

Trees and Forests



PART ONE

Introduction of Trees and Forests

Tree and Plant Identification

Why are Trees and Forests important?

Why are Trees and Forests Important?

Habitat



Recreation



BIODIVERSITY



Jobs



Clean Air



Wood Products



Water



Wildlife



Traditional

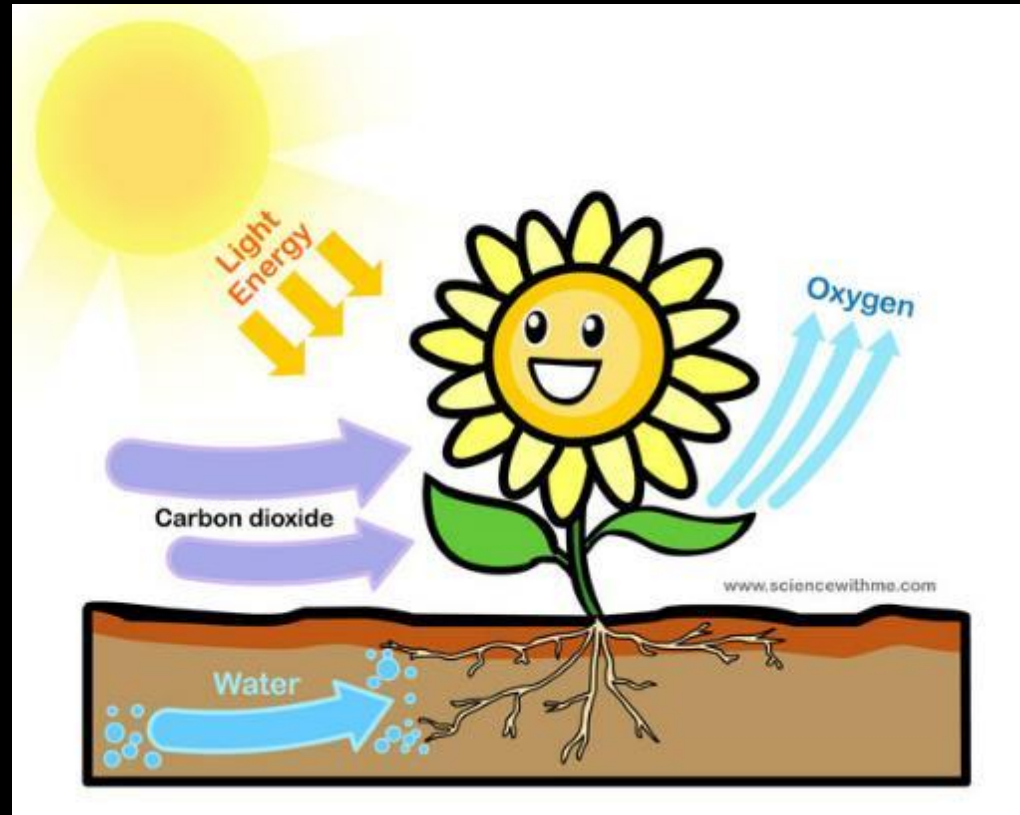


Soils



How do trees clean the air?

- A process called Photosynthesis
- “Photo” - means light
- “Synthesis” – means putting together
- Photosynthesis - plants using light to put things together
- What things do they put together?
 1. Light energy from the sun
 2. Water from the soil
 3. Carbon Dioxide (CO_2) in the air



All green plants, which includes trees, use photosynthesis to create food for themselves. When they photosynthesize they give off oxygen which helps to clean the air.

Life in the Boreal Forest



What is an ecosystem?



- An interacting system of living organisms and their environment.
- It consists of living and non-living things
- What are some living things in a forest?
- What are some non-living things in a forest?
- Do you know the name of the largest forest ecosystem in Alberta?
- **The Boreal Forest**

Boreal Forest



Pine Forest



Climax Forest
(Old Growth forest)



