



Education Program

(Grades 2–3)



Lesson Four

Students learn about which plants and trees can be used to create more wildfire-resistant forest areas. Students will demonstrate their learning by creating a drawing or model of a fire-resistant forest area.



Lesson Question:

How FireSmart is the park?

Lesson Challenge:

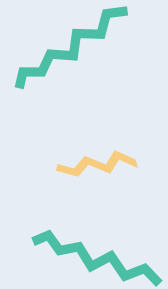
Create a diagram or model of a FireSmart park.

Big Ideas

- Living things are diverse, can be grouped, and interact in their environment. (Grade 3 Science)

Suggested Materials

- **Activity Sheet A:** How FireSmart Is the Park? (one copy for each pair of students)
- **Activity Sheet B:** My Thoughtbook (one copy for each student)
- **Activity Sheet C:** Identifying Fire-resistant Trees (one copy for each pair of students)
- **Information Sheet A:** Spacing Trees for Fire Resistance



Introduction



Forest areas have many benefits, like cleaning and cooling the air, reducing flooding, providing habitats for wildlife, and reducing stress. In urban communities, forests that are more resistant to fire will help to limit the flame spread and the damage to buildings, property, and people. In rural communities, more fire-resistant forests would also help protect livestock and crops. Knowing which trees are most resistant to fire and how far to space trees from each other and other flammable materials can help to create landscapes that are more FireSmart and wildfire resistant.

Start the Thinking



1. Organize students into pairs or groups and provide each with a copy of How FireSmart Is the Park? (Activity Sheet A). Invite students to describe what they notice in the image and prompt their thinking about forest park areas by asking questions such as the following:
 - What do we receive from forests?
 - What challenges do forests face?
 - What does it mean for an object to be fire resistant?
2. Invite groups to share their observations and thinking with the class. As they share, use their thinking to introduce the ideas that forests are important members of ecosystems and the environment, and that they face challenges such as climate change, deforestation, and wildfire.
3. Briefly explain that some parks and forests can be more resistant to fire than others. While a park forest that is fire resistant can still burn, there are things that can be done to minimize the spread and damage of fire.
4. Guide students' attention back to Activity Sheet A. Invite students to use details and cues in the image to decide how fire resistant the park might be. Ask groups to make their decision in the left-hand section of the table and to note reasons to support their thinking.
5. Encourage groups to share their decisions and thinking with the class. As students share, use their ideas to start developing the criteria for a fire-resistant forest by prompting them to complete the statement "A park can be more fire-resistant if" Note students' ideas on the board or chart paper and tell them they will be revisiting their ideas throughout this lesson.
6. Provide each student with a copy of My Thoughtbook (Activity Sheet B). Explain that a Thoughtbook is a place to draw or write their ideas that can help answer the lesson question. Ask students to create an initial drawing of a fire-resistant park on their Thoughtbook. 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 throughout the lesson.

Grow the Thinking



1. Introduce the concept of fire-resistant trees to students by explaining that there are many different kinds of trees in a forest or park. Some have features that make them burn easily and some have features that help them resist burning or burn less easily. Understanding what features to look for can help us select trees that are more fire resistant when designing gardens and forests in our community.
2. Provide each group with a copy of Identifying Fire-resistant Trees (Activity Sheet C). Ask groups to sort the cards into two groups: "burn easily" and "resist fire."
3. Invite groups to share their decisions and thinking with the class.
4. Introduce students to the qualities that make some trees more fire resistant than others:
 - trees that burn easily (most are coniferous) have:
 - leaves with a strong odour when crushed.
 - stems and branches that have gummy sap with a strong odour.
 - fine, dry, dead material (like papery bark, twigs, needles or leaves).
 - trees that are more fire resistant (most are deciduous) have:
 - moist, supple leaves.
 - water-like sap with no odour.
 - limited build-up of dead material.
5. Prompt groups to revisit their sorting of cards, this time using the descriptions of the trees to guide their decision-making. At this point in the lesson, it may be appropriate to discuss the importance of biodiversity in parks and forests: the more diverse a forest is, the more likely it is to resist fire.
6. Revisit and revise the criteria for a fire-resistant park recorded earlier in the class: What should be changed and why?
7. Ask students to now make a decision: Which would be more fire resistant, trees that are close together or trees that are spaced further apart?
8. Invite groups to share their decisions and thinking with the class. As they do, display or project Spacing Trees for Fire Resistance (Information Sheet A). Review the diagram with students and briefly explain that trees are fuel and fire needs fuel to burn, so the closer together the trees, the more fuel is available and the easier fire can spread from tree to tree.
9. Revisit and revise the criteria for a fire-resistant park recorded earlier in the class: What should be added or changed and why? As you discuss the criteria, guide students in understanding that a park can be made more fire resistant, or FireSmart, by following these criteria.



10. Guide each groups' attention back to How FireSmart Is the Park? (Activity Sheet A). Ask them to revisit their first thoughts: What would they change and why? Prompt groups to note their thinking in the "Our Final Thoughts" section.
11. Ask students to now revisit their Thoughtbooks and their first thoughts about what a fire-resistant forest might look like: What trees would they choose? How close together would trees be? Encourage them to use the criteria and information from this lesson to add or to change their first thoughts about what a FireSmart or more fire-resistant park area might look like.

