

Title of Lesson/Unit: How Forests Change

Intermediate grades 3-6

Big Ideas: Living things are diverse, can be grouped, and interact in their ecosystems. The pursuit of valuable natural resources has played a key role in changing the land, people, and communities of Canada.

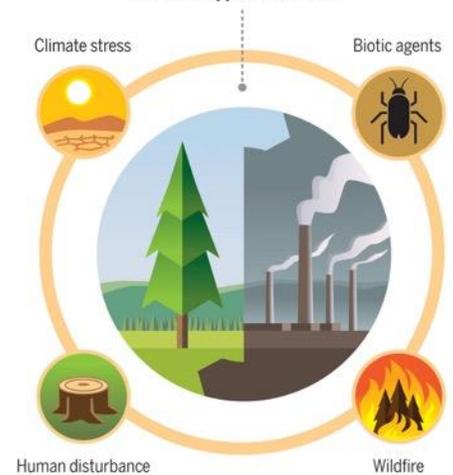
Curricular Competencies: - Students are expected to be able to do the following:

- Experience and interpret the local environment
- Ask questions about familiar objects and events
- Express and reflect on personal experiences of place
- Identify problems or issues that are local, national, and/or global in focus

Concepts & Content - Students are expected to know the following:

- Classification of living and non-living things
- biodiversity in the local environment
- the knowledge of local First Peoples of ecosystems
- physiographic features and natural resources of Canada

Forests as natural climate solutions face fundamental limits and underappreciated risks



Objectives for This Activity:

- Students will understand the interconnection between living and non-living things in the local environment and our shared responsibility to care for the local environment; information shared from the local First Peoples community and Elders
- Students will be able to suggest how natural and human-made actions effect our local environment

Pre-Class Preparation - The teacher will need to find a suitable area for the activity and get several meters of flagging tape.

- Duration: 15-30 minutes
- Group size: whole class
- Location: grassy area
- Materials: [flagging tape](#), which can be found as low as \$4 on Amazon. (Perhaps a local supply store will donate some for class use).

Objectives

- Students will experience the interconnection between the change agent and the resulting change. Vocabulary: [Change agent](#) - any force which alters the natural successional process of a forest to any degree.

Background Information

In order to demonstrate there is a direct link between the change agents and the resulting change, students need to actively participate. This activity also acts as a fun icebreaker for the group, establishes the teacher as the leader, and gets the students focused on the topic of the day.

This [video](#) (done in partnership with the National Science Teachers' Association) and [this one](#) offer some unique insight on how plants and animals change their environment.

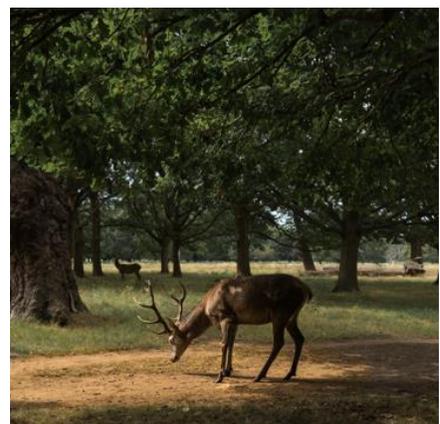
Let's Do It!

Students stand in a circle. As the activity progresses, they will become either one of the positive or negative change agents they discussed in class or the resulting change it causes. Review the definition of a change agent.

The teacher starts the group by explaining that each student is going to become one change in succession. The group will see how the change agents and results are interconnected and affect one another.

For example, an area on the side of a local mountain has experienced a forest fire. One student suggests one agent that might change the burned area in any way. The wind might carry some grass seed to the area. The student who offered the idea becomes the wind, then reaches across the circle and takes a hold of the flagging tape. That person becomes the grass seed.

Two people who are standing side by side are not allowed to pass the flagging tape between them. The teacher then explains that the grass seed grows, producing a grassy field. Then students are asked what another change might occur over time. A student suggests that a bird brings salmonberry seeds.



The bird takes the flagging tape and he or she becomes the salmonberry seed. The salmonberry grows and spreads its seeds.

The next person suggests that a family of deer come through and eat all the salmonberry bushes and grass, knocking the system back to almost its beginning. This person takes the flagging tape.

A [mountain pine beetle](#) bug has infested the forest and eaten away or killed many trees in BC leaving many dry, dead standing and very orange trees that are [more susceptible to forest fire](#) (see pine beetle image at right from National Geographic). Pass the flagging tape to the student who is the bad bug!

As more and more people have passed the flagging tape, students need to back up a little to create more room for others. They may need to stretch a bit. The teacher needs to guide and correct the suggestions if they are not of local nature. Make sure that the portrayal of humans is balanced between positive and negative light. Students tend to focus on the negative aspects of human behavior. Forests can regrow and adapt to both human-caused & natural disturbances.



The activity continues until everyone is holding the tape. The teacher suggests that what they see in front of them is just like what happens in nature; there are all kinds of connections between the agents and what they change now, in order to demonstrate that these are all interconnected, students will try to untangle themselves without letting go of hands. Some may need to duck as others step over their hands, others may need to thread their way between other students. Eventually, students will unravel themselves into one large circle or two smaller circles to reveal that they are indeed connected! Students may want to try it again. It goes much quicker the second time.

Countdown to tree death—see how pine beetles do their damage.

For centuries the relationship was mutually beneficial: Pine beetles culled older, weaker trees, producing new beetles but also a healthier forest. Climate change, with its warmer, drier conditions, has upset that balance, leaving even healthy trees vulnerable to attack.





Creating Relevance: Discuss what the group experienced during the activity. Do they understand that at any time in the successional stages, change agents, natural and human-made, can act to either progress through succession or push it backwards? Can they give examples of other changes they have personally seen or done themselves? In our world, students will see many examples of positive,

negative, natural and human-made change agents and the result of their work. Some of these are recent changes, and some happened long ago.

Evaluation: Throughout the progression of the activity, the teacher will see how well the students grasp the concept of change agents by their suggestions. If something major was missed, this is when the teacher can take note of it and reinforce it in up-coming activities.

Resources/Extension Activities:

- [Focus on Forests \(Ontario\)](#)
- [Association of BC Professional Foresters](#) educational activities, quizzes, videos
- [NRCAN: Climate Change Impacts](#)
- Discuss global warming after reading "[This is My Planet – The Kids guide to Global Warming](#)" by Jan Thornhill and "[What You Can Do to Stop Global Warming](#)" by Laurie David and Cambria Gordon.
- [How Forests Change over Time](#)
- [National Geographic How Pine Beetles Contributed to Forest Fires](#)

Photos courtesy [of Pexels](#).