New growth after a wildfire



Mixedwood Forest



Lake Shore

Ecosystems



Marsh



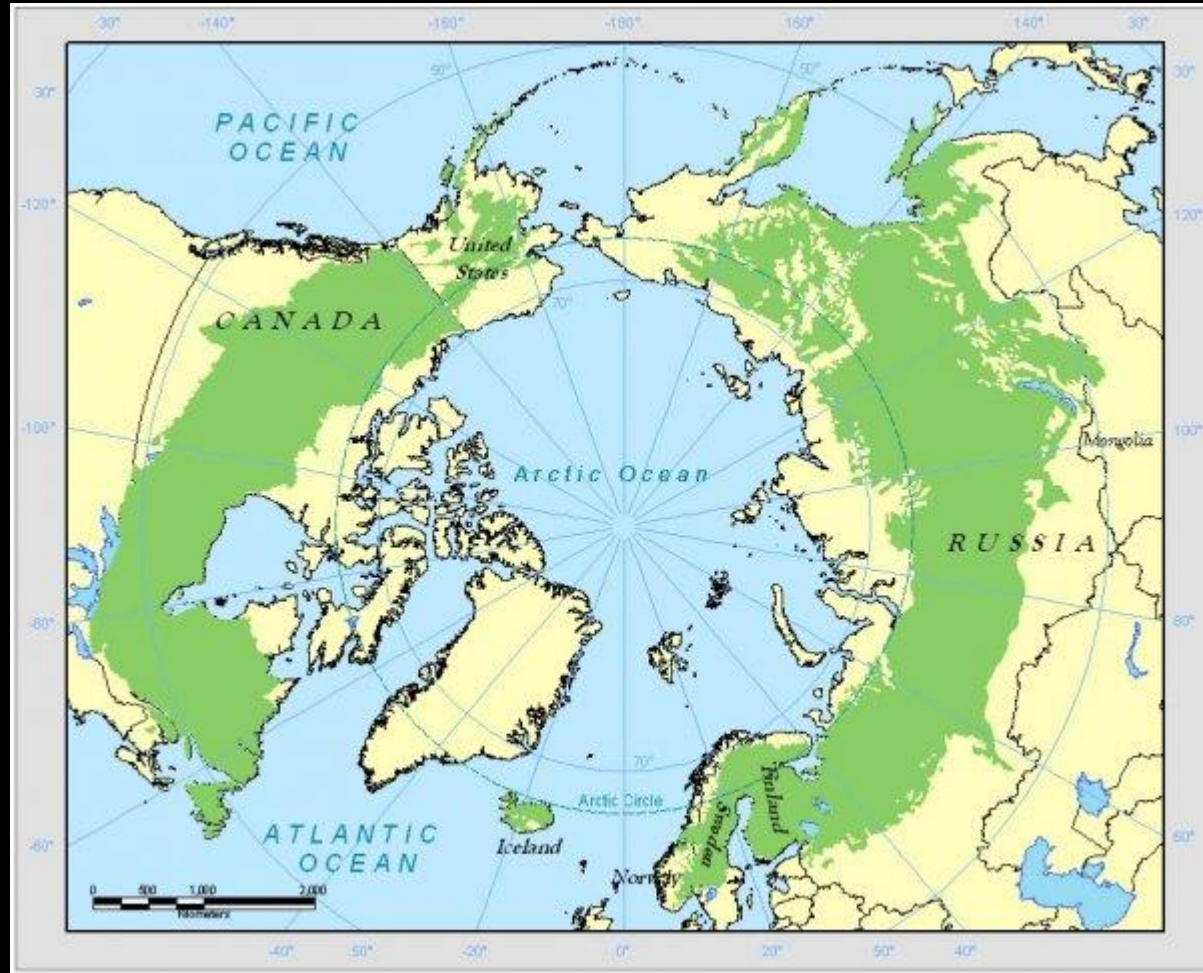
Spruce Bog

Natural Regions of Alberta

1. Boreal Forest
2. Rocky Mountain
3. Foothills
4. Canadian Shield
5. Parkland
6. Grassland



The Boreal Forest is Circumpolar



9 Trees in Alberta's Boreal Forest

3 Deciduous



6 Coniferous



Three deciduous trees in the boreal forest are:

Balsam Poplar

Trembling aspen



Paper Birch



Six coniferous trees in the boreal forest are:

White spruce



Black Spruce



Balsam fir



Lodgepole pine



Jack pine



Tamarack or larch

What is a deciduous tree?

- Has broadleaves
- Leaves change color and drop off each fall
- Produce flowers or catkins
- Seeds are found in fruits or nuts
- How to remember this tree:

"Deciduous decide to lose their leaves"



What is a coniferous tree?

