

Between the Stands

Teachers Guide



BETWEEN THE STANDS
Teachers' Resource Guide

Program Manager
Steve McIsaac, Inside Education

Developed by



with the support of



Technical Support

Alex Drummond, University of Alberta
Brent Rabik, Alberta-Pacific Forest Industries
Beverly Yee, Chris Van Tighem, Alberta Environment



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INTRODUCTION

This guide is designed for use in elementary schools, Division II (Grades 4-6) in the Province of Alberta, although other applications are possible in higher grades. Its purpose is to facilitate use of, and provide activities for the *Between the Stands* poster. Each activity uses or references the poster to some extent. For this reason, multiple copies of the poster are enclosed.

CURRICULUM CONNECTIONS

This resource meets the needs of the following as described in Alberta’s Elementary Program of Studies.

Grade Four

a) Science – Topic E: Plant Growth and Changes

1. Describe the importance of plants to humans, and as part of the natural environment.

b) Social Studies

General Outcome 4.1 – Alberta – A Sense of the Land

- 4.1.1 value Alberta’s physical geography and natural environment
- 4.1.2 critically examine the physical geography of Alberta
- 4.1.3 analyze how Albertans interact with their environment

Grade Five

General Outcome 5.1 – Physical Geography of Canada

- 5.1.1 value Canada’s physical geography and natural environment
- 5.1.2 analyze how people in Canada interact with the environment

Grade Six

a) Science – Topic E: Trees and Forests

Specific Learner Expectations

- Identify reasons why trees and forests are valued.
- Describe the kinds of plants and animals found living on, under and among trees; and identify how trees affect and are affected by those living things.
- Identify general characteristics that distinguish trees from other plants, and characteristics that distinguish deciduous from coniferous trees.
- Identify general characteristics of at least four trees found in the local environment.
- Describe and classify leaf shapes, leaf arrangements, branching patterns and the overall form of a tree.
- Identify human uses of forests and compare modern and historical patterns of use.
- Identify human actions that enhance or threaten the existence of forests.
- Identify an issue regarding forest use. Identify different perspectives on that issue, and actions that might be taken.

Teach Me Trees

Curriculum Connections

Grade Six Science, Trees and Forests, SLE 4, 5, 6

Objectives

Students will:

- identify a variety of trees and distinguish between them in the local environment.
- Investigate trees through measurement.

Requirements

Between the Stands poster

Teach Me Trees Sheet – Appendix A (pg.16)

forest area/treed area near school

metre sticks/tape measures

Guide to the Common Native Trees and Shrubs of Alberta (optional – contact Inside Education)

Student Requirements – pencils, rulers, calculator (optional)

Description

This activity involves both indoor preparations and a field excursion to nearby forested area, or at least an area with a diversity of tree species. Your students will discover some of the native and non-native trees in their immediate environment, and do some scientific measurements of the trees. Foresters take some of these same measurements when they take part in *timber cruising*. Timber cruising is the study foresters do of a forest area to determine tree species and tree dimensions (size, diameter, age).

Procedure

1) Coniferous vs. Deciduous

Distribute copies of *Between the Stands* to groups of students. Direct each group to examine the inside flaps paying special attention to the diagrams of the *Eight Common Alberta Trees*. Then direct students to identify each diagram as either a coniferous or deciduous tree.

Reminder

Deciduous – Broad-leaf trees which lose their leaves annually in the fall

Coniferous – Needle-leaf, cone bearing “evergreen” trees, most retain needles year-round (exception – Tamarack or “larch” trees, which change colours and shed needles in the fall)

2) Pre-Field Trip Activities (Indoors)

a) Distribute copies of *Teach Me Trees* worksheet to each group.

b) Each group will be determining the height of a tree. Students will need to measure the *normal* walking stride of one of the students in the group. Record information in space provided.

c) Each group will also be determining the circumference of the tree. Students will need to measure the *width* of the hand of another student – students will measure the distance from thumb to “pinkie” finger when stretched open. Record information in space provided.

3) Field Trip

a) Take your students on a trip to a forested area or local area with a variety of trees.

b) Each group of students will choose a tree in the local area. Their job will be to report as much information as possible to the rest of the class in “mini reports” at the end of the activity.

Teach Me Trees continued

(All necessary information is on the *Teach Me Trees* activity sheet, pg. 16)

- c) By using the information found on the *Eight Common Alberta Trees* poster flap, students will attempt to provide as much information as possible about the tree they choose:
- Students will first determine whether it is deciduous or coniferous.
 - Students will then check to see if their tree appears on the poster. If it does, they should record the species name in the space provided, and complete the "we know this because" section. If the tree does not appear on the poster, they will record the tree as uncommon. They should still fill out the "we know this because" section, this time identifying the unique characteristics of their tree.

Note: Many of the trees in city school yards and on city streets are not native to Alberta. You may wish to find out the species beforehand or have your students investigate them as an extension activity. Common non-native coniferous trees are blue spruce and non-native deciduous trees are often elm trees.

- Students will be responsible for determining the height of their tree. (See pg. 4)
- Students will measure the circumference (the distance around) of their tree. (See pg. 4.) The students have a "bonus" question on their worksheet – determining the diameter of the tree, either using their ruler, or using geometry, i.e.:

$$C = \pi \times d \text{ therefore } d = C \div \pi$$

C = Circumference

d = Diameter

$\pi = \text{pi, } 3.14$

Example:

Circumference = 50 cm

$d = 50 \div 3.14$

$d = 15.92 \text{ cm}$

- Finally, students will identify anything else interesting about their tree. (Example: woodpecker damage, exposed sap, broken branches, etc.)

4) Tree Teaching

As the culminating activity, each group will teach the rest of the class about their particular tree. Visiting each tree, and have each group host present their findings and answer any questions their fellow forest scientists, or their "head" forest scientist (the teacher) may have.

Extension

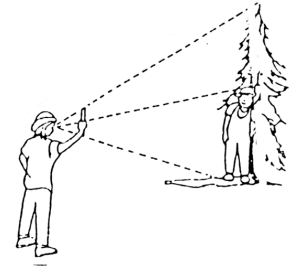
Have your students make a poster based on their tree. They should include the following:

- A detailed diagram of their tree and the *Teach Me Trees* worksheet.
- A description of the tree's preferred growing conditions.
- A list of products that can be made from this tree species.
- "Key" statistics – how long trees live, maximum height, diameter, etc.

