Forests Ontario Education Resources Package

FORESTS ONTARIO

Leaf IT TO Memory

Tree Bee FORESTS ONTARIO

GOAL

Improve tree identification skills using distinguishing characteristics.

MATERIALS

- Two copies of memory cards, printed single-sided
- Bristol board or construction paper, one colour only
- Scissors
- Glue

WARM UP

- Print out the list of tree species.
- Have students familiarize themselves with the tree names before playing.

ACTIVITY

1. Print out two copies of memory cards on single sided paper.
2. Glue memory cards to Bristol board or construction paper. This will make the cards more durable and prevent the images from being visible in game play. **NOTE:** ensure that all cards are the same color on the backside.
3. Cut the memory cards out to create your card set (20 card images).
4. To play, begin by laying cards face down and mixing them. Once mixed, arrange cards in a square or other symmetrical shape face down.
5. One at a time, players select two cards to turn over; if the images are a match, they can be removed.
6. If the cards are not a match, they are flipped back over, and the next player takes a turn.
7. Students can work cooperatively to find matches, as opposing teams (with each matching pair found counting as a point) or alone.
8. Continue until all cards are matched; the player with most matching pairs wins.

EXTENSIONS

- Grow your memory deck by selecting some of the 100 native tree species which can be found in Canada and make additional game cards.
- Convert your memory game into flash cards by cutting the species name of each tree card off the bottom and pasting it on the backside.

Images of Tamarack, Eastern White Pine, Ginkgo, Cucumber Tree, Shagbark Hickory, Bur Oak, Red Pine, Sassafras, Little Leaf Linden, White Birch, American Beech, Northern Catalpa, White Cedar, Largetooth Aspen, and American Mountain Ash are courtesy of Bugwood.org. Image of Ohio Buckeye courtesy of The Pike County: News Watchman. Image of Staghorn Sumac courtesy of Nature & Garden. Image of Tulip Tree courtesy of Pinterest. Image of White Ash courtesy of USDA Plants Database. Image of Kentucky Coffeetree courtesy of CaseyTrees.

TAMARACK
Larix laricina

WHITE PINE
Pinus strobus

OHIO BUCKEYE
Aesculus glabra

GINKGO
Ginkgo biloba

CUCUMBER TREE
Magnolia acuminata

SHAGBARK HICKORY
Carya ovata

BUR OAK
Quercus macrocarpa

RED PINE
Pinus resinosa

SASSAFRAS
Sassafras albidum

STAGHORN SUMAC
Rhus typhina

LITTLE LEAF LINDEN

Tilia cordata

TULIP TREE

Liriodendron tulipifera

WHITE ASH

Fraxinus americana

KENTUCKY COFFEETREE

Gymnocladus dioicus

WHITE BIRCH

Betula papyrifera

AMERICAN BEECH

Fagus grandifolia

NORTHERN CATALPA

Catalpa speciosa

WHITE CEDAR

Thuja occidentalis

LARGETOOTH ASPEN

Populus grandidentata

AMERICAN MOUNTAIN ASH

Sorbus americana

Red Maple

Distinguished by the red leaf stem and bright red colour in the fall

Fun Fact: Red Maple sap is about half as sweet as Sugar Maple sap, but can still be used to make syrup

Red Oak

Leaves have sharp lobes that are deeply notched; the tree provides a lot of shade

Fun Fact: The bitter acorns, when consumed in large quantities, can be toxic

White Ash

Compound leaf with seven to nine leaflets making up one leaf

Fun Fact: The strong wood is commonly used for baseball bats

Sugar Maple

Leaves have five pointed lobes with deep, round notches between them

Fun Fact: The leaf was used as inspiration for the maple leaf on Canada's flag

Tree Bee

Pocket Tree ID Guide

treebee.ca

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White Pine

Needles are arranged in bundles of five—think of the number of letters in the word 'WHITE'

Fun Fact: Ontario's provincial tree

Black Spruce

Single needles attached to the twig

Fun Fact: One of the most common trees in Canada—found in all provinces and territories

Tamarack

Needles are short and arranged in tight bundles of 15-60 needles

Fun Fact: The only coniferous tree that sheds its needles every fall

White Birch

Leaves are triangular; bark is white and paper-like

Fun Fact: First Nations Peoples used the bark to make canoes

Trembling Aspen

Leaves are dark green on one side and lighter on the other, and shake in the breeze, making the tree look like its trembling

Fun Fact: Reproduces by growing new, genetically identical trees out of its roots

White Cedar

Leaves are flat scales and the tiny cones and seeds are an important food source for squirrels and birds

Fun Fact: Some eastern white cedars in Ontario are more than 700 years old

H2O GO!

