks, guitars, basketball's hardwood floors]



Sacred Forests

Trees and forests play an important role in the lives of many aboriginal communities. As part of forest management planning, efforts are now made to identify and protect special spiritual places within Canada's forests.

Trapline Project in the Waswanipi Cree Model Forest

This first Aboriginal-led model forest is located in the boreal forest in Quebec. Nearly half of the local population lives in the forest and relies on it for their income, much of it coming from trapping. Many of the younger people want to continue this way of life, but current forestry operations are threatening their livelihood. However, the forestry industry partners in the Waswanipi Cree Model Forest are working with the local community to help them preserve their traditional way of life.

Although ucimows — custodians of family hunting territories known as traplines — oversee the hunting and fallowing of land, there is a need for more detailed plans integrating industry and First Nations' views and needs. In collaboration with the forest companies and the Waswanipi Cree Model Forest, the community is collecting baseline information and mapping the way they use the land on the 52 traplines.



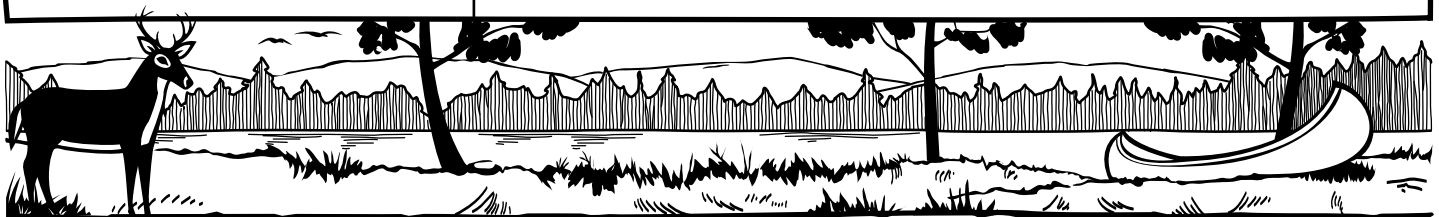


Who Wants What From the Forest?

Draw lines to connect the forest user with what they want or need from the forest.

Hint: There may be more than one link!

FOREST USERS	WANTS OR NEEDS
hunter	<ul style="list-style-type: none"> • a nice, forested view of the lake
fish	<ul style="list-style-type: none"> • to keep working in this area
moose	<ul style="list-style-type: none"> • the ground left in good condition for planting new trees
cottage owners	<ul style="list-style-type: none"> • trees left along river banks to prevent erosion, provide shade and keep the water clean
loggers	<ul style="list-style-type: none"> • a forest with plenty of rabbit, deer and grouse
artist	<ul style="list-style-type: none"> • a dense, mature forest with insects
tree planter	<ul style="list-style-type: none"> • tree cavities for nesting
tour operator	<ul style="list-style-type: none"> • a spiritual connection with the forest
canoeist	<ul style="list-style-type: none"> • a profit from the forest
naturalist	<ul style="list-style-type: none"> • to contribute to the well-being of their local community
wildflower	<ul style="list-style-type: none"> • a forest with a variety of plants and animals
logging company manager	<ul style="list-style-type: none"> • to capture the beauty of the forest and share it with others
pileated woodpecker	<ul style="list-style-type: none"> • healthy soils and shade provided by trees
Native elder	
wolf	



Paper Making: A 2000-Year-Old Art

Activity Information

Level: junior

Subject: social studies, geography, language arts, environmental science, art

Duration: 2 classes [1 to introduce topic and do activity sheet, 1 for papermaking; additional time if you want to decorate your paper]

Group Size: full class

Setting: classroom

Preparation: Have everything ready beforehand and work in a place with water and where a bit of a mess is not a problem.

You will need:

- scrap paper, plant & vegetable scraps, cornstarch
- flat wooden frames [about the desired size of your sheet of paper], stretch a piece of nylon screen over the frame and staple in place to make your paper mould.
- water, a bowl, a blender, a large plastic basin, a sponge, 2 clean dish towels, an iron

Summary

Using the activity sheet, *A Brief History of Paper*, the students will look at the history of paper in different cultures and at the significance of its development. They will then make their own recycled paper using the same basic concepts that have been used since it was first invented.