Teach Me Trees continued

TREE HEIGHT MEASUREMENT PROCEDURE

- Have one person, "Jane," stand at the base of the tree.
- Measure Jane's height in metres.
- A second person walks backwards, arm outstretched, both eyes open and holding the ruler, until the ruler exactly 'covers' the tree. Then, keeping the ruler steady, this person will measure and record the height Jane reaches on the ruler.
- Find out the number of Janes the tree is by dividing the length of the ruler (30 cm) by the height Jane comes to on the ruler. This determines the ratio of Jane to the tree.
- Multiply this ratio by Jane's measured height to determine the tree height.



For example:

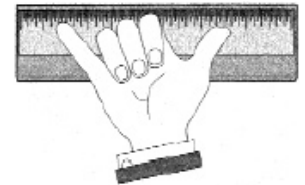
If Jane reaches 2 cm on the ruler, the number of Janes it would take to reach the top of the tree is $30 \text{ cm} \div 2 \text{ cm} = 15$.

If Jane's measured height is 1.2 m, the height of the tree is $1.2 \text{ m} \times 15 = 18 \text{ m}$.

MEASURING TREE CIRCUMFERENCE

Procedure

- Have a group member measure his or her hand from pinky finger to thumb, when hand stretched open. Record the length on the worksheet.
- Assuming the student's hands are the same size, have him/her walk around the tree, keeping hands on the tree at all times, counting the number of hands all around the tree. Another student should mark the ending points, allowing the student who is the measurer to easily move around the tree.



Calculation

of hands x width of hand = Circumference of the tree

Example: $8 \text{ hands} \times 15 \text{ cm} = 120 \text{ cm}$

You Make the Call - Find the Issues

Curriculum Connections

Grade Four Social Studies, Alberta – A Sense of the Land

Grade Six Science, Trees and Forests, SLE 1, 9, 10

Objectives

Students will:

- identify issues related to forest developments in Alberta.
- identify, explain and defend both sides of these issues.

Requirements

Between the Stands poster – multiple copies

You Make the Call worksheets (one per group of 3-4 students) – Appendix B, pg. 18

Description

This activity will encourage students to understand that there are complex issues related to the forest, and that there are differing points of view on these issues. In groups of three or four, students will be asked to develop an issue statement based on a scene from the poster. Other groups will then be asked to create arguments for and against the issue statement.

Procedure

1) Introduce the concept of issues to your students

STUDENT NOTES - Issues

An issue is a point or matter of discussion or debate that may have many answers depending on a person's point of view. Issues may be framed as a question, usually phrased in such a way that it begins with "should."

For example: *Should students be allowed to bring cellphones to class?*

Or they may be statements:

Students should/should not be allowed to bring cellphones to class.

It is important for us to understand that there can be differing points of view on these issues.

2) Find the Industries

Divide your students into groups of 3 or 4. Have them arrange their desks together in a group.

Distribute a copy of *Between the Stands* for each group to study. They are going to be studying the various **industries** illustrated.

You will want to point out each of the following for the entire class.

Industries illustrated on the poster:

Forestry – logging, sawmilling, pulp production (pulp mill), replanting

Trucking

Oil/Natural gas drilling

Agriculture – cattle ranching, crop farming

Commercial fishing

You Make the Call - Find the Issues *continued*

3) You Make the Call

Distribute a copy of the *You Make the Call* (pg. 17) worksheet to each group.

Instructions

Each group is responsible for developing an issue statement based on the resource industry activities illustrated in the poster. Groups may choose an industry from the poster, or the teacher may wish to assign one to each group. Issue statements should be recorded in the space provided on the worksheet.

Note: *Caution students against making their issues statements of fact. For instance: The pulp mill should/should not be in the forest. (This is not an issue. The pulp mill is there already.) A better issue statement would be: Should the pulp mill be allowed to use water from the river in its processing and waste treatment?*

4) Other Group Arguments – “Pass”

Once the students have completed their issue statement, the teacher will call “Pass.” Students will then pass their worksheet to another group.

- The group receiving the sheet will then complete **two** arguments in **either** the Should or Should Not column of the worksheet – developing arguments based on the issue chosen by the original group. Once completed, call “pass” again.
- The next group to receive the sheet must develop two arguments in the opposite column than the preceding group.
- The process continues until each group has contributed to each issue worksheet.

5) Oral Presentation

Each group will then orally present their worksheet to the class – Describe the issue and identify what the other groups identified as the “pros” and the “cons” of their issue.

6) Summary Discussion

You should point out to your students that when it comes to forest-related issues, there are obviously many different points of view. As a class, your job is not to discover THE answer to these questions, but to understand that many different people have many different points of view, and that it is very important for all of us to have opinions.

Your students will be decision-makers of the future, appreciating other people’s points of view is critical in reaching agreements on these important issues.

Extension Activity

Choose one or two of the issues identified and hold a class-wide debate.



