BRITISH COLUMBIA
FireSmart™

# Education Program

## (Grades 4–6)

# Lesson One

In this lesson, students will design a landscaping plan for a public area in their community. They are invited to continue to revise their plan as they come to understand the ecozone in which they live and the factors that contribute to making areas more FireSmart.

## Lesson Question:

How can we best use an understanding of our local ecozone to make an area FireSmart?

## Lesson Challenge:

Create a FireSmart landscaping plan for an area in your community.

## Big Ideas

- The motions of Earth and the moon cause observable patterns that affect living and non-living systems. (Grade 4 Science)
- All living things sense and respond to their environment. (Grade 4 Science)
- Earth materials change as they move through the rock cycle and can be used as natural resources. (Grade 5 Science)
- Natural resources continue to shape the economy and identity of different regions of Canada. (Grade 5 Social Studies)

## Suggested Materials

- Images of landscaped and non-landscaped areas
- **My Thoughtbook:** An Environmentally Responsible and FireSmart Landscaping Plan (one copy for each student)
- **Briefing Sheet A:** British Columbia's Six Major Ecozones (one copy for each pair or small group)
- **Briefing Sheet B:** FireSmart Landscaping Tips (one copy for each pair or small group)
- **Briefing Sheet C:** The Role of Humans in Causing Wildfires (one copy for each pair or small group)

## Start the Thinking

1. Begin the lesson by inviting students to use words and/or pictures to create a draft definition for the term landscaping.
2. Share the set of images of landscaped and non-landscaped areas, revealing one pair of images at a time. As each set of images is shared,ask students to describe any features that the "yes" examples have that the "no" examples do not.
3. As you progress through the images, pause and invite students to review their draft definitions of landscaping. Encourage them to make any helpful revisions based on the classroom discussion.
4. Finish viewing the images by showing the test image. Ask students if the test image belongs with the "yes" examples or "no" examples. Encourage them to share their decisions and thinking with the class.
5. Provide students with a sample definition for landscaping such as the following:

   Landscaping is changing the visible features of an area of land. It can be done by changing living elements, such as plants, trees, and shrubs; natural non-living features, including rocks and water elements, or how the earth is shaped to create desired results; and the addition of human-made elements, such as play areas, fountains, and other features.
6. Ask students, "How similar is this definition to your definition? What would you borrow from the sample definition that would strengthen yours? What from your definition could be added to the sample definition to improve it?"
7. Pose the question "If you were selected to create a landscaping plan for an area in your community, what features would you include?" Inform students that they will be invited to design a landscaping plan for an area in their community.
8. Invite students to select a public space in their community they would like to focus on. Alternatively, organize students into small groups and assign each group one of the ecozones.
9. Provide each student with a copy of My Thoughtbook. Explain that a Thoughtbook is a place to draw or write ideas that can help answer the lesson question. Ask students to create an initial drawing in their Thoughtbooks of a landscaping plan for the public area in the community they selected. Assure students that their ideas can be big or small and in words or in pictures, and that they will be able to change and add to their ideas during this lesson.

10. Invite students to quickly share their initial ideas for their plans. If necessary, supplement their list with a few additional ideas. Examples might include water features, like ponds or fountains; plant materials, like palm trees, exotic grasses, native shrubs, or native trees; or structures such as fire pits, washrooms, or pavilions. Note that at this point, not all ideas in their plans need to be plausible. Students will refine their ideas throughout the lesson.

## Grow the Thinking

1. Once students have completed their initial landscaping plans, remind them that a landscape design can have several different objectives. Ask students to choose and rank the top four design features that align with their initial plan:

    - design for practical uses (for example, a sports field)
    - design for visual appeal
    - design for safety
    - design for inclusion
    - design for sustainability
    - design for health
    - design to make an area FireSmart

2. Pose the question "How can we best use our understanding of our local ecozone to make an area FireSmart?" Invite students to make any changes to their initial landscaping plan in their Thoughtbooks. Explain that they will be able to add to and revise their landscaping plan as their understanding of the ecozone they live in grows.

3. Provide pairs or small groups of students with a copy of British Columbia's Six Major Ecozones (Briefing Sheet A).

4. Ask students to determine the major ecozone in which their community is located. Once they have identified the ecozone they live in, ask them to use all six ecozone descriptions to help them identify three important features that distinguish their ecozone from the other five.