- Has needles
- Needles generally live 2- 7 years
- Produces cones
- Seeds are found in cones
- How to remember this tree:

“Conifers make cones”



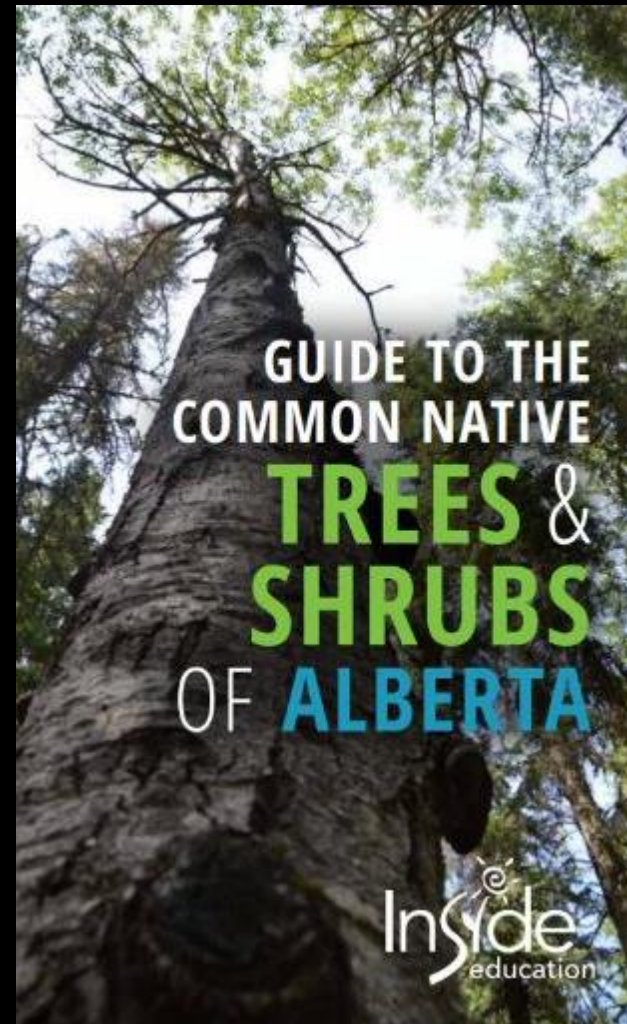
Special Tree in Alberta

The larch, also called a tamarack, is a special tree. It is a coniferous tree but it acts like a deciduous tree. It has needles and cones so it is classified as a conifer. However, it drops its needles every year like a deciduous tree.



Larch or Tamarack

How to identify trees and plants of the boreal forest?

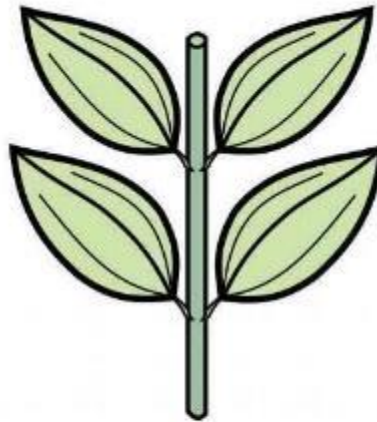


<https://www.insideeducation.ca/learning-resources/elementary-school/#guide-to-common-native-trees-shrubs-of-alberta>

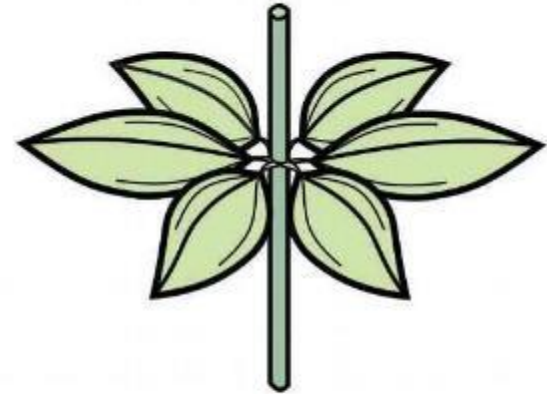
Leaf arrangement



alternate



opposite



whorled

Leaf type



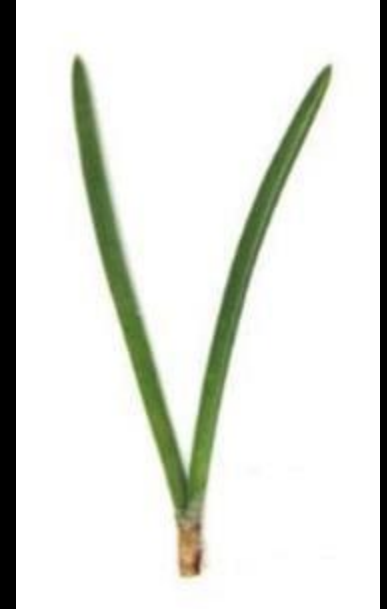
Simple



Compound



Attached
singly



Bundles of 2
(sheathed)