Between the Stands Word Search

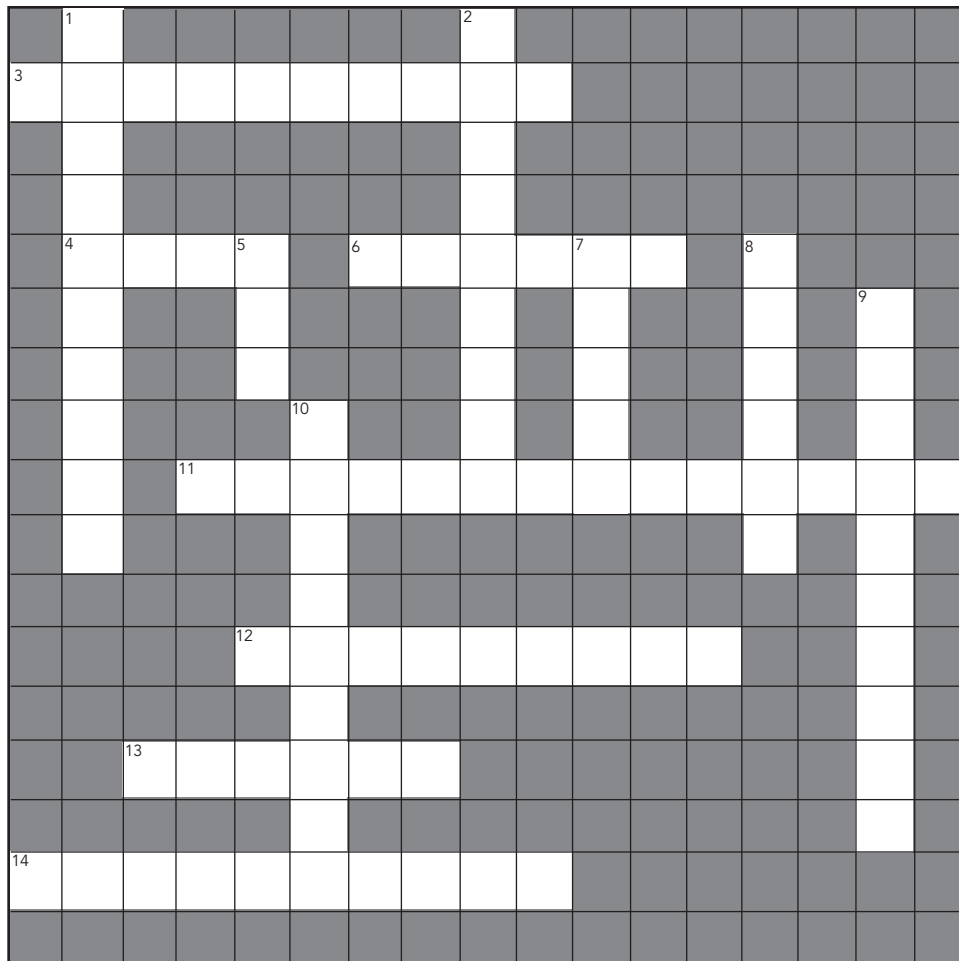
H P D S B E D E E R D L H F I R E T
Y A N E W A T E R E A C I R S E R V
T S R A N Y R O R E T I E O I S L N
E R R E P S F K R H E B R E U W R N
D L E O C A N O E N M O S O E L W I
H C N E E R B R Y U T O U E A O E G
I A O L D N E I L N O D U M B G W B
C R R S W F A A K M I C Q L I E D N
E L P V T D O I T C M U E N E L G N
C H U I E A S R E I A D D F B Y L T
O Y L H A S N D M C O I T C O D H E
S S P S C O T D T M N N S Z I F I F
Y A M A N A G E A S E R G R O W T H
S E I E R E F O R E S T A T I O N I
T U T S N S D I H A N D R H A C R S
E F E L L E R B U N C H E R E O G S
M B Q L I M B B C S R R L F M N F U
N S T T T A M A R A C K R S H E N E

BARK
BOREAL
CANOPY
CONE
DECIDUOUS
DEER
ECOSYSTEM
FELLERBUNCHER
FIRE

GROWTH
HARVEST
ISSUE
LEAF
LIMB
LOG
LUMBER
MANGE
MILL

MODEL
MOOSE
OLD
PULP
RECREATION
REFORESTATION
STAND
TAMARACK
TREE
WATER

Between the Stands Crossword



ACROSS

- 3 The removal of timber for use
- 4 _____ is a natural part of the forest, and allows the process of plant growth and renewal to begin again.
- 6 This forest type is the world's largest terrestrial (land-based) ecosystem.
- 11 The process where plants convert carbon dioxide and water into sugars and oxygen.
- 12 Trees that lose their leaves annually in the fall.
- 13 The continuous cover of the forest created by the crowns of trees growing together.
- 14 A bird that excavates cavities and makes holes in trees, providing feeding and nesting opportunities for itself and other forest species.

DOWN

- 1 Canada's temperate _____ is located on the coast and islands of British Columbia.
- 2 In the forest community, all life _____.
- 5 A living system, an _____ system.
- 7 A very common poplar tree species found in the Parkland forest region.
- 8 A large rodent that uses trees to build lodges.
- 9 Trees that are cone-bearing are called _____.
- 10 The pine tree that is the provincial tree of Alberta.

Wildlife What's My Line

Curriculum Connections

Grade Six Science Trees and Forests, SLE 1, 2

Objectives

Students will:

- Describe characteristics and habitat requirements of wildlife species native to Alberta.
- Make connections between wildlife species and habitat.

Requirements

Between the Stands poster – one per team

What's My Line questions – Appendix C, pg. 18-19

Description

Using the poster, students will complete an inventory of some of the wildlife species found in Alberta's forests. Students then will divide into teams and play the What's My Line Game Show. This will allow students to discover forest animal habitat and food requirements.

Procedure

Divide students into teams of 4-6.

1) Wildlife Inventory

Each team is to take several minutes to complete a Wildlife Inventory. Ask them to study the inside and outside panels of the poster and list as many different wildlife species as possible.

As a class, develop a class-wide inventory on an overhead or the chalkboard.

BRIEF SAMPLE LIST OF WILDLIFE STUDENTS MAY DEVELOP

Pileated woodpecker	Grizzly bear
Black-capped chickadee	Blue jay
Pine marten	Wapiti (elk)
Canada goose	Red squirrel
Mallard duck	Grouse

2) Choose a Group Name

Each group will then choose a team name. The name should be that of any animal with a distinctive call, one that they will be willing to make (e.g. Owls – "Whoooo Whoooo" etc.).

3) Wildlife What's My Line Game Show

- Choose one student to be the official scorekeeper.
- Make a copy of the *What's My Line* quiz questions for yourself as quizmaster.
- Teams will earn points two ways:
 - By naming the Who am I as you are reading it.
 - By locating the species on the poster – either the inside or on the front.

Wildlife What's My Line continued

iv) When a member of the team or the entire team knows the Who am I? you are reading they will "buzz-in" by making their team's call (Whoooo Whoooo).

They may buzz in at any time – at which point you, as quizmaster, will STOP reading the clue. If the group is correct, their team earns one point, if incorrect, their team cannot make another guess for this question.