Learning Outcomes

Students will:

- understand the process of papermaking based on firsthand experience
- be able to analyse and understand the movement and impact of a new idea based on the example of papermaking

Background

The process of papermaking has changed little in the 2,000 years since its discovery. It consists of two stages. In stage one, the raw material is broken down into fibres which are then suspended in water to form a thick soupy substance called pulp. In the second stage the pulp is then poured and pressed into the desired shape, thickness and size. This is dried, forming paper.

Extension: Visit a nearby paper mill to learn about large-scale paper production firsthand or explore the Canadian Pulp and Paper Association's website: www.cppa.org/english/wood/tours.htm

1. **Discuss paper and papermaking** with the class and let them know that the basic process has remained essentially unchanged for centuries. Explain that the class will be making recycled paper using **post-consumer waste**. Ask them to save used paper for the next week. Remind them that all plants are made of fibre and, if they want to make colourful textured papers, they may choose to add plant material, scraps of coloured paper or fabric fibres.

2. **In Part 1 students will complete the activities** outlined on the activity sheet [see page 26]. [Draw a timeline of the history of paper linking it to historic events, and write a brief story about the role paper played in a specific place, at a specific time in history.]

To Make Paper

3. **Tear the paper into little pieces** and soak in a bowl of hot water for 30 minutes.

4. **Place a handful of your wet paper scraps into a blender** that is half-full of warm water. Blend at a medium speed until the paper forms a *mush*. Add some plant or vegetable scraps or, if you want, a few drops of non-toxic fabric dye for colour, and blend again.

5. **Pour the pulp into a large plastic basin**, half full of warm water. Add a small amount of cornstarch to help hold the pulp together when it is placed on the screen.

6. **Place the screened frame in the basin** and move it back and forth to collect the pulp. Once you have an even layer, lift it out and allow the water to drain away. [Hint: A thick layer of pulp = a thick piece of paper; thin pulp = thin paper]

7. **After the water has drained**, carefully lay the mould, upside down on a clean, flat dish towel or absorbent cloth. Use a sponge to absorb the excess water through the screening. Gently remove the screen so just the paper is lying on the towel.

8. **Quickly place another dish towel over the paper** and carefully iron at a medium, dry setting. When the towel feels dry, loosen the sides, remove the top towel and carefully peel off your paper.



A Brief History of Paper



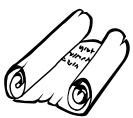
- 400 BC** Ancient Egyptians, Greeks and Romans write on scrolls of papyrus.
- 105 AD** 1st record of papermaking — by Ts'ai Lun, a member of the Chinese court.
- 150** Earliest known paper still in existence; for the next 500 years the art of papermaking is confined to China.
- 610** Paper introduced into Japan.
- 750** Paper introduced into Central Asia.
- 800** Paper appears in Egypt but is not manufactured there until 900 AD.
- 868** Oldest known printed book. Printed in China using wooden blocks.
- 1150** 1st papermaking mill [in Spain] — papermaking spreads through Europe.
- 1450** Introduction of movable type — making book printing practical and increasing demand for paper.
- 1495** First paper mill in England.
- 1690** First paper mill in North America.
- 1798** French inventor, Nicholas Louis Robert, designs machine to replace hand-moulding process in papermaking; refined in 1803 by the British Fourdrinier Bros. whose name is still on today's papermaking machines.
- 1803-05** First Canadian paper mill built at St. Andrews, Quebec.
- 1819** First paper mill in the Maritimes built near Halifax by Anthony Holland, to supply his newspaper with paper.
- 1827** Ontario's first paper mill started up by James Crooks near Dundas, followed, a few months later, by a mill in the Don Valley [Toronto].
- 1840** Development of process to create pulp — streamlines papermaking.
- 1850** First chemical process to create pulp.
- 1894** British Columbia's first pulp and paper mill at Alberni on Vancouver Island.
- 1901** In Canada, 53 pulp and paper mills employ 6,236 people. Most are small mills making a wide variety of products including: writing paper, newsprint, books, wrapping and bag papers, board and building papers.
- 1918** Canada becomes world's largest exporter of paper.
- 1997** 62 pulp and paper mills use recovered papers as a source of fibre.
- Today** Canada produces 34% of the world's pulp & paper, exporting to 100+ countries.
23 Canadian newsprint mills are set up for recycling — up from only 1 in 1989.
71% of the fibre used to make Canadian pulp and paper comes from sawmill residues and recovered papers that used to go into landfills.

