



SCIENTIST IN RESIDENCE PROGRAM™

Science Unit *Explore the Wonder of Nature With Our Senses* Lesson 3 *Clark Park Douglas Fir Exploration*

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Grade level	K – 2
Class time needed	1 hour and 20 minutes
Delivery date	February 17 th , 2016

LEARNING OBJECTIVES

1	Learn about Douglas fir trees.
2	Identify different conifer cones.
3	Be curious and wonder about coniferous trees.

SUPPLIES

- Dress for the weather: Wear a warm raincoat and walking shoes or rainboots.
- The *Mouse Douglas fir and the great forest fire story*.
- A mouse stuffy or puppet (or have each student make a mouse finger puppet before the lesson).

BACKGROUND INFORMATION

Clark Park, Vancouver's second oldest park, has some impressive and large indigenous trees. It's a great local space to explore native tree species. There are native coniferous trees in the park, including: Coastal Douglas fir, western red cedar and western hemlock. There are also non-native conifers in the park, such as the giant sequoia.

Douglas fir (Pseudotsuga menziesii)

The Douglas fir tree is found along the Pacific Ocean in British Columbia, Washington and Oregon. Mature Douglas fir trees have thick bark that helps protect it from fire. The Douglas fir cone is about 5 cm long, brown and is easily recognized by its forked brackets, which stick out of each scale. Its 2 cm long green needles spiral out from the branch in a whorl and have a pointy tip. It prefers drier sites.

Western red cedar (Thuja plicata)

The western red cedar is found along the Pacific Ocean in British Columbia, Washington and Oregon and in wet sites west of the Rocky Mountains. It has red-grey stringy bark that grows in long thin strips. Its leaves and wood have a strong fragrance. It has very small cones (a centimeter or shorter) and scale-like leaves that droop down. It prefers wet and shady sites.

Western hemlock (Tsuga heterophylla)

The western hemlock is found along the Pacific Ocean in British Columbia, Washington and Oregon and in wet sites west of the Rocky Mountains. Its needles are narrow, flat and uneven in length, which makes it look quite feathery. Young western hemlocks are easily recognized by their droopy tops. Their cones are a couple of centimeters long and are larger than a western red cedar cone, but smaller than a Douglas fir cone.



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THE LESSON

The Hook	<ul style="list-style-type: none">Tell the legend of <i>the mouse, Douglas fir and the great forest fire</i>. Be the mouse and run together to the western hemlock, western red cedar finally a Douglas fir tree (substitute the western red cedar and/or western hemlock for different trees if needed in your local park)Compare the three trees as we visit each of them.
Hands-on Activity 1	Collect conifer cones <ul style="list-style-type: none">Collect three different conifer cones, sort your cones, what's different about each of your cones? What's similar? Which one do you think came from the Douglas fir?
Wrap Up	Wonder wrap-up <ul style="list-style-type: none">What do you wonder about trees?

VOCABULARY

Deciduous Trees	Trees that lose their leaves in winter and make flowers and fruit.
Coniferous	Trees that keep their leaves in winter and make cones.
Conifer cone	Coniferous trees grow cones that hold their seeds instead of flowers or fruit.
Observe	To notice details by paying close attention.
Senses	Our senses of sight, hearing, smell, touch and taste help us observe our surroundings

LESSON EXTENSION

- Make mouse finger puppets.

REFERENCES

Tree Book. Learn to recognize trees of British Columbia. Ministry of Forests, Lands and Natural Resource Operations (accessed Jan 8, 2016):

<https://www.for.gov.bc.ca/hfd/library/documents/treebook/douglasfir.htm>

<https://www.for.gov.bc.ca/hfd/library/documents/treebook/westernredcedar.htm>

<https://www.for.gov.bc.ca/hfd/library/documents/treebook/westernhemlock.htm>

Adapted by Heidi Bohan from a well-known local legend. *The mouse, Douglas-fir and the great forest fire*. http://www.wnps.org/education/resources/documents/K-5_Q&E/2nd_grade/2-2b.pdf
(Copy in appendix below)

Scientist in Residence. 2010/2011. *Temperate Forests Unit: Lesson 20 - Uses of Forest Plants by Lower Mainland First Nations Peoples*.
http://www.scientistinresidence.ca/pdf/lifescience/Temperate%20Forest/SRP_Temperate%20Forest_Lesson%2020.pdf



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Other Douglas fir books:

- Bash, B. 2002. *Ancient ones: The world of the old-growth Douglas fir*. Sierra Club Books for Children
- Davis, W. 1997. *Douglas fir*. Grolier.

APPENDIX

The Mouse, Douglas Fir and the Great Forest Fire

Adapted by Heidi Bohan from a well known local legend

Note: Lesson plan substitutes big leaf maple for western hemlock. Adapt the story and lesson to match the indigenous trees at your park or school.

A long time ago, when the animals and plants could speak to each other, there was a great forest fire burning through the forest. Little Mouse ran as fast as he could away from the hot fire but he knew he could not outrace the fast moving flames. He began to run from tree to tree asking them if they could save him.

First he ran to the bigleaf maple tree. "Help, help!" he cried. "Can you help me escape this fire?" Bigleaf maple tree replied, "No, I'm sorry little mouse, I am afraid that I will not be able to survive this forest fire". The mouse then ran to the red cedar tree. "Help, help! Can you help me escape the fire?" "No, I'm sorry little mouse, but I do not think that I can survive this great forest fire, either" said Red Cedar. Mouse ran from tree to tree asking the same question, and getting the same answer.

Finally he came to a great old Douglas fir tree, with its thick furrowed bark. "Help, help, Douglas fir! Can you help me escape this fire?" And Douglas fir replied, "Yes, I think that my thick bark will protect me from the heat of these flames. I may be able to survive this great fire. Climb to the top of my branches, and climb under the scales of my cone for extra protection." So, little mouse did as he was told, and climbed way up into Douglas fir tree and hid under the scales of the Douglas fir cones. Many other little mice followed him and did the same. And the Douglas fir tree was right, its thick bark protected them from the flames of the fire, and the fire passed them by.

To this day, if you look under the scales of the Douglas fir cone you can still see little mice hiding under the scales of the cones. Can you see them too?