If the team has guessed incorrectly before you have finished reading the clue, continue reading until another team has a guess.

v) Every team will have the opportunity to find the species on the *Between the Stands* poster. (Here is where you'll have to do some judging!) As your scorekeeper marks the score on the chalkboard/whiteboard, the teams will be madly searching for the animal named. When AND ONLY WHEN your scorekeeper turns around again to face the class, may the groups "buzz-in." They will then show you where the animal is located.

4) Winning the Game

The group with the greatest number of points when all questions have been exhausted wins!

Extension Activity

Students may come up with their own Who am I? questions, and/or develop reports on a certain species, paying special attention to their forest habitat and food requirements.



Forest Fingerprints

Curriculum Connections

Grade Four Social Studies Alberta – A Sense of the Land

Grade Five Social Studies Physical Geography of Canada

Grade Six Science Trees and Forests, SLE 1, 8-10

Objectives

Students will:

- Recognize a variety of human impacts on the forest
- classify these impacts as meeting either a NEED or WANT
- identify what, if any, alternatives are necessary to control human impacts on the forest
- identify what measures can and should be taken to reduce impacts, should they be deemed necessary

Requirements

Between the Stands poster – one per small group of students

Description

Using the poster, students will investigate some of the human uses of our forests. They will do a comparison/contrast of the forest before and after development. They will assess whether the development was undertaken to meet a need or a want of humans. Finally, they will look at whether there might be alternatives to the development, or measures that might be taken to reduce impacts on the forest.

Procedure

1) Choose Groups and Assign a Quadrant

Provide a copy of *Between the Stands* for each small group. Assign each group a specific quadrant of the poster, (upper right, upper left, lower right, lower left; you may wish to number these 1-4).

Depending on the number of groups there may well be more than one group studying each quadrant.

2) Development Wants or Needs?

Have each group divide a sheet of paper into three columns with the following headings:

What Development

Want or Need

Used For...

By studying the inside of the poster in their assigned quadrant, each group will list ALL of the **human** activities they see. Further, the groups will decide whether the development was done to meet a human WANT or a human NEED. (You may wish to discuss the differences between the two) Finally, they will describe what the development is being used for.

For example:

What Development
Ski/snowboard hill

Want or Need
Want

Used For....
Recreation/skiing

3) Development Alternatives

Now have each group create a new chart on the reverse of their first chart. Label this chart with the following headings:

Type of Use

What To Be Done

Alternatives?

Forest Fingerprints continued

This time, the groups will:

- Assess what development would be necessary in the forest to achieve the wants or needs they identified.
- Using both the outside and inside of the poster, identify what actions in the forest would be necessary in order to complete the development. What would need to be built, for instance.
- Assess whether there might have been alternatives to the development. If there are alternatives, have your students describe them.

Student Instructions

Now your group will need to flip back and forth between the natural forest scene (the “before” picture) and the human-uses forest scene (the “after”) to decide what was done in the forest. When you are finished, discuss and decide whether there might have been other actions that could have been taken instead to reduce the impacts on the forests.

For example: (write the example on the board)

Type of Use
Ski Hill

What To Be Done
Forest cleared to make ski runs
Clearing for chalets, hotels, etc.

Alternatives?

- Cross country skiing
- Limit number of ski hills
- Use naturally occurring openings to build ski runs

4) Summary Discussion Questions

The following focus questions may assist you and your students in understanding the role we, as individuals, play in forest development. It is important for people to develop an understanding that development is not really a “They are doing ...” issue. We are all responsible.

At the same time, it is an opportunity to discuss that humans can use the forest to meet our needs and wants. The challenge is not to *abuse* the forest in the process.

- a) Were there any activities displayed in the human-impacted forest that they feel are *absolutely unnecessary*? If so, which ones?
- b) Should we, as people, feel *guilty* about using the forest to meet our wants and needs?
- c) Does the fact that our WANTS are not essential for us to live mean that we should not use the forest to meet these wants? Why/Why not?
- d) Are there actions that individuals can take to reduce impacts on the forest? What might they be?
- e) What do you think is meant by the term *sustainable development*? Do you think such development is possible?

Extension

Direct students to do internet research into some of the projects currently in place to help ensure long-term health of our forests.

Government and Research: Foothills Model Forest – foothillsresearchinstitute.ca

Conservation Activities: Tree Canada – www.treecanada.ca (English and Français)

Wrong-way Woodland Caribou

Curriculum Connections

Grade Four Social Studies Alberta – A Sense of the Land
Grade Five Social Studies Physical Geography of Canada
Grade Six Science – Topic E Trees and Forests, SLE 1, 8-10

Objectives

Students will:

- Describe some needs of wildlife in the forest
- Define the term “threatened” wildlife and identify what measures might be taken to assist these animals
- Identify ways human and wildlife needs might best coexist in the forest
- Recognize that the existence of humans in the forest does not necessarily mean the end of wildlife habitat

Requirements

Between the Stands poster – one per small group of students
Wrong-way Woodland Caribou script - Appendix D, pg 21-22
Wrong-way Woodland Caribou questions - Appendix D, pg. 23

Description

Three students will assume the roles set out in the Milly and Billy story and will act out the story for the rest of the class. The series of discussion, research and comprehension questions can be reviewed after the story.

Procedure

1) “Casting”

Select three students to play the roles of “Milly,” “Billy” and “the Narrator.”

2) Rehearsal

Allow some time to practice. You may wish to assist in development their own style. One suggestion would be to approach the play as Reader’s Theatre.

3) Performance

Once the students have prepared sufficiently, allow them to perform the play for the rest of the students.

Note: You will want to point out Milly and Billy on the *Between the Stands* poster before the program begins. You can find them standing in the forestry cut-over, on the inside of the poster, upper left side, above the golf course. They are grey/brown and white animals with the long antlers.

4) Questions

Provide students with a copy of the questions (pg. 23). You may wish to provide a copy of the script for each of the students, or alternatively, have them make some notes as the performance is being done. Let the students know they will be responsible to answer the questions after the performance is completed.

Note: You may want to take this opportunity to discuss a language arts related concept: Anthropomorphism – making animals act like humans for dramatic purposes.

Between the Stands Quickies

The following series of "quick and easy" activities for use with the *Between the Stands* poster are meant to fill in time in an interesting and educational fashion - with a limited amount of planning!

1) Fill in the blanks - Students can use the *Between the Stands* poster side panels to find the answers.