Assignment



On a large sheet of paper construct an illustrated timeline using part, or all, of the information above. For comparison, find out something else that was happening on or about the dates listed. [e.g. What was going on in Egypt in 800 AD when paper first started to appear there? What was happening in England when the first paper mill was established?]

Based on your timeline, research and write a brief story about the role that paper played in a specific place, at a specific time in history. Be creative. Think about great documents that were written, maps that might have been drawn, or messages that might have been sent on the battlefield. Whose point of view are you using to tell your story? Is it written by a general or a playwright? Or is it the voice of a tattered and worn piece of paper?



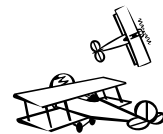
▲
400 BC



▲
868



▲
1827



▲
1900



▲
Today



Forest-Related Careers



Activity Information

Level: grade 6, 7, 8

Subject: guidance and career planning

Skills: research, observing relationships, analysis, communication, art

Duration: 2 classes

Group size: individual and small groups

Setting: classroom

Preparation: Copies of the career descriptions for each student.

Paper or a bulletin board and art materials to produce the visual career web.



Summary

Students will brainstorm the wide range of jobs dependent on Canada's forests and will produce a visual career web to show their relationships. They will discuss the impacts of sustainable forest management and the type of people who should be involved in making these decisions.



Learning Outcomes

Students will:

- investigate the variety of careers associated, directly and indirectly, with the management and use of forest resources including those of: an urban forester, a forest biologist from Manitoba, a GIS [Geographic Information Services] computer researcher from British Columbia and a family owned timber business in Ontario
- recognize that decisions made about the long-term sustainable management of forest resources can have far-reaching impacts

Adapted from materials produced by the British Columbia Forest Association, the Canadian Pulp & Paper Association and others.



Background

It is estimated that, directly or indirectly, one in sixteen Canadians is employed in a forest-related job.

Direct employment would include jobs in:

- pulp and related industries
- solid wood products
- logging
- Christmas trees
- maple syrup

These include not only the traditional occupations, for example cutting, moving and processing forest products, but numerous jobs in planning and managing the forests sustainably. Foresters, biologists, GIS technologists, silviculturalists, researchers [in hydrology, soils, entomology, land use planning, ecology, economics] and others bring together their skills to manage today's forests. Others are employed in support services, for example the airplane pilot who helps control the spruce budworm or put out fires, or the person who plants seeds to produce new trees.

There are careers that relate to other forest values, for example the conservation officer who enforces regulations to protect wildlife, the park superintendent who manages trails for hikers, or the outfitter who leads anglers into a wilderness area. Smaller forest-based industries may include traditional First Nation careers such as wild rice harvesting and trapping, or other careers, for example producers of nature product handicrafts [e.g. log furniture, moccasins, woven baskets] or wildlife artist.

The link between these careers and the forests are clear. Less clear, are the jobs that depend more indirectly on Canada's forests. For example, 350 Canadian communities are forestry based and the people who work directly in forest-related jobs require food, accommodation, clothing and other support services. The waitress in a restaurant located near a paper mill, the factory-worker who manufactures safety boots, or the educator who teaches local children each depend, to differing degrees, on the forest or forest industry.

Part One

1. **Ask the students to read** through the enclosed career profiles. As a class, discuss each career and generate a list of the type of skills and training that each would require. Talk about the kind of things that you imagine this person might do as part of their job.



2. **Ask each group to select one of the career profiles** to look at in greater depth or you may wish to use examples from your local community. Option: Invite in a guest from your local community to discuss their job [see "Background" for some ideas of the type of people you might contact]. Based on the selected profile, the students should begin to brainstorm the types of people and services that relate to that person's [or company's] forest-related job.

Example: The biologist would work with a forester to do planning but she might also need safety boots and binoculars; the lumber company owner employs a hundred people — what effect would this have locally? The GIS researcher needs a computer and computer programs, and so on.

3. **Using their ideas and the personal career profile** or local forest as the focal point, ask the group to create a **visual career web** on a very large piece of paper or, if space allows, on a bulletin board. They may choose to illustrate the web with clippings from magazines, collage art, illustrations or other.

