



Education Program

(Grades 2–3)



Lesson Two

In this lesson, students will create drawings of local ecosystems to describe the short- and long-term impacts of wildfires.



Lesson Question:

What are the most important short- and long-term effects of wildfires?

Lesson Challenge:

Create a set of pictures to show the most important short- and long-term effects of wildfires in a forest ecosystem.

Big Ideas

- Living things have life cycles adapted to their environment. (Grade 2 Science)
- Materials can be changed through physical and chemical processes. (Grade 2 Science)
- Living things are diverse, can be grouped, and interact in their ecosystems. (Grade 3 Science)

Suggested Materials

- A short story or book that shows a forested area before and after a wildfire (for example, *The Fox and the Forest Fire*: <https://vimeo.com/701456803>)
- **Activity Sheet A:** Picturing the Ecosystem (one for each small group)
- **Activity Sheet B:** Examining the Effects of Wildfires (one for each small group)
- "Did you know ..." cards



Start the Thinking



1. If possible, begin the lesson by taking students on a brief walk in a wooded ecosystem or park area near the school. Alternatively, invite students to think of a wooded ecosystem or park area near their community.
2. Organize students into small groups and provide each group with a copy of Picturing the Ecosystem (Activity Sheet A). Ask them to list as many living members (for example, trees, plants, insects, animals, fungi, bacteria) and non-living members (for example, soil, rocks, fallen leaves and twigs, air, wind, sunlight) of the ecosystem or area that they can think of.
3. Guide students' attention to the bottom of the activity sheet and invite them to use words and phrases that help create a vivid description of what someone might see, hear, feel, and smell in the ecosystem or area that they selected.
4. Draw students' attention to page 2 of the activity sheet. Ask groups to now create a drawing of the ecosystem or area that they walked through or thought of. Encourage groups to use the lists from Activity Sheet A to guide their creation.
5. Share a story such as The Fox and the Forest Fire with students (the selected story should show a wooded area before and after a wildfire). You could also share the story by showing a video of the stories being read (see Materials on page 1).
6. After reading the story or showing the video, ask students to think of their ecosystem and to suggest what changes or effects might be caused by a wildfire.
7. Introduce the lesson question and challenge. Invite students to suggest how they would change or revise their picture to show three important changes or effects that could be caused by a wildfire. Remind students that an important change or effect:
 - impacts many or all of the members of the ecosystem or area (widespread).
 - has big or deep impacts on the members of the ecosystem or area (deeply felt).

Grow the Thinking



1. Provide each group with a copy of Examining the Effects of Wildfires (Activity Sheet B). Ask groups to list short-term changes that are likely to occur to the members of a wooded ecosystem or area because of a wildfire (for example, the rocks turn black from soot, trees burn, animals flee).
2. Invite groups to share their thinking with the class. If any important changes and effects are missed, suggest them to the class.



3. Ask students to choose and note the four most important short-term changes and effects that are likely to happen because of a wildfire, reminding them to use the criteria to guide their decision-making.
4. Guide each groups' attention to page 3 of Activity Sheet A. Ask groups to create a picture that shows at least three important short-term changes or effects of a wildfire in their pictured ecosystem or area. Examples might include trees and plants die; animals lose their homes; more open spaces are created; more sunlight shines through; and fewer trees, plants, and animals are found in the area.
5. Invite students to do a walkabout to view other groups' pictures. Invite students to add to or revise their drawing or description using at least one important idea from other groups' drawings.
6. Read each of the "Did you know ..." cards with students. While reading, pause and encourage students to add any changes or impacts described on the cards to the list of long-term changes and effects on Activity Sheet B. Ask students to choose and note the four most important short-term changes and effects that are likely to happen because of a wildfire, reminding them to use the criteria to guide their decision-making.
7. Guide each groups' attention back to their drawing of the ecosystem after the fire, this time prompting them to add at least three important long-term changes or effects of a wildfire in their pictured ecosystem or area. The resulting picture should now include changes and impacts that occur in the years following a wildfire.

Reflect on the Thinking



1. Invite groups to complete the pictures of the short- and long-term changes and effects of a wildfire in their selected ecosystem or area.
2. Conclude the lesson by asking students to think about the impacts of wildfires: What are the most important short- and long-term changes and effects of a wildfire? Are any of the impacts positive in the long term? Remind students that wildfires both cause damage and create opportunity for new growth; however, some of what was previously in the ecosystem or area will not return for many years.