- 1) Halifax, Nova Scotia, is situated in the _____ forest.
- 2) _____ winds sometimes cause snow to melt quickly.
- 3) A needle leaf tree with single needles which are rounded at the tip would probably be a _____ spruce tree.
- 4) Alberta's provincial tree is the _____ .
- 5) A deciduous coniferous tree (one that loses its needles) is the _____
- 6) Two trees that are commonly found in muskeg (wetland areas) are:
_____ and _____ .
- 7) _____ trees have a whitish or silvery grey bark in thin sheets.
- 8) Which type of forest occurs between the alpine and montane regions? _____
- 9) Western red cedar, western hemlock, Sitka spruce and Douglas fir are characteristic tree species of the _____ forest region of Canada.
- 10) This forest region of Canada is sometimes known as the "Great Northern Forest": _____
- 11) The province of _____ has the most variety of forest types in Canada.
- 12) Of the eight common Alberta trees, which grows the tallest? _____
- 13) One of Canada's national symbols, the maple leaf, grows naturally in each of the 10 provinces. True or false? _____
- 14) Both Edmonton and Calgary are inside a forest region. In Saskatchewan, only one of the major cities is in a forest region. Which city? _____
- 15) Which Alberta forest region has the fewest species of trees? _____

Answers

- | | | | |
|-------------------|---------------------------|----------------------|---------------|
| 1) Acadian | 5) tamarack | 9) coast | 13) false |
| 2) Chinook | 6) black spruce, tamarack | 10) Boreal forest | 14) Saskatoon |
| 3) black | 7) white birch | 11) British Columbia | 15) subalpine |
| 4) lodgepole pine | 8) subalpine | 12) white spruce | |

Between the Stands Quickies *continued*

2) Categories of Uses: Recreation, Industrial, Subsistence/Traditional

By examining the poster, students will go through each forest use depicted on the inside of the poster and categorize it as being either primarily recreational, industrial or traditional in nature. You may wish to divide the poster into quadrants to make the activity quicker; however, to get a good list, it is suggested that all student groups study all four quadrants.

3) Scavenger Hunt

In order to familiarize the students with a variety of forest uses and users (both two-legged and four-legged), students will spend some time searching for a number of things. Write this list on the board and have groups (or individual students, depending on how many posters you have) find all the items as quickly as possible.

Find the following 12 items on the poster (both inside and outside).

- | | |
|-----------------------|-----------------------|
| 1) trapper | 7) bird watchers |
| 2) protestors | 8) conks |
| 3) grizzly bear cubs | 9) tree disease area |
| 4) golfers | 10) logger |
| 5) Pelicans | 11) commercial fisher |
| 6) cow moose (female) | 12) grouse |

4) PH-orest Pharmacy

Imagine that you're not feeling well – maybe you have a sore throat, or perhaps a toothache. What sort of remedy might you use to ease your pain? Where would you go to get help?

Using connecting lines, match the modern and traditional remedies for these common health problems:

Modern Remedy	PROBLEM	Traditional Remedy
Baby Powder	SORE THROAT	Wet bearberry leaves rubbed on the skin
Cough Drops	TOOTHACHE	Chew on a small white spruce cone
Dentist	DIAPER RASH	Gummy sap of lodgepole pine placed in affected area
Liniment	SORE MUSCLES	Rotten birch wood boiled, dried, pounded into a powder, then placed on affected area

Caution: Do not try any of these traditional remedies. While they were the best available in their time, they are not safe by today's standards.

Answer Key

Baby Powder ----- DIAPER RASH ----- Birch Wood powder
 Cough Drops ----- SORE THROAT ----- White Spruce Cone
 Dentist ----- TOOTHACHE ----- Lodgepole pine sap
 Liniment ----- STRAINED MUSCLES ----- Bearberry leaves

APPENDIX A - Teach Me Trees

Data Collected

Stride length of _____ = _____ cm
(name)

Hand width of _____ = _____ cm
(name)

Field Study

1) Our tree was a _____ tree.
(coniferous/deciduous)

2) Our tree was a _____ tree.
(what species)

We know this because:

a)

b)

c)

3) Our tree was approximately _____ metres tall. This was how we figured this out:
(show your math)

4) Our tree's circumference was _____ cm. This was how we figured this out:
(show your math)

5) **Bonus!** The diameter of the tree was _____ cm. This was how we figured this out:
(show your math)

6) Another interesting thing about our tree is:

APPENDIX B - You Make the Call - Find the Issues

Names

Our issues statement

(Don't forget your issue will either start with "should" or contain should/should not somewhere.)

SHOULD

SHOULD NOT

APPENDIX C - Wildlife What's My Line

Who am I?

1. If you've had a picnic in the forest, you've probably seen me flying around. Some people call me a "whiskeyjack" or even a "camp robber," but I prefer my real name since it best describes my colour.
Answer: Gray Jay Location: Inside, bottom left with wings spread and perched on branch, beaks open
2. I roost and eat on standing dead trees. Knock knock KNOCK!!!
Answer: Pileated woodpecker (One point for "woodpecker," bonus for "pileated") Location: Front, bottom left, bird with the bright red head, perched on the side of a standing dead tree.
3. I am fairly slow moving and like to sleep in trees on a branch that will support my weight. I eat lush, green vegetation in the summer and feed on twigs, bark and buds in the winter. I am known for the quills that cover my body to protect me from predators.
Answer: Porcupine Location: Inside, bottom right-hand corner of poster.
4. I like to live in or near the trees in the forest. My favourite foods are bark, grass, pine needles and willow leaves. I have a white rump and very impressive antlers. You have probably seen me wandering around one of Alberta's national parks.
Answer: Elk (wapiti) Location: Front, bottom left, sanding in grass.
5. I am the largest rodent in North America. I live in wetlands like ponds, eat the bark of poplar trees, and also use trees to build my lodge and other engineering wonders.
Answer: Beaver Location: Inside, bottom left, in the right side of the pond swimming (only about half visible.)
6. I love to eat squirrels and voles, insects and eggs. I'm part of the weasel family and look like a brown house-cat.
Answer: Marten Location: Front, bottom right, balanced on a branch (just above the poster logos).
7. I start my life in water, eating small fish. As an adult, I fly like a helicopter, catching mosquitoes with my six legs.
Answer: Dragonfly Location: front, bottom left.
8. My fur varies in colour from shiny black to blonde. I am very large and eat foods such as berries, roots, fish, mice, ground squirrels, young deer and ants. I like to wander near partially-cleared forests or forest meadows, as they provide me with an abundance of food.
Answer: Black bear Location: Inside, top left, standing in clearing.
9. I am the most common cloven-hoofed animal in Alberta. My broad tail is white, fringed with brown. I am known for the bright white underneath my tail that is often exposed when I run.
Answer: White-tailed deer Location: Inside, top left by golf course; inside, top right, above hunters, looking straight "at you"; front, top right 5 deer visible.
10. My trademark is the letter "V" and you'll hear my distinctive HONK HONK far and wide. I used to be an endangered species, even in the country whose name I borrow, but I am doing very well now, thank you very much.
Answer: Canada Goose Location: Front, top right, flying in a v-shaped flock.
11. I am a very small, very TOUGH little bird. I am the same size as a sparrow. I DO NOT go south for the winter. I have been named after my call.
Answer: Chickadee Location: Front, middle right (almost right on the fold of the poster) small bird with black head.