4. **When they have completed their career web**, ask them to explain it to the rest of the class.

Part Two

5. **Lead a class discussion** highlighting the students' findings. Make sure to include some of the other forest-related jobs outlined in the background to this activity if they have not been brought up by the students.

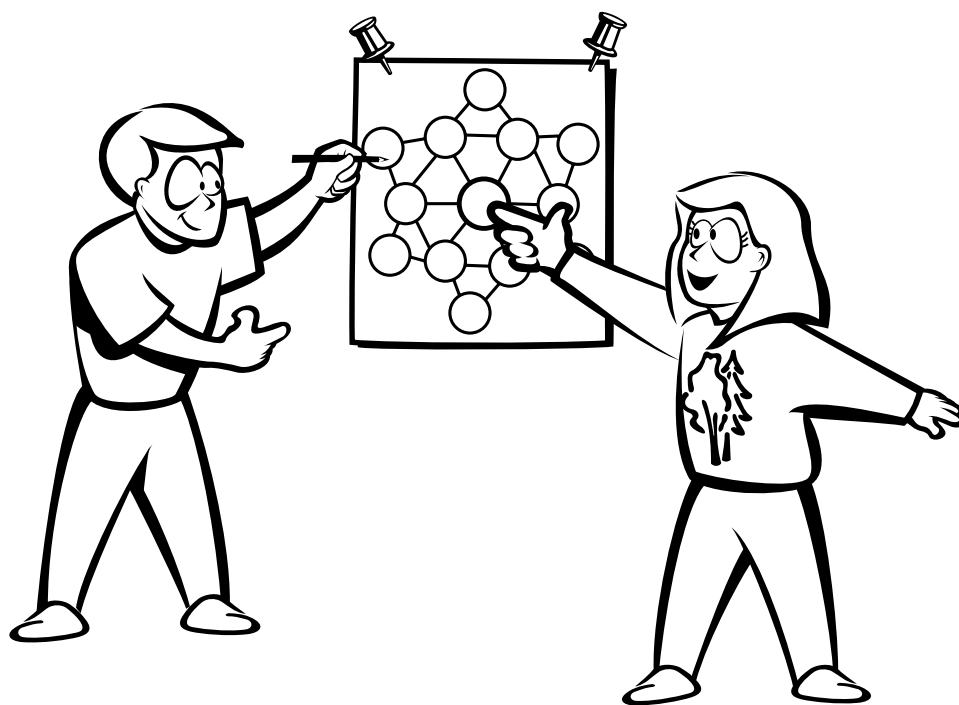
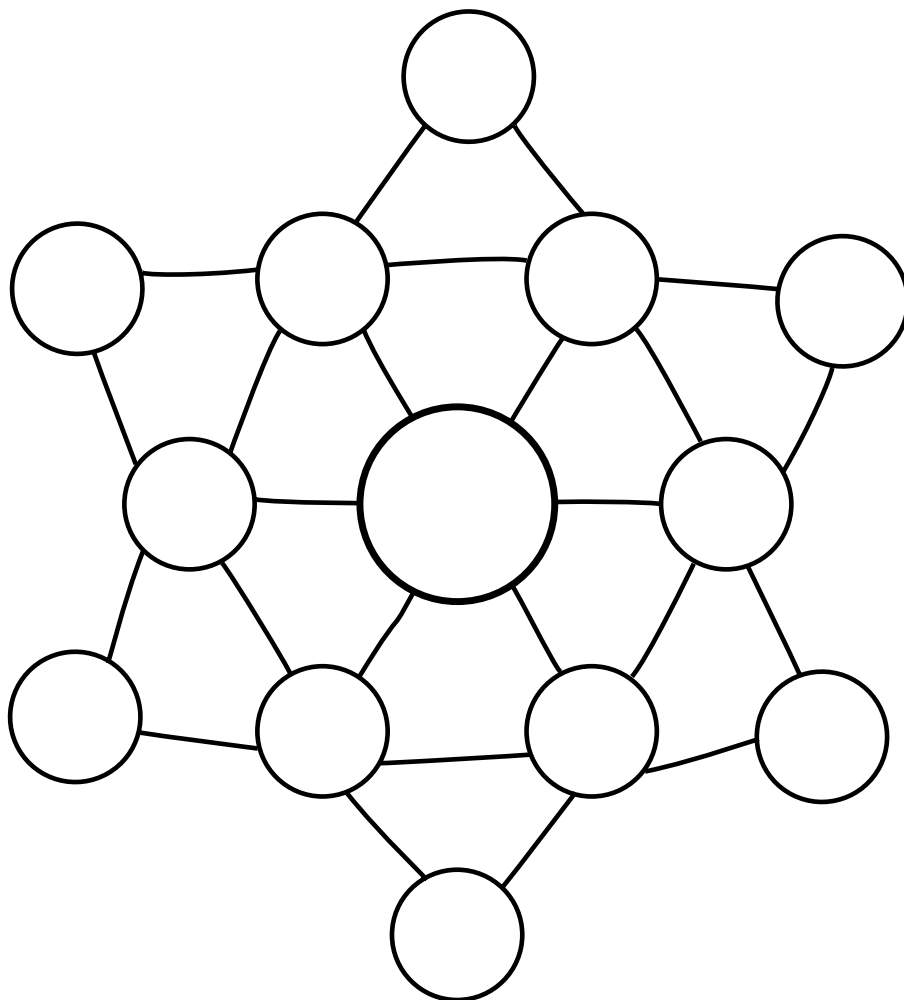
6. **Based on their previous work**, ask each group to discuss the following and report back to the class.