Leaf margins



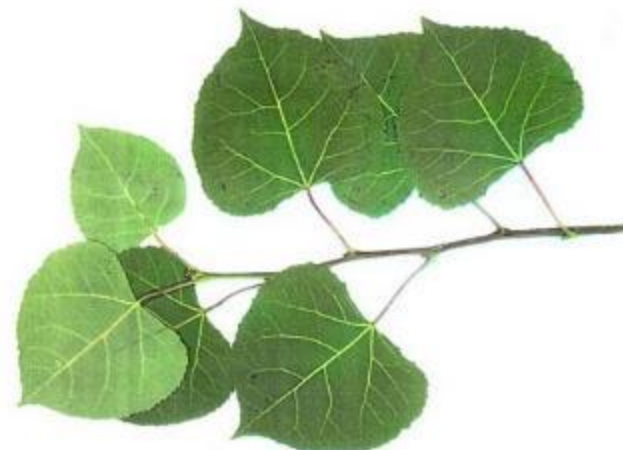
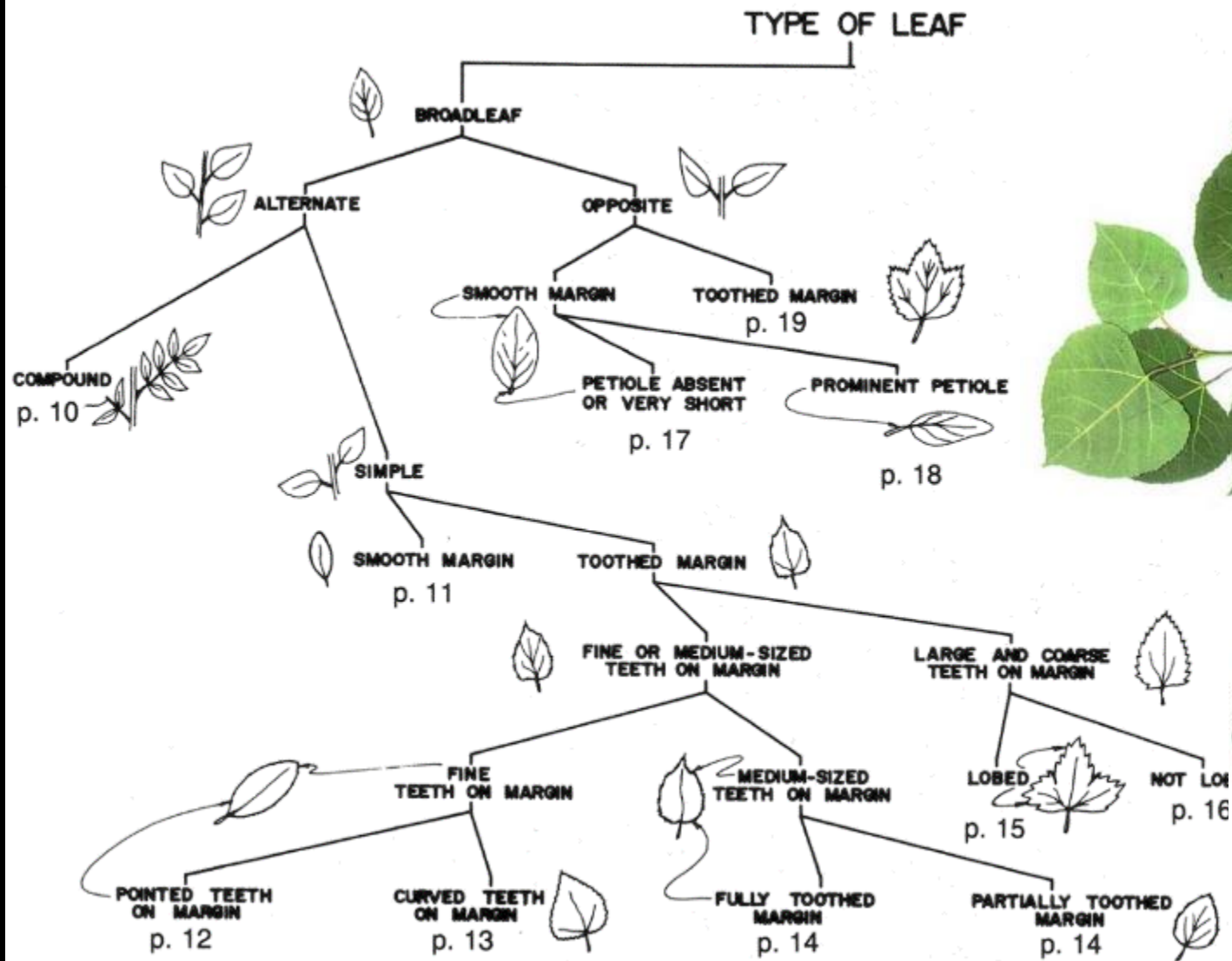
Fine,
curved
teeth