APPENDIX C - Wildlife What's My Line continued

Who am I? (continued)

12. I am the smallest native member of the dog family in Alberta. I am slim and graceful, with a beautiful red coat. I prefer to eat mice, but will also eat other small mammals, as well as birds, eggs, insects, grass and fruit. *Answer: Red fox Locations: Inside, bottom left by fallen tree; inside, top left, just above tree-planters.*
13. I'm small and have red fur. I spend a lot of time in trees and make chattering noises when I think there's danger nearby. You can often find evidence of my feasting on spruce cones at the base of trees. *Answer: Red Squirrel Location: Front, bottom left, standing upside-down on the trunk of a coniferous tree; inside bottom left, standing on a branch of a tree, eating.*
14. With my "pack" of hunting buddies, I can stalk and kill big animals like moose, elk, deer and caribou. I am HOWLINGLY clever and am rarely seen. *Answer: Gray wolf Location: Front, top left, a PACK of wolves is depicted.*
15. You might think I'd like to eat you, but my favourite foods are actually berries, flowers, fungi, leaves and roots. I have a very large shoulder hump, and since I'm so shy, I often roam over 200 km². *Answer: Grizzly bear Location: Front, top left, brown-coloured bears (3), mother (sow) and 2 young (cubs).*
16. You know I'm near if you hear me drumming my wings. I prefer to walk and can only fly very short distances. I eat seeds, leaves, fruit and insects. *Answer: Ruffed grouse Location: Front, bottom right, bird standing on log (just to the left of the Inside Education logo).*
17. My preferred diet is made up of lichens (*LIKE-ens*), flowering herbs and sedges. I am a rare member of the deer family. My antlers are HUGE, and both males and females grow them. *Answer: Woodland caribou Location: Inside, top left standing in forest clear cut, animals with white "beards."*
18. You may not have even known I live in Alberta. My pouch-like beak acts as a big shovel to scoop up fish. I prefer to live in inland lakes and leave for the coast in the winter. *Answer: Pelican Location: Front, top right, white, long beaked-birds floating on the lake.*
19. I am a very small hibernator. I am often confused with my larger cousin, but I am more famous thanks to Chip and Dale. *Answer: Chipmunk Location: Front, bottom left, standing on the log to the left of the woodpecker.*
20. I am the largest member of the deer family, recognized by my large size, dark colour and the broad antlers of the bull (what the male of my species are called). I am mostly found at the edges of forests, where I can feed on aquatic plants and browse ("munch") on young shoots from willow, aspen poplar, and birch trees. *Answer: Moose Location: Front, middle left female (cow) and young (calf); inside, bottom left near pond male (bull).*

APPENDIX D - Wrong-way Woodland Caribou

Milly and Billy's Adventures In, Around, and Through a Really Real Cut-Over

CAST

Milly Caribou, sister of Billy Caribou

Billy Caribou, brother of Milly Caribou

Narrator, All Knowing & All Seeing

Prologue

Narrator: For a long, long time, 25,000 years in fact, people have hunted caribou. People have enjoyed eating their tasty meat and using their warm fur to make clothes. They have also enjoyed recording the stories of hunts by painting them on the walls of their caves. Today, there aren't nearly so many caribou, and our government here in Alberta banned caribou hunting in 1981. But this isn't a hunting story. In fact, it isn't even a people story. This is an animal story, and if we listen closely, we can hear them speaking...

The Caribou Tale

Milly: *(in a loud whisper)* Hey Billy! Did you hear that?

Billy: *(groggily, yawning)* Huh? What? Why did you wake me up, sis?

Narrator: Eureka! We have found Milly and Billy!

Milly: *(still whispering)* I heard a voice. And I just heard it again!

Billy: *(groaning)* Let's go and find something to eat. All this talking is making me hungry. I bet that it was just your stomach talking to you. Mine usually gives me 10 seconds or less to find food, and then it threatens to self-destruct.

Narrator: Off they go, in search of food, never imagining what they will find...

Milly: Did you hear that?

Billy: Hear what?

Milly: That noise. It went clickety clack.

Billy: Maybe it was a bat. They make that noise as they hunt for insects to eat.

Milly: Well, it sure must be hungry, 'cause I just heard it again.

Billy: *(Suddenly, Billy looks shocked)* Milly, you have two red dots on the side of your face!

Milly: *(shaking her head, trying to get the dots off)* Omigosh! What are they?

Narrator: Silly Milly! They're laser sights from a high-powered rifle.

SUDDENLY, TWO SHOTS RING OUT!

Billy: *(yelling in surprise)* Run, Milly, run!

Narrator: See how fast Milly and Billy run! Like all caribou, they've been able to outrun humans since they were one day old.

MILLY AND BILLY RUN AROUND THE CLASSROOM ONCE. THEY STOP, PANTING FOR BREATH.

Milly: Wow! What was THAT?

Billy: THAT is a fact of life. It's hunting season, sis.

Milly: But I heard somewhere that our government here in Alberta banned caribou hunting in 1981. And I also heard that this isn't supposed to be a hunting story.