Ever wonder how water moves up a tree, from its roots to its branches? To answer this question, we'll be taking a hands-on look at the process of water transportation in plants.
Are you ready to get absorbed in this activity?

SUPPLIES

- 1 sheet of paper towel
- 3 clear glasses
- 2 different primary colours (red, yellow, blue) of food colouring

INSTRUCTIONS

- Fill 2 of your 3 glasses halfway with water. Place them on either side of your empty glass.
- Put 5-10 drops of one food colouring in one water glass, and 5-10 drops of the other colour in the second water glass. (Using primary colours is best, because these two colours will combine to make a third! In our example, red and blue will combine to make purple.)

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H2O GO!

- Tear the paper towel sheet in half lengthwise. Roll each half into a thin strip.
- Place one end of a paper towel strip in a water glass and the other end in the empty, middle glass. Repeat this with the second strip of paper towel, putting one end into the remaining water glass.

- Wait and watch! This is a slow process, so you may want to start your experiment in the morning and watch it work throughout the day, or start at night and check the results in the morning!

Show us your experiments!

@forests_ontario

@forests.ontario

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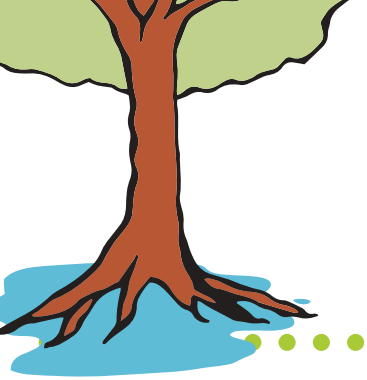

H2O GO!

DID YOU KNOW...

- There are three forces at work to move water up a tree: transpiration, root pressure, and capillary action.
  - Transpiration is when water is absorbed through a plant's roots, moved up the tree via special tissues called xylem, and then exhaled as vapour through small pores in the leaves (called stomata). The movement of the water out of the stomata creates a pull effect, continuing the process of drawing water up the tree.
  - Root pressure refers to the osmotic force that drives water up a tree towards the xylem. Root pressure is greatest when the soil moisture level is high, and is important during times when transpiration is lowest (such as during the night).
  - Capillary action is the ability of a liquid to flow against gravity in a narrow space when the adhesion of liquid molecules to the walls of a space (like a tube) is stronger than the cohesive forces between liquid molecules. Capillary action and root pressure are able to transport water up to a height of 10 metres, but taller trees depend on the pull created by transpiration to move the majority of the water through the system.
    - We see examples of capillary action in water moving up a tree, tear fluid moving through tear ducts, and water being transferred along a cloth or paper towel.... Sound familiar?
- You guessed it! During our experiment, water moved through the paper towel from one glass to another through capillary action, just like how water is transported up a tree! Using food colouring helps illustrate that water is moving from both glasses.
- Fun fact: Plants use less than 10 percent of the water they absorb for photosynthesis -- the rest is expelled through transpiration.

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Tree Anatomy Bingo Instructions and Images

Each participant needs two pages: the "tree anatomy bingo instructions and images" page and the "tree anatomy bingo" page. Cut out the images on this page and randomly glue them into the squares on the "tree anatomy bingo" page. Bring along a copy when you head out for your next walk and see if you can fill out a line, the borders, or even make an X! Most leaves will have multiple characteristics listed on the card, but try to get a unique leaf for each spot.