Large,
coarse
teeth



Smooth

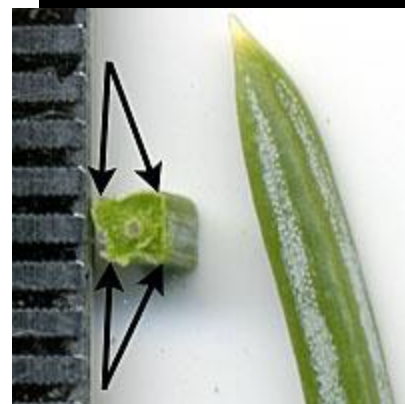
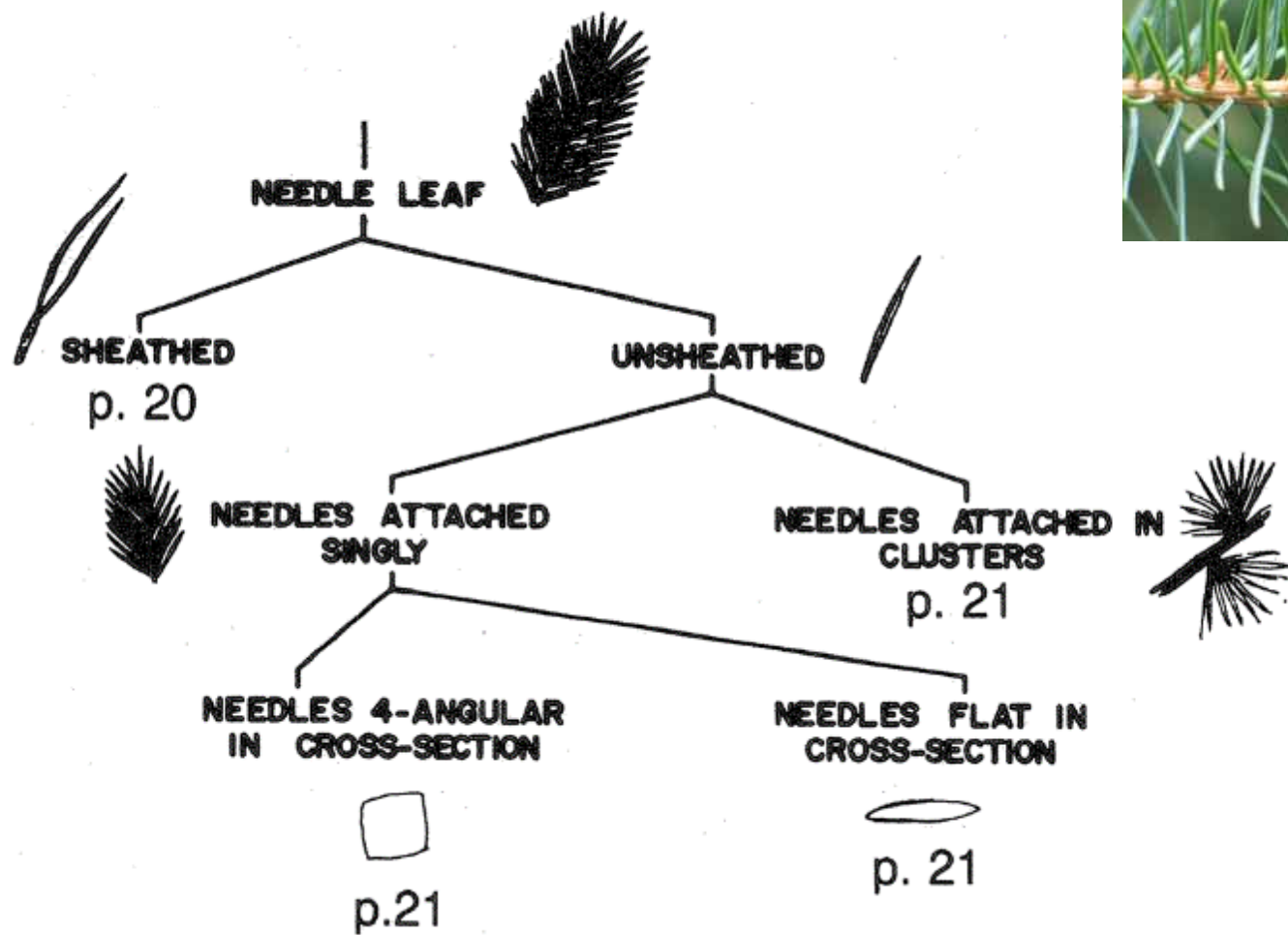