Narrator: That's right, Milly. The Committee on the Status of Endangered Wildlife in Canada has classified caribou as vulnerable wildlife, and it's illegal to hunt you. Unfortunately, you look an awful lot like elk, which are legal to hunt. It could have been a case of mistaken identity.

APPENDIX D - Wrong-way Woodland Caribou continued

- Milly: *(snorting in indignation)* Mistaken identity, humph! You've gotta lotta nerve, Mister Voice Person! I don't look anything like a female elk! I'm waaay more compact, and I've got bee you-tee-ful antlers. Female elk don't have antlers!
- Billy *(quietly)* Milly they could be poachers, hunting us caribou illegally. We really aren't safe anywhere near them. Let's skedaddle outta here! Run, Milly Run!
MILLY AND BILLY START RUNNING AROUND THE CLASSROOM.
- Narrator Milly and Billy suddenly find themselves in an area unlike any that they've ever seen.
MILLY AND BILLY STOP RUNNING.
- Milly We must have come far enough now. *(looking around)* Where on earth are we?
- Billy *(whining)* How am I supposed to know? All I know is that I'm HUNGRY!!
- Milly Silly Billy. I bet that you would take a likin' to eatin' some lichen, if we could find some. Let's paw around the forest floor here, because that's a natural thing for us caribou to do, and that's where the really tasty lichens are!
MILLY AND BILLY PAW AT THE GROUND
- Billy I can't find much lichen at ALL, Milly. There isn't even very much grass or shrubs to munch on. Someone must have taken it.
- Milly Gee whiz! They took the trunks of all the trees, too.
- Billy *(with an evil glint in his eye)* Hmmm. It must have been an awfully big animal, with awfully sharp teeth, that ATE all the trees here. If we don't get out of here quick, we could be the next item on its dinner plate!
- Milly Whoa! Hold on there brother, dear! I remember Mom describing areas like this! People cut all the trees down, and now we caribou don't live here anymore 'cause there aren't any more lichen! Only animals like deer and elk, who like the shrubs and things, can live in a young forest like this now! You're trying to trick me!
MILLY STARTS CHASING AFTER BILLY
- Narrator Well, our heroes are moving on to a different area. Let's hope that there is more for them to eat at the next place they stop! Milly and Billy run, and walk, and run some more. They travel over roads. Milly just barely misses getting hit by a car! They walk VERY QUIETLY by a wolf den, knowing that wolves like to eat them. They run through a forest that was burned late in the summer time. Finally:
- Billy Milly, I'm afraid that you'll just have to go on without me. I'm soooo hungry that I'm going to collapse RIGHT HERE! *(Billy falls to the ground, sobbing)* We're never going to find any lichen to eat! I wish that my antlers would fall off and turn rubbery so that I could chew them up. *(Turning to the audience, in a serious tone)* That's a natural thing for caribou to do, you know.
- Milly Silly, Billy. Your antlers won't fall off until later in the fall. What am I going to do? I don't want to leave you here!
MILLY SLOWLY WALKS A FEW STEPS, HER HEAD TURNED DOWN TO THE FLOOR IN DESPAIR
- Milly *(happily)* Hey, look...coooool!
- Billy What's coooool?
- Milly Look, the answers to our problems are all here underneath our feet!
- Billy There's lichen, all over the forest floor! Yippee! Dinner is served.
- Narrator We will leave our intrepid heros here, happily munching the lichen in the 100 year-old coniferous tree forest.

APPENDIX D - Wrong-way Woodland Caribou questions

Comprehension Questions

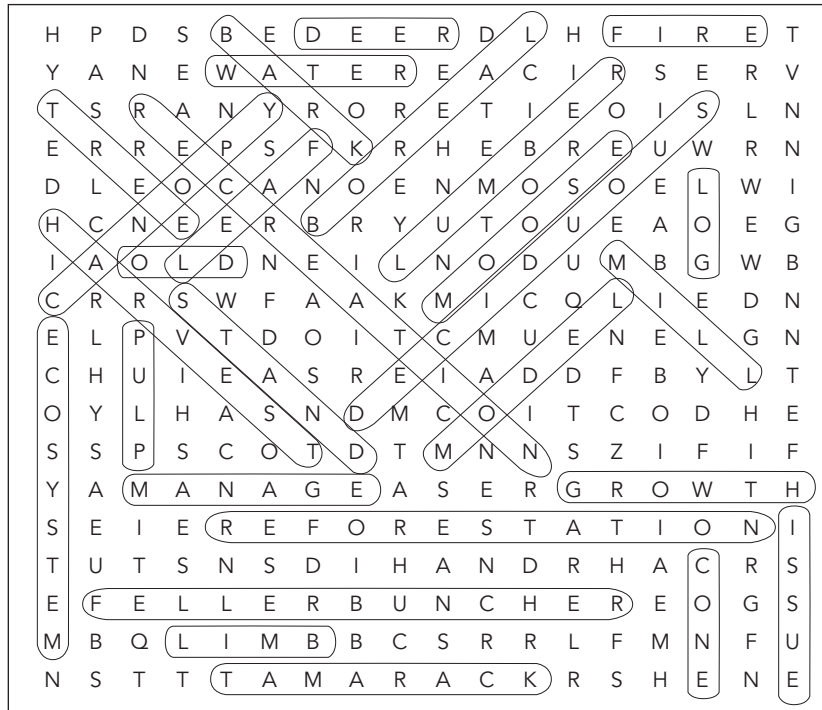
1. Is it legal to hunt woodland caribou?
2. Milly says that female elk and female caribou look a lot different? What is the MAIN difference between the two?
3. Why would the caribou be in danger because of hunting if they have been declared “vulnerable”?
4. What do caribou like to eat more than anything else?
5. Where did Billy lead Milly? What was wrong with where he took her?
6. Are there other animals that might like the area Billy and Milly ended up in? If so, which ones and why?
7. Find the cut-over containing the two woodland caribou on the poster. How might the two woodland caribou have arrived there? Is there any way for them to have reached the cut-over without encountering people?
8. On the poster, trace one possible route, which could have taken Milly and Billy from the cut-over to the mature coniferous forest (where they found the lichen). Describe their path in writing.
9. What were some of the problems that Billy and Milly encountered during their adventure?
10. The Committee on the Status of Endangered Wildlife in Canada has classified the western population of woodland caribou as vulnerable. Herds of these animals in Alberta are decreasing in number. From the story, what do you think are some of the threats facing caribou populations today? (Hint: Think about habitat, predators, etc.)