5. After exploring the key features of their ecozone, ask students to review their current landscaping plan and decide what to affirm, revise, and extend:

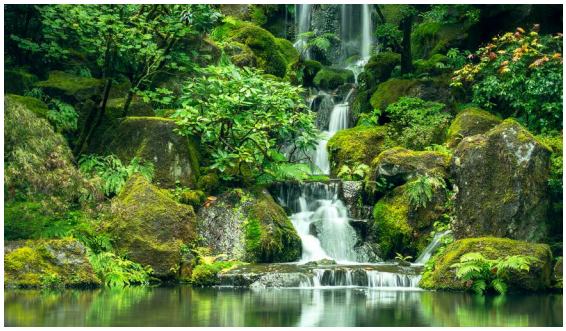
    - **Affirm:** What parts of the plan help make the area FireSmart and should be kept?
    - **Revise:** What parts of the plan need to be revised to make it more FireSmart?
    - **Extend:** What parts of the plan might be extended by adding new features or thinking differently about how the features help make the area FireSmart?

6. 6. Provide groups with a copy of FireSmart Landscaping Tips (Briefing Sheet B). Encourage students to use information from the briefing sheet to refine or revise their landscaping plan. Have them again affirm, revise, and extend their plans.
7. 7. Provide groups with The Role of Humans in Causing Wildfires (Briefing Sheet C). Encourage students to use information from the briefing sheet to refine or revise their landscaping plan. Have them again affirm, revise, and extend their plans, and then revisit their initial landscaping plan in their Thoughtbooks.

## Reflect on the Thinking

1. After students have had several opportunities to revise their landscaping plan, encourage them to share it with one other student or group of students to get helpful guidance on how it might be refined to create the most effective plan.
2. Ask students to use their thinking from their Thoughtbooks to create an effective landscaping plan for their selected area. Remind students that an effective landscaping plan is:
   - suited to the purpose and environment for which it is designed.
   - designed to be FireSmart.
   - clear and easy to understand.
3. Invite students to consider how they can best meet these criteria by combining helpful ideas, an understanding of the ecozone, and the use of key elements such as titles, labels, scales, images, colour, and symbols.
4. Allow students time to create their final plan.

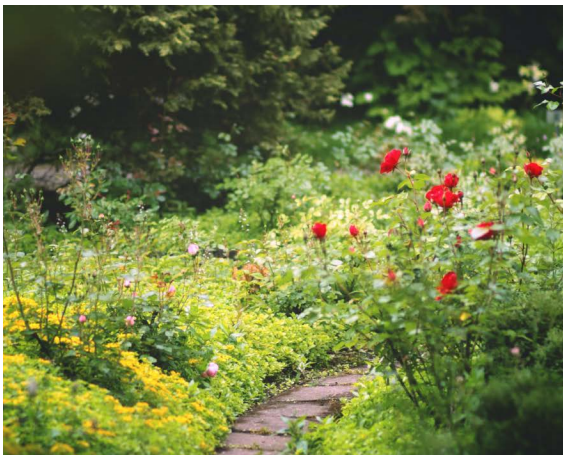
# Image Handout: landscaped and non-landscaped areas

| Yes examples of landscaping | No examples of landscaping |
| --- | --- |
|  |  |
|  |  |
|  |  |

# Image Handout: landscaped and non-landscaped areas

## Yes examples of landscaping

## No examples of landscaping



# My Thoughtbook:

## An Environmentally Responsible and FireSmart Landscaping Plan

### Criteria for an Effective Landscaping Plan

An effective landscaping plan is

- suited to the purpose and environment for which it is designed
- designed to be FireSmart
- clear and easy to understand

# Briefing Sheet A: British Columbia's Six Major Ecozones

British Columbia's natural communities are divided into six **ecozones**. Ecozones are areas that have unique geography, ecosystems, and climate.

**Review your draft landscaping plan. As you consider the features of the ecozone that you live in, what things should be added or removed in your landscaping plan?**

## Pacific Marine Ecozone

The Pacific Marine Ecozone is the area from the international waters of the Pacific Ocean to the coastline of British Columbia. It includes the coastal waters, rivers, and fjords. This ecozone is relatively mild and rarely gets ice because of protection from the Alaska Peninsula. Features here include coral reefs, seaweed beds, and coastal marshes. Sea otters, northern fur seals, northern sea lions, long-snouted dolphins, right whale dolphins, Pacific white-sided dolphins, Pacific harbour porpoises, Dall's porpoises, killer whales, sperm whales, gray whales, fin whales, minke whales, blue whales, and North Pacific right whales are all found here.

# Briefing Sheet A: British Columbia's Six Major Ecozones

## Pacific Maritime Ecozone

The Pacific Maritime Ecozone is the area along the Pacific coast, including the coastal islands, extending about 200 kilometres inland. The coastal mountains keep the moisture from the ocean on the coastline, making this the wettest region of British Columbia. The ocean also keeps the climate warmer in the winter and cooler in the summer. This coastal forest is considered a temperate rainforest.

## Boreal Cordillera Ecozone

The Boreal Cordillera Ecozone is one of two ecozones that make up the central core of British Columbia. It includes the mountainous region in northern British Columbia. The spine of mountains on the western edge of this ecozone blocks coastal moisture, making this a dry region. This area has towering mountains, open plateaus, and forested valleys.