- Who should have input into planning the management of a the local forest? [You may want to point out that there are different levels of decision-making requiring different skills.]

- What might the impact be of poor forest management decisions locally?

7. **Futurists estimate** that almost 50% of all future jobs facing today's elementary students have not yet been invented and many of the jobs that currently exist will have changed dramatically. Technology has changed many jobs — compare the modern office with its fax machines, computers, scanners, electronic tracking devices and high-speed colour photocopiers to the office of the 1960s. The forest industry has seen many similar changes and, no doubt will undergo many more.

- What forest-related jobs do students think will change?
- What ones will remain the same?





Left to right: John Shaw IV, Donald, John V, Herb, and Dana Shaw.

A 150-year-old Family Tradition in Ontario

Sometimes you don't choose a career, a career chooses you. In 1847, a young Scottish miller, his wife, and their two-year old son left the comforts of Bytown [now Ottawa] for the wilds of the Upper Ottawa Valley. It is hard to imagine the dreams they must have had and the challenges they must have faced, but today their legacy lives on in Herb Shaw & Sons Ltd., a lumber business still run by their descendants more than 150 years later.

In the early years, John Shaw operated a grist mill and a sawmill in Renfrew County [Ontario] but by the 1880s his sons had set up their own sawmills in Portage du Fort [Quebec], Portage La Prairie [Saskatchewan] and Dauphin [Manitoba]. Although the western operations closed down in the 1920s, today family members operate a vibrant Ottawa Valley operation employing more than 100 workers. Each year, Shaw's produce 14 million board feet of white and red pine, 45,000 utility poles, and 500,000 bales of wood shavings. Shaw's is the longest continually run lumber company in Canada.

Communities across Canada have been based on forestry and related industries for generations. Community and family traditions can often play a role in your career choice. Who do you know who has chosen to work in a family business or follow a traditional family career?



Protecting Forests in Manitoba and B.C.

Margaret Donnelly wanted to be a wildlife biologist from age 12, and she pursued this goal, first at Lakeland College [Alberta] where she obtained her Fish and Wildlife Technology Diploma, and then at the University of Guelph [Ontario] where she completed her B.Sc. in Resource Management. She has done field work, spent several years at Ontario's Centre for Northern Ecosystem Research and, for the past three years, she has been part of a team that works to study and manage the forests for Louisiana-Pacific Corporation, a large forest company.

As a biologist, Margaret is concerned with the health of all living things that make up the forest and she always looks at the forest as a whole — trying to understand how the ecosystem operates, both now and in the future. In looking at the whole picture, Margaret and other team members try to project what the effect of cutting trees will be on the area's water systems, they study the needs of forest birds, fish and wildlife, and are constantly looking for ways to improve the growth of a healthy forest.

"I don't get out in the field as much as I would like to now but depend on the research of others, including more than twenty specialists we bring in to study the forest firsthand. What I like about my job is the ability to apply my knowledge practically and to know that you are creating change for the better. Today, as forest managers, we work for the continuous improvement of the forests."