5) Extension – Research Questions

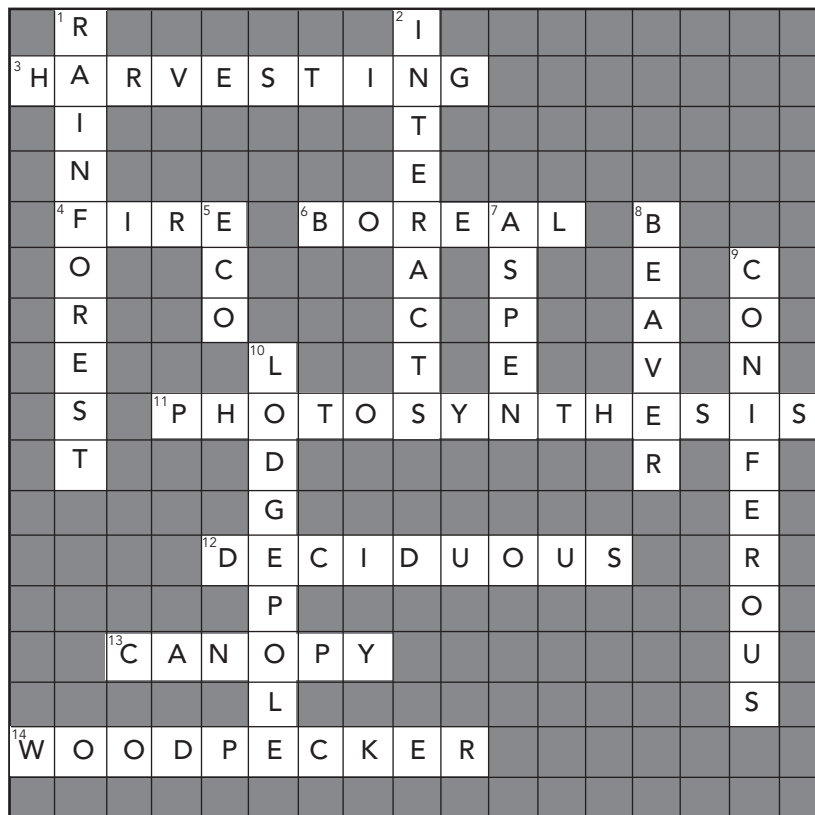
- a) What is lichen? Where is it found? How long does it take to grow? What kinds do caribou like to eat?
- b) Caribou have special features that allow them to stay active in the winter. They can maintain their body temperature in weather as cold as -55°C without shivering. What are some of these special features, and how have they helped caribou adapt to winter conditions?
- c) What characteristics would be needed to make up an ideal habitat for woodland caribou? Remember that habitat includes food, water, shelter, air and space. Can you find area(s) with these characteristics on the poster?

APPENDIX E - Solutions

Word Search solution from page 7



Crossword puzzle solution from page 8



APPENDIX F - Between the Stands Web Quest

Further information, research data and online educational resources and services can be found at many of the following websites. These sites will be useful for both teachers and students to varying degrees, but teachers should visit the sites beforehand to assess usability.

Inside Education cannot guarantee that each website is current, only that the sites were active upon publishing in spring 2009.

Alberta Environment - Education Centre

environment.gov.ab.ca/edu/homeEd.asp

Background information on a variety of environmental education programs and resources.

The Boreal Centre

www.borealcentre.com

Boreal Forest Research Centre's website offers background information and information on forest education student scholarships and careers in the forest.

Canadian Forestry Association

www.canadianforestry.com

A bilingual site providing information on forests and forestry across Canada. Offers annual learning resource during National Forest Week.

Canadian Forest Products - Tree School

www.canfor.com/treeschool/

The website of this western Canada forest company offers lesson plans, forest-related quizzes, information on careers in the forest sector.

Canadian Parks and Wilderness Society

www.cpawscalgary.org/education/education_programs.php

Background information related to parks and protected areas in Canada, including wildlife issues. Online educational resources are available and full units can be ordered.

Foothills Model Forest

foothillsresearchinstitute.ca

Current information on the land-based and wildlife-based research being conducted by this research organization based in Hinton, Alberta.

University of Alberta - Department of Renewable Resources

www.ales.ualberta.ca/rr/

Information on the interdisciplinary studies, including forest management and conservation sciences, available through the University of Alberta.

APPENDIX G - Forest Education Contacts

Inside Education

200, 10235-124 Street

Edmonton, Alberta T5N 1P9

P: 1-888-421-1497

E: inside@insideeducation.ca

www.insideeducation.ca

Resources: classroom presentations, field trip opportunities, educator professional development, Forestry Field Trip DVD and other classroom resources

Alberta Sustainable Resource Development - Information Centre

Information Centre

Main Floor, 9920 108 Street

Edmonton, Alberta T5K 2M4

P: (780) 944-0313 or 310-0000 (toll free anywhere in Alberta)

www.srd.gov.ab.ca

Resources: A number of resources available in print or online, information on forestry youth programs, information on and presentations bookings for the *FireSmart* program.

Alberta Forest Products Association

Suite 500, 10709 Jasper Avenue

Edmonton, Alberta T5J 3N3

P: 780.452.2841

www.albertaforestproducts.ca

Resources: information on forestry in Alberta including industry operations, stewardship practices and more.

Fish Creek Environmental Learning Centre

13931 Woodpath Road, S.W.

Calgary, Alberta T2W 5R6

P: (403) 297-7827

tpr.alberta.ca/parks/fishcreek/fcelc.asp

Resource: Field based programs available for all grade levels focusing on trees, wetlands and more.

University of Calgary - Biogeoscience Institute

Kananaskis Field Stations

(located near Barrier Lake in Kananaskis country)

Biosciences 186, University of Calgary

2500 University Dr. N.W.

Calgary, Alberta T2N 1N4

P: (403) 220-5355

E: mmappin@ucalgary.ca

bgs.ucalgary.ca/education/programs

Resources: A variety of field-based, curriculum-specific programs including a Trees and Forests program. Housing/accommodations for field trips, teacher professional development and more.



www.insideeducation.ca