Trembling aspen

Populus tremuloides



woodlandstewardship.org



White spruce

Picea glauca



Take your books out into a park or a forest and see how many more plants and trees you can identify!

If you need more practice go to the link below and try identifying other trees.

<https://lsfes.org/resources/trees-of-the-boreal-forest/>



PART TWO

Natural and Human Uses of the Forest

What makes a forest?



- Animals
- Plants
- Soil
- Moisture
- Sunlight
- AND TREES!**

Without TREES it could not be a forest!

Who lives in the Forest?



People in the Forest

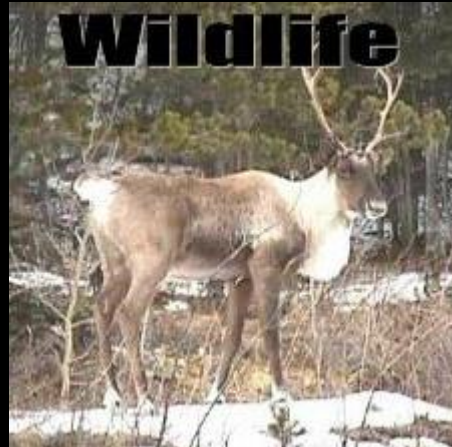


Who are the users of the Forest?

Industry



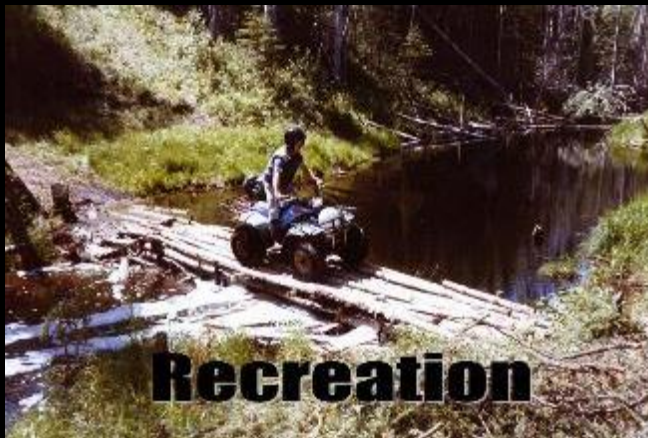
Wildlife



Traditional



Recreation



Fishing



Indigenous People

The boreal forest is vital to the culture and identity of indigenous people and their communities. Traditional use of the forest resources provides food, clothing, shelter, medicine, ceremony and art.



Large Game
Animals



Plants and
Berries



Fish



Trees



Fur Bearing
Animals

Forest Managers



The Government of Alberta regulates that forests are harvested in a sustainable manner, so that only a certain amount can be logged in any one year.



Natural Disturbances



FIRE



INSECTS



DISEASE



WIND

INSECTS

Insect infestation can harm a forest and one of those insects is mountain pine beetle



Evidence of Forest Diseases



Frost Crack



Leaf and Twig blight



Conks



Excessive Fungus Growth



Root Rot



Molds and Rusts

Wildfires



Are wildfires good or bad?

THE GOOD ASPECTS

- Allows forest to regenerate
- Releases nutrients into the soil
- Increases available food for animals
- Controls insects and diseases in the forest

Are wildfires good or bad?