CAREER PROFILE: Dr. François Gougeon, Computer Image Analysis Researcher, Canadian Forest Service



With today's modern technologies it is hard to realize the dramatic changes that have taken place in the tools we use to understand our forests. In one century we have moved from an understanding based strictly on our on-the-ground observations, to a more sophisticated system using aerial photographs, to today's high-tech methods using satellites and airborne sensors. Forest maps, which were once painstakingly drawn by hand, are now generated almost automatically by computers using special computer programs.

Canada has always been at the forefront of these new technologies. But, these tools do not come out of thin air. They are created and fine-tuned by people like Dr. François Gougeon and his colleagues at the Pacific Forest Centre and other research centres across Canada.

"For humans it only takes a single glance to interpret what we see — an apple, a road sign, an elephant or whatever" explains Dr. Gougeon. "We have no idea how complex this is until we try to make a computer do the same thing. This is especially tricky when we deal with natural objects like trees which can have millions of variations. My job is to work with computers to try to teach them how to recognize trees in an image. Every time I come up with a new idea to help the computer, I can program it and see immediately what happens. Who wouldn't want to work all day with such beautiful space-age images?"

Dr. Gougeon has degrees in Electrical Engineering from the University of Ottawa and a Ph.D. in System Engineering from the University of Waterloo.

CAREER PROFILE: Bob Baker, Forester, Credit Valley Conservation, Mississauga



Bob Baker practices forestry near Canada's largest urban centre, the GTA [Greater Toronto Area]. Through his work with landowners, local governments and volunteers, he is responsible for the planting of over 3 million trees in the Credit River watershed, since the 1970s. This area now has more trees per hectare than it did when it was first settled due, in part, to Bob's efforts.

Bob works for a conservation authority, an organization that manages a river system and the water that flows through it. Trees are a vital part of this system. Among many things, they help to prevent erosion, cool the water, help to maintain the natural balance of the ecosystem, and support wildlife. As Bob explains, "A big part of my job is working to help improve the health of the areas located along the edges of rivers and streams and to help to create links between the pockets of natural areas, such as woodlots and wetlands, that are scattered through this region."

Bob does more than plant trees. Until recently, he had supervised the growth of each tree from seed. Today, he still plans the number and type of seedlings that other nurseries need to grow to meet his needs and he still grows thousands of native shrubs that are used to naturalize the river's shorelines. Bob provides interested groups and landowners with advice on managing their own land or in developing their own planting project.

In his private life Bob owns and manages his own woodlot and produces trees in his own nursery. He also manages his family's "cut your own" Christmas tree operation.

He is passionate about his career and says that "To me trees are oxygen. They are life. They enable us to have a better quality of life and to live in an environment that nurtures us as living beings."



CFA National Poster Challenge

Each year, the Canadian Forestry Association [CFA] sponsors the National Poster Challenge, in conjunction with National Forest Week celebrations. Students from across Canada are invited to create a poster which represents the National Forest Week theme. Students submitting posters for the 2000 Challenge will artistically represent the theme: *Canada's Forests, Learning From the Past – Building for the Future*. Last year's National Poster Challenge winners came from British Columbia, Ontario, Nova Scotia and Saskatchewan.

Learning Outcomes

Students will research and portray values that relate to the theme: *Canada's Forests, Learning From the Past – Building for the Future*.

Eligibility

Junior: Grades 4 to 6

Senior: Grades 7 to 10

Prizes

There are a total of four prizes awarded — two in the Junior category, and two in the Senior category:

First Prize: \$200

Second Prize: \$50

Size Specifications

The CFA will accept posters illustrated in any medium, provided that the size of the poster fits within the following limits:

Minimum: 17cm x 22cm [8.5" x 11"]

Maximum: 32cm x 48cm [16" x 24"]

Judging Criteria

The winning posters will be selected based on creativity, artistic ability, relevance to the theme, and a balanced portrayal of the theme:

Canada's Forests, Learning From the Past – Building for the Future.

Submissions

Please ensure that the student's name, grade, school, and home address are clearly written on the back of each poster.

Teachers in the provinces of Newfoundland, Nova Scotia, Prince Edward Island, New Brunswick, Ontario, and Saskatchewan should submit entries to their provincial forestry association by **31 May 2000**. Provincially judged first, second, and third-place winners will be submitted to the CFA for national judging.