Alternate

Coniferous

Cordate (Heart Shaped)

Deciduous

Deltoid (Triangle)

Double Compound

Asymmetrical Attachment

Lobed

Narrow

No Lobes

Opposite

Palmately Compound

Pinnately Compound

Rough Edges

Scales

Smooth Edges

Tree ID images provided by Forests Ontario

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Tree Bee

Tree Anatomy Bingo

L	E	A	F

Tree ID images provided by Forests Ontario

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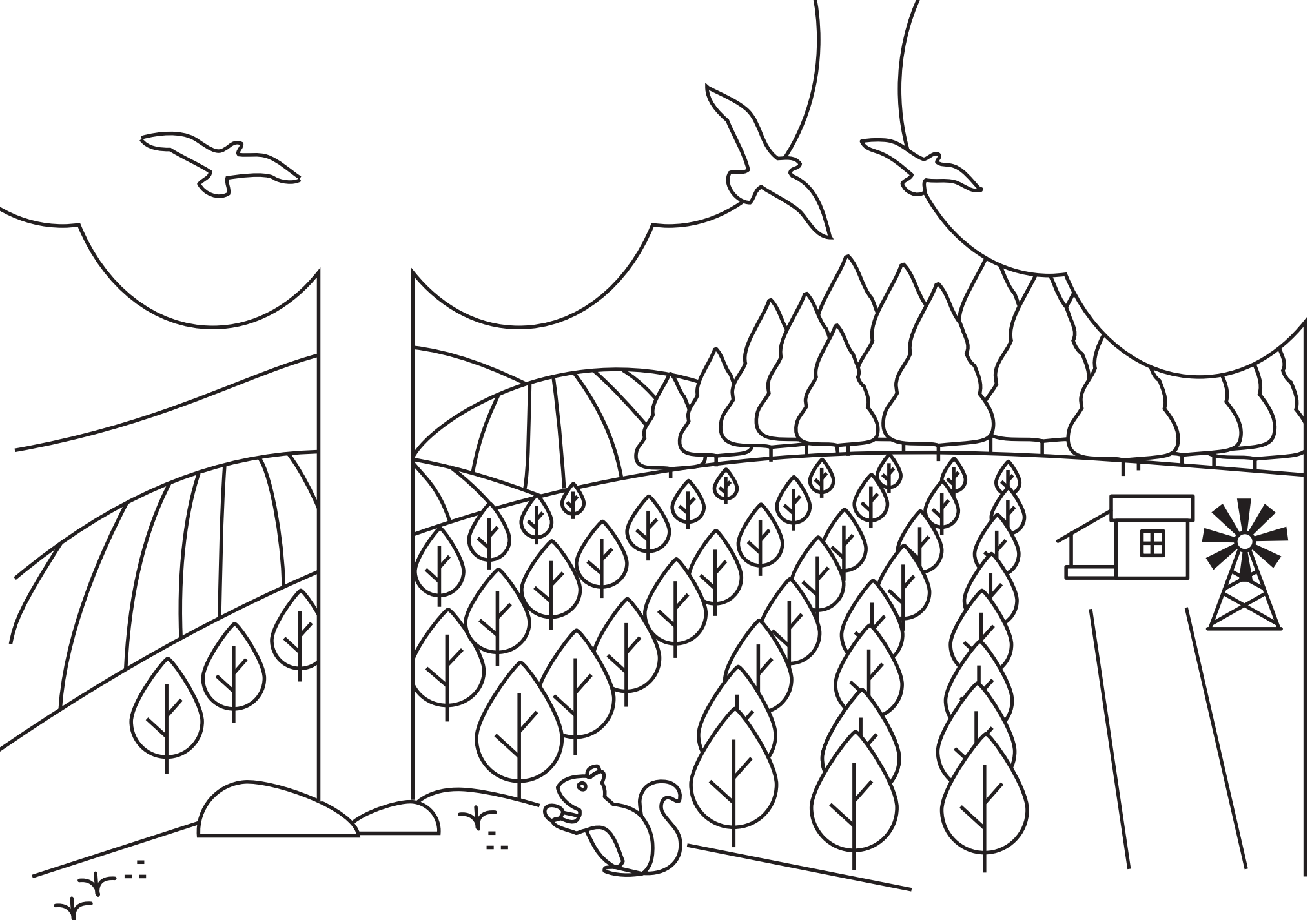
Tree Bee



Do you have open land or extra acreage? Planting trees is an excellent way to add value to your property and has never been easier. If you have room to plant a minimum of 500 trees you may be eligible for the 50 Million Tree Program, and we will plant the trees for you. The 50 Million Tree Program provides financial and technical assistance for landowners looking to plant trees on their property. Submit an application today at **www.forestsontario.ca/50MTP**

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