THE BAD ASPECTS

- Dangerous for people
- Intensive fires can damage soil
- Large fires can reduce good habitat for wildlife
- Smoke can make it very hard for animals and people to

How do wildfires start?



What makes the Boreal forest a fire Forest?



- Lots of dry fuel especially in the spring
- Plants, trees and animals have adapted to survive after a fire
- I.e. Pine trees require heat to open up their cones

What happens
after a fire?



Wildfire is Natural

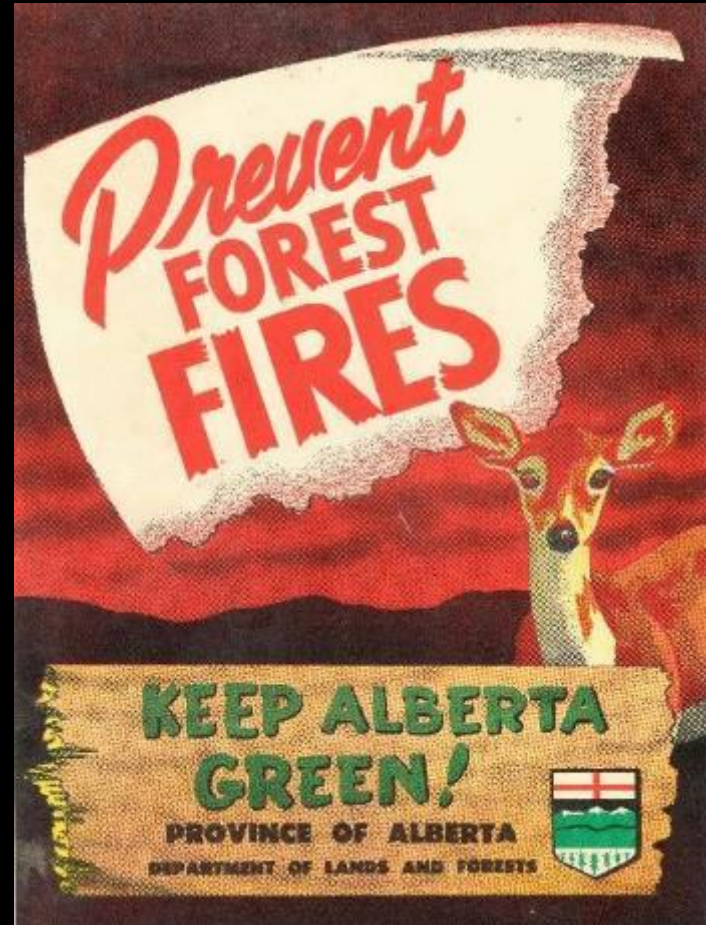
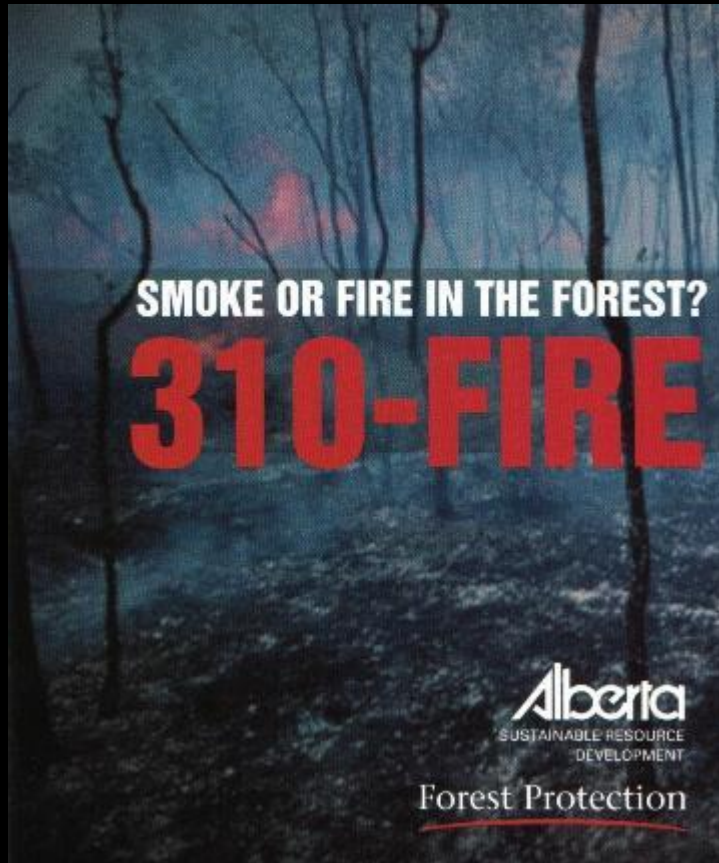
- Wildfire is a natural part of the Boreal Forest
- We need to make sure our campfires are out and we are being smart about when and where we start a fire.
- Clean debris from our mufflers.