If you live in Quebec, Manitoba, Alberta, British Columbia, Yukon or Northwest Territories, send your posters directly to the CFA by **31 May 2000**.

Dave Lemkay, General Manager

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since 1900

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E: nlfpa@nfld.com

Nova Scotia Forestry Association

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Truro, Nova Scotia B2N 5G9

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E: debbie.totten@ns.sympatico.ca

PEI Forest Improvement Association

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Covehead, Prince Edward Island COA 1P0

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E: wm.hemphill@pei.sympatico.ca

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E: treehouse@fundy.net

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E: jimmrefc@telusplanet.net

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T: 604-737-8555 F: 604-737-8598

E: info@fored.com

Yukon Forestry Training Trust Fund

c/o 6 Juniper Drive

Whitehorse, Yukon Y1A 4W7

T: 867-668-5506 F: 867-667-3199

E: montyj@inac.gc.ca

[Également offert en français.]

Glossary

CCFM – Canadian Council of Forest Ministers; made up of the federal, provincial and territorial ministers responsible for the departments that oversee forests and forestry issues.

CFA – Canadian Forestry Association; one of Canada's oldest, not-for-profit organizations that works to promote understanding and cooperation in the wise use and sustainable development of Canada's forests.

ecosystem – An interacting system of living [plants, wildlife, microorganisms, and so on] and non-living [rocks, water, climate] features.

forest region – A way of classifying large land areas that share similar types of trees and plants; other features, for example climate, soils and landforms, are sometimes included.

forest products – Items extracted from the forest for human use; for example timber, pulp and paper, extracts such as turpentine and other chemicals, maple syrup, and so on.

GIS – Geographic Information System

GPS – Global Positioning System

IMFN – International Model Forest Network [see pages 6 & 7 for details]

MF – Model Forest [see pages 5 & 6 for details]

reforestation – To help a forest to regrow by planting, or by aiding natural reseeding from the remaining trees [called natural regeneration].

resource management – The planned management of forests, wildlife, and fisheries to ensure their long-term survival; may also include oil, natural gas, minerals and aggregates [sand, gravel and related materials].

sustainable development – Subject to a range of definitions but most refer to the struggle to balance competing human demands for resources [not only on forests but for food, for land to live on, for jobs, for economic health and so on] with current and long-term ecological needs, not just for the present but in ways that look to the needs of future generations.

sustainable forest management – Similar to the above; managing forests with a recognition of environmental, social and economic needs for the future as well as the present, thereby optimizing the forest as a renewable resource.

traditional ecological knowledge [TEK] – The understanding of a forest or ecosystem gained by close association with it over centuries, as is the case with Canada's Aboriginal communities.

watershed – The land area drained by a river and its tributaries.

wildfire – Generally, any unplanned fire, often started by lightning, sparks, or human carelessness.

From Harvesting Timber Activities:

H = Historic

M = Modern

Note: The historic definitions use the term men or man to reflect the fact that women were not involved in this process. Today both men and women are involved.

alligator^[H] – A rugged steam-powered boat with a powerful winch used to tow booms of logs across lakes. The boat could also winch itself over land.

allowable cut^[M] – The amount of wood that can be taken from an area each year without having a negative effect on the forest or local environment.

axeman^[H] – A forest worker skilled in safely chopping down trees in a direction suitable for being skidded to the landing.

block cutting^[M] – Removing trees in blocks; often used to manage wildlife, encourage natural regeneration or to protect fragile sites.

chainsaw^[M] – A gas-powered tool used to cut down trees.

clear cutting^[M] – Clearing a small or large area of forest of all its trees; in most cases to mimic natural disturbances such as fire, blowdown or insect damage.

cutter^[M] – The person who cuts down trees.

feller-buncher^[M] – A forestry harvesting machine, usually run by one person, that cuts down trees and then cuts the logs into uniform lengths.

foreman^[H&M] – The person in charge of other workers to make sure that the job gets done.

forest management unit^[M] – A predetermined area that is used to help plan and manage for the long-term health of a forest.

forewarder^[M] – A machine used to move logs in the forest to a central point from where they can be loaded and transported to a mill.