# Briefing Sheet A: British Columbia's Six Major Ecozones

## Montane Cordillera Ecozone

The second ecozone that makes up the central core of British Columbia is the Montane Cordillera Ecozone. It includes most of southern British Columbia between the Coast Mountains in the west and the Rocky Mountains in the east. The region is very dry on the eastern slopes of the Coast Mountains, which block moisture from the ocean. As you move east toward the Rocky Mountains, the moisture increases. This is a very mountainous region with forested valleys.

## Taiga Plains Ecozone

The Taiga Plains Ecozone is in the northeastern corner of British Columbia. The area is a cold, dry prairie and wildfires are fairly common in this region. Many tree species that are more resistant to fire grow in this area, such as paper and dwarf birch, willows, quaking aspen, tamarack, green alder, white and black spruces, balsam poplar, lodgepole, jack pines, and balsam fir.

# Briefing Sheet A: British Columbia's Six Major Ecozones

## Boreal Plains Ecozone

The Boreal Plains Ecozone is a small region below the Taiga Plains. It has long, cold, and dry winters, as much of the moisture is blocked by the Rocky Mountains. This region was scraped flat by the glaciers and left with many lakes. There is a forest of white and black spruce, balsam fir, jack pine, tamarack, white birch, water birch, Alaska birch, quaking aspen, willow, maple, and balsam poplar.

# Briefing Sheet B: FireSmart Landscaping Tips

**Review your draft landscaping plan. As you consider the priority zones, what in your plan works well, and what needs to be revised, added, or removed?**

- Some vegetation catches fire more easily. For example, dry and woody vegetation is more likely to catch fire than green grasses or leafy, deciduous trees.

- Replacing vegetation that more easily catches fire with other features, including plants that are less likely to catch fire, can create landscaped areas that are FireSmart.

- Priority zones are zones around a property that are especially important for keeping wildfires away from buildings:

    - The Immediate Zone is the area immediately around a building.
        - In this zone there should be no fuels that can catch fire, and all landscaping features should help block fire from reaching the building. All shrubs, trees, fallen branches, or woodpiles should be removed from this area and the grass should be kept mowed and watered.

# Briefing Sheet B: FireSmart Landscaping Tips

**Review your draft landscaping plan. As you consider the priority zones, what in your plan works well, and what needs to be revised, added, or removed?**

- The Intermediate Zone is 10 to 30 metres from the building.
  - Reduce the spread of wildfire by thinning out and pruning trees so there is less dry wood to catch fire.
  - Remove or reduce the number of evergreen trees in the area. Evergreens such as pine and spruce catch fire much more easily than deciduous trees.
  - Aspen, poplar, and birch are FireSmart alternatives because they are more fire-resistant than other trees.
- The Extended Zone is 30 to 100 metres from the building.
  - Thin plants and trees in this area, so if a wildfire does start it will be of lower intensity and easier to put out.
  - Plant or maintain fire-resistant deciduous trees.
  - Make sure trees are spaced so that the crown (tops) of the trees are at least 3 metres apart.

# Briefing Sheet C:
# The Role of Humans in Causing Wildfires

**Review your draft landscaping plan. As you consider the ways that humans can cause wildfires, what could be revised or added to your plan to reduce the likelihood of wildfires?**

About 85 per cent of wildfires are started by humans. Many are accidental, but some are intentionally started. Not all human causes of wildfires can be reduced by landscape design, but some can. Consider the following human-related causes and think about how your landscape plan can help to reduce the number of wildfires caused by human actions.

## Campfires

When enjoying the outdoors, many people like to build a campfire. Sometimes we roast marshmallows or even prepare whole meals over the fire. Sometimes we just sit around the campfire to share stories or sing songs. When a campfire is left unattended or is not properly put out, or if it becomes too large, sparks from the fire could ignite a wildfire.

# Briefing Sheet C:
# The Role of Humans in Causing Wildfires

## Burning Garbage

Rather than carry garbage out of a park or leave a pile of garbage behind, sometimes people burn their garbage before leaving. Coals and sparks from a garbage fire can ignite a wildfire.

## Cigarettes

People who smoke cigarettes will often throw partially burned cigarettes on the ground, especially if there is no proper place to put them when they are finished. Throwing cigarette butts in a garbage bin can ignite a fire. Throwing them on the ground can also cause a wildfire if there is dry debris on the ground.

# Briefing Sheet C:
# The Role of Humans in Causing Wildfires

## Arson

Sadly, sometimes people want to cause harm. They will set fires in areas for malicious (bad intent) reasons. While landscaping cannot address the bad intention, it might help slow down an intentionally set fire.

## Machinery

Occasionally, sparks from machinery that is not working properly can ignite a fire. This is especially true in cases where the landscape is very dry.