Wildfire



What phone number are you going to call if you see this?

310 - FIRE



Trees and Forests are Essential Resources



**SUSTAINABLE
RESOURCE**



**RENEWABLE
RESOURCE**



**NATURAL
RESOURCE**



*“A sustainable forest is a forest that is carefully managed so that we have trees in perpetuity,
– we have forests forever.”*



PART THREE

Trees and Forests Quiz

What is the name of the largest forest in Alberta?

- A. Amazon Rain Forest
- B. Boreal Forest
- C. Grassland Forest
- D. Foothills Forest
- E. Rocky Mountain Forest

What do trees need to grow?

A. Water

B. Light

C. Air

D. Nutrients from the soil

E. Food made by the leaves of the tree
through photosynthesis

F. All of the above

What are the characteristics of a deciduous tree?

- A. Needleleaf, produces cones, seeds are in the cones
- B. Needleleaf, produces flowers or catkins, seeds are in the fruit or nuts
- C. Broadleaf, leaves change color and fall off the tree, makes spruce cones
- D. Broadleaf, leaves change color and fall off the tree, makes flowers or catkins

What are the characteristics of a coniferous tree?

- A. Needleleaf, produces cones, seeds are in the cones
- B. Needleleaf, produces flowers or catkins, seeds are in the fruit or nuts
- C. Broadleaf, leaves change color and fall off the tree, makes cones
- D. Broadleaf, leaves change color and fall off the tree, makes flowers or catkins

What is the only coniferous tree that sheds its needles in the fall?

A. White Spruce

B. Black Spruce

C. Lodgepole Pine

D. Tamarack (also called Larch)

E. Balsam Fir

Trees can be infected by diseases and insects - what part of the tree can they attack?

A. Roots

B. Needles/Leaves

C. Trunk or stem of the tree

D. Branches/twigs

E. Cones, catkins, fruit, nuts, seed

F. All of the above

Which insect can cause major destruction to forests?

A. Mosquito

B. Bumble Bee

C. Mountain Pine Beetle

D. Dragonfly

E. Giant Water Bug

F. All of the above

Which of the following are human uses of our forests?

- A. Logging, hunting, trapping
- B. Fishing, parks and recreation
- C. Hiking, oil and gas, power companies
- D. Bird watching, tourism, jobs
- E. Traditional uses of plants and wildlife
- F. All of the above

What number do you call
when you see a fire?



Who owns the forested lands of Alberta?

- A. The pulp mills and saw mills of Alberta
- B. The people of Alberta
- C. Premier of Alberta
- D. Connor McDavid and Wayne Gretzky

What is the most important thing for forest managers to do after they harvest a forest?



Plant trees
so we have forests for future generations

Take a wild guess! What is the name of the provincial tree of Alberta?

- A. Trembling Aspen
- B. Lodgepole Pine
- C. Balsam Fir
- D. Tamarack
- E. White Spruce

Lodgepole Pine

Pinus contorta

Provincial tree of Alberta

Height: 10-30 meters

Diameter: 30-60 centimetres

Distinguishing feature:

USES

Historical

Aboriginal people boiled the inner bark for food and used the tree trunk for tepee poles. The pitch provided a natural glue for baskets, headdresses and a good waterproofing agent for moccasins.

Commercial

The wood is used for construction lumber, siding, railway ties, poles, mine timbers, pulp and paper. It is also used in the making of furniture, boxes, cabinets, flooring and boats. Sawdust and shavings can be used for briquettes and bedding for animals.

Natural

Pine cones will only open when exposed to extreme heat such as a forest fire. Where ranges of Jack Pine and Lodgepole Pine overlap these two species often form hybrids.

Medicinal

The Cree put gummy pine pitch in hollow teeth to relieve aching. The bark of young trees was simmered and applied to burns and scalds to relieve inflammation and reduce infection.



The End!