grapple-loader^[M] – A large piece of hydraulic machinery equipped with a claw-like device to grab logs and lift them from a storage pile onto the back of a truck.

harvester^[M] – A broad category of heavy machinery used to cut timber mechanically.

hewer^[H] – The man who used a broad axe to trim the logs into squared timber by creating four flat surfaces.

high grading^[H] – An early practice of cutting selected trees, removing only the most valuable species or the ones of the desired size and quality without concern for the long-term health of the stand. Over the long-term this process contradicted sound forest management and is no longer tolerated.

liner^[H] – The man who marks the timber with a chalk line to show a scorer how deep the notches should be made to remove bark and edges.

log truck with pup^[M] – A truck pulling a non-steering trailer.

log drivers^[H] – The men who drove the timber down-river, breaking log jams along the way.

lop and top^[M] – The branches and tops cut from a tree.

marking [trees]^[H&M] – The use of a sign — a paint mark, tag or mark on the bark — to show which trees should be cut.

rigging-slinger^[M] – This person hooks up the cables and equipment used in cable logging, a method for moving timber down mountainsides in places like BC.

river pig^[H] – A slang term used for log drivers.

river drive^[H&M] – A method used before roads and trucks or trains to move timber over water from the forest to a processing site such as a mill. Canada's last real river drive was in the spring of 1982 on the Coulonge River in the Ottawa Valley.

road monkeys^[H] – Men responsible for keeping the roads iced at night. The ice surface would make it easier for the sleighs, heavily loaded with logs, to be moved by the horses.

rollaway^[H] – Riverside storage where logs were piled to await the spring melt.

rosser^[H] – The man responsible for removing the bark from the trees in the bush.

scorer^[H] – Axeman responsible for cutting notches along a piece of timber and removing bark and outer edges ahead of the hewer who would square the timber.

selective cutting^[M] – Selective cutting is the planned removal of selected trees in a forested area to improve the health and growth of that stand.

shanty^[H] – Large, rough log buildings where lumberjacks ate, slept and lived throughout their winters in the forest.

silviculture^[M] – The theory and practice of planting, growing and managing forest stands for their optimum health and often for specific objectives [to produce timber, to establish a maple syrup operation, for rapid growth and so on.]

skidder operator^[M] – The person who operates a tractor-like machine that is used to drag harvested logs from the place where they were cut to a nearby roadside.

sky loader^[H] – A man who loads the logs onto the sleigh.

stockpiling^[M] – Collecting timber in one place before transporting it directly to the mill for processing.

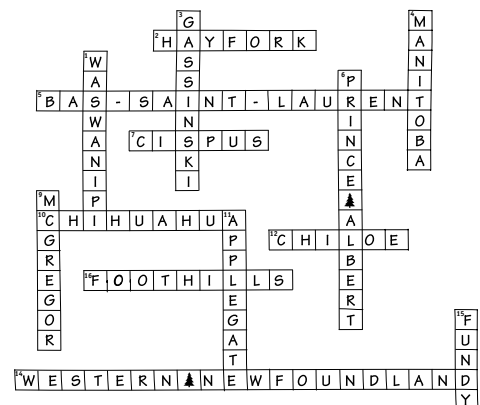
swamper^[H] – A person who removes the smaller trees so that the larger trees are not damaged when they fall.

teamster^[H] – The man who drives the team of horses pulling the sleigh of logs.

timber mark^[H&M] – A mark that is stamped into the end of a piece of timber to show which company owns it. Today, a similar mark is being used on lumber to identify its producer or to show that it is harvested according to certain guidelines [example: see Smartwood, pg 4].

white water boys^[H] – A slang term for the log drivers.

yarding^[M] – Gathering the logs in one place before moving them on to the mill.






100

SINCE  1900

Canadian Forestry Association



Natural Resources
Canada

Ressources naturelles
Canada

Canadian Forest
Service

Service canadien
des forêts



Ministry of
Natural
Resources



Environment
Canada

Environnement
Canada



International Model Forest Network Secretariat
Secrétariat du Réseau international de forêts modèles

Herb Shaw & Sons Ltd.
Pembroke, Ontario
Established 1847



Canadian
Wood
Council

Conseil
canadien
du bois



Tree Canada Reboisons le Canada



Canadian Pulp
and Paper Association

Également offert en français.