Reflect on the Thinking



1. Invite students to think about forest park areas that may be in their community by posing questions such as the following:
 - How fire resistant is the forest ?
 - What could be changed to make a forest park more fire resistant and FireSmart?
2. Have students demonstrate their learning by completing their drawing of a FireSmart park. Alternatively, students could create a model of a FireSmart park area using classroom materials (for example, building blocks, paper).



Activity Sheet A: How FireSmart Is the Park?

Use details and clues from the image to determine how FireSmart this park is.



Activity Sheet A: How FireSmart Is the Park?

Our First Thoughts



How FireSmart is the park?

What details and clues from the image support your thinking?

More FireSmart

Somewhat FireSmart

Not very FireSmart



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Activity Sheet A: How FireSmart Is the Park?

Our Final Thoughts



How FireSmart is the park?

What details and clues from the image support your thinking?

More FireSmart

Somewhat FireSmart

Not very FireSmart



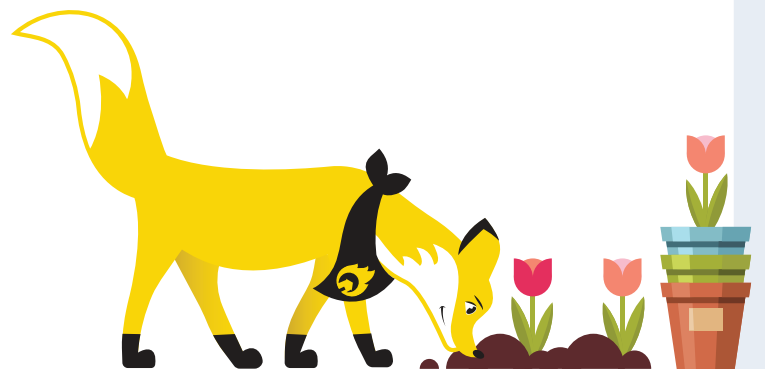
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Activity Sheet B: My Thoughtbook

What might a FireSmart and fire-resistant park area look like?
In the space below, use your ideas from this lesson to draw
an image of a FireSmart park area.



Activity Sheet C:

Identifying Fire-resistant Trees

Cut out and shuffle the cards. Sort the various trees into two groups: those that burn easily and those that do not burn easily.

Spruce



- short, stiff clusters of needle-like leaves
- strong odour when crushed
- slender, scaly, papery cones
- rough, scaly bark
- gummy sap

Cedar



- can smell like dried pineapple
- short needle-like leaves
- gummy sap

Pine



- long, soft, needle-like leaves
- strong herby, grassy smell
- flaky bark
- sticky, gummy sap

Fir



- soft, flat needle-like leaves
- bark with gaps and crevices
- strong, fruity smell
- gummy sap

Activity Sheet C: Identifying Fire-resistant Trees

Poplar



- thin, moist leaves
- watery sap
- low odour
- fluffy pollen
- builds up little amount of dead material

Maple



- thin, moist leaves
- watery sap
- low odour
- seeds in maple keys
- builds up little amount of dead material

Cherry



- thin, moist leaves
- watery sap
- low odour
- seeds in cherry fruit
- builds up little amount of dead material

Aspen



- thin, moist leaves
- watery sap
- low odour
- builds up little amount of dead material

Activity Sheet C:

Identifying Fire-resistant Trees

Arbutus



- moist leaves with a leathery feel
- watery sap
- low odour
- berry-like fruit
- builds up little amount of dead material

Oak



- moist, shiny leaves
- greyish-black bark with thick grooves and scales
- seeds found in tough acorns
- builds up little amount of dead material

Information Sheet A: Spacing Trees for Fire Resistance

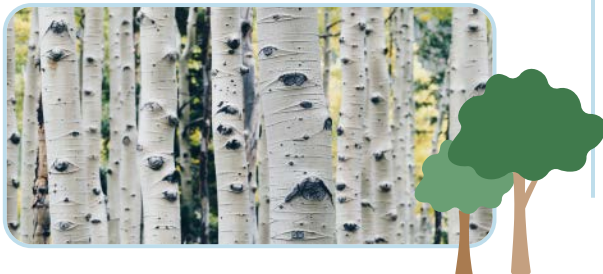


Information Sheet A: Spacing Trees for Fire Resistance

Intermediate Zone (10 metres from buildings)

What to plant

- Plant only deciduous, leafy trees that are resistant to fire.
- Examples are poplar, birch, aspen, maple, and cherry.



Trees to avoid

- Evergreen trees with cones and needles are highly flammable and should not be within 10 metres of buildings.
- Examples are pine, spruce, fir, and cedar.



Intermediate and Extended Zone (10 to 30 metres and greater from buildings)

Limit the number of evergreen trees in these zones and plant more deciduous trees.

Tree Spacing

Once fire moves into tree tops it can easily spread into neighbouring trees. Spacing trees at least 3 metres apart will reduce the risk of fire spreading.