Activity Sheet A: Picturing the Ecosystem

Our selected ecosystem:

**Living members
of the ecosystem:**

**Non-living members
of the ecosystem:**

Living members of the ecosystem:



Activity Sheet A: Picturing the Ecosystem

What our selected ecosystem looks like:

What our selected ecosystem looks like after a wildfire:



Activity Sheet B:

Examining the Effects of Wildfires

	Living Members of the Ecosystem	Non-living Members of the Ecosystem
Short-term changes or impacts		
Long-term changes or impacts		
The most important changes or effects of wildfires		

An important change or effect:

- ✓ impacts many or all of the members of the ecosystem or area (widespread)
- ✓ has big or deep impacts on the members of the ecosystem or area (deeply felt)



“Did you know ...” Cards

Did you know ...

The **black-backed woodpecker** needs wildfires for food. The black-backed woodpecker eats the larvae (babies) of beetles that lay their eggs in burnt trees. The beetles need the burned trees to feed on.

And so, in the years following a wildfire, many black-backed woodpeckers can be found in the burnt remains of trees. In fact, you will usually find black-backed woodpeckers in areas burned by wildfire.



Did you know ...



The **ponderosa pine** needs wildfires to create more open spaces for it to grow. The Ponderosa pine has very thick bark that protects it from harm when a wildfire happens.

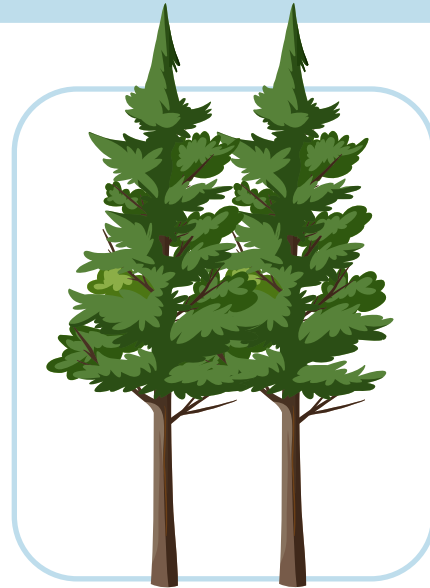
And so, in the years following a wildfire, ponderosa pines have lots of room to grow. This allows them to grow tall.

“Did you know ...” Cards

Did you know ...

The **western larch** needs wildfires to create open spaces for it to grow. The western larch needs lots of sunlight to grow. It has thick bark, and each fall its needles turn yellow and fall off. The fresh, new needles it grows each spring are less likely to burn than dry, brown needles.

And so, in the years following a wildfire, western larches get lots of sunshine and can grow tall.



Did you know ...



The **Clark's nutcracker** needs wildfires to create open sunny spaces where it buries its favourite food—the seeds from whitebark pine trees.

And so, in the years following a wildfire, thousands of seeds are planted by Clark's nutcrackers in the open spaces created by wildfires. Those that are not eaten sprout and grow into new whitebark pine trees.

“Did you know ...” Cards

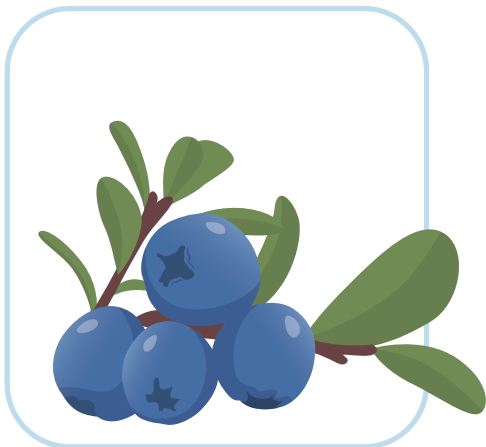
Did you know ...

The **deer mouse** needs wildfires to clear away thick plants that make finding insects and seeds difficult. When a wildfire clears an area, deer mice move in to feast on the insects and seeds in the area.

And so, in the years following a wildfire, many deer mice move into the burned area. Once new plants and shrubs grow back, the deer mice will leave and move to another open area.



Did you know ...



The **huckleberry bush** needs wildfires to clear away shrubs that block the sunlight. Without sunlight, huckleberry bushes disappear.

And so, in the years following a wildfire, huckleberry bushes thrive and grow, producing many delicious berries.