



Wild Kids

Wildfires and Wildlife

STUDENT GUIDE

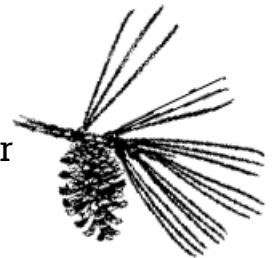
When you hear about a forest fire, you may think of all the damage a fire can do. Fire can be destructive. Trees and grasses are burned, animals and people lose their homes, and some wildlife may not survive a fire. But, fires that occur in wildlands, such as forests and grasslands, can also be good for wildlife. Actually, most animals survive forest fires. They have adapted to fire and will flee if they sense a fire is spreading. Often, fires can improve habitat for wildlife. Forest rangers may start a fire, or let a small fire burn. These carefully watched fires are allowed to burn only in a certain area, and can actually prevent larger forest fires.

How Does Fire Keep A Forest Healthy?

Fire removes the debris (pine needles and dead leaves) that litter the forest floor. If there is too much debris, new plants cannot grow and thrive. As the debris burns, its nutrients are returned to the soil. These nutrients are then used by seedlings that sprout and grow after the fire.

How Are Plants Adapted To Fire?

The ponderosa pine and Douglas fir have thick bark that allows them to withstand the destructive effects of fire. If it weren't for forest fires, other trees would eventually outnumber the ponderosa pine and Douglas fir. (Plants that are highly adapted to fire are called pyrophytes.)



Aspen trees are adapted to fire in another way. Before a fire, a chemical in the leaves and buds keeps the roots from sending up new shoots. But after a fire, the leaves and buds are killed and the trees' roots send up thousands of new shoots.

Seeds Need Fire?

Some plants need fire in order to spread their seeds. The lodgepole pine is a tall, slender tree with cones that are held together by resin (a sticky substance produced by plants). The heat of fire melts the resin, opens the cones, and releases the seeds.

How Is Wildlife Adapted To Fire?

Young animals, very old ones, and those that can't escape, may not survive a fire, especially a large fire. Some fish may die too, when fire changes the temperature and condition of the water. But since most animals survive a fire, how do they do it?

Deer, coyotes, and other large animals can usually outrun a fire. Birds fly away to a safe area, and lizards, snakes, and small mammals seek shelter in underground burrows. But if a fire is very hot or burns beneath the surface (called a ground fire), even animals in burrows may not be safe from smoke and fire.



Insects are some of the first animals to move back into an area after a fire. Burned, rotting wood makes a great home for insects, and a perfect place to lay their eggs. The large number of insects attracts woodpeckers. As they search for insects to eat, woodpeckers drill holes in the trees. They use the holes for shelter and a place to raise their young. After a few years, the woodpeckers move on to another burned area. The old woodpecker holes are used by birds that nest in holes, but can't make their own, such as mountain bluebirds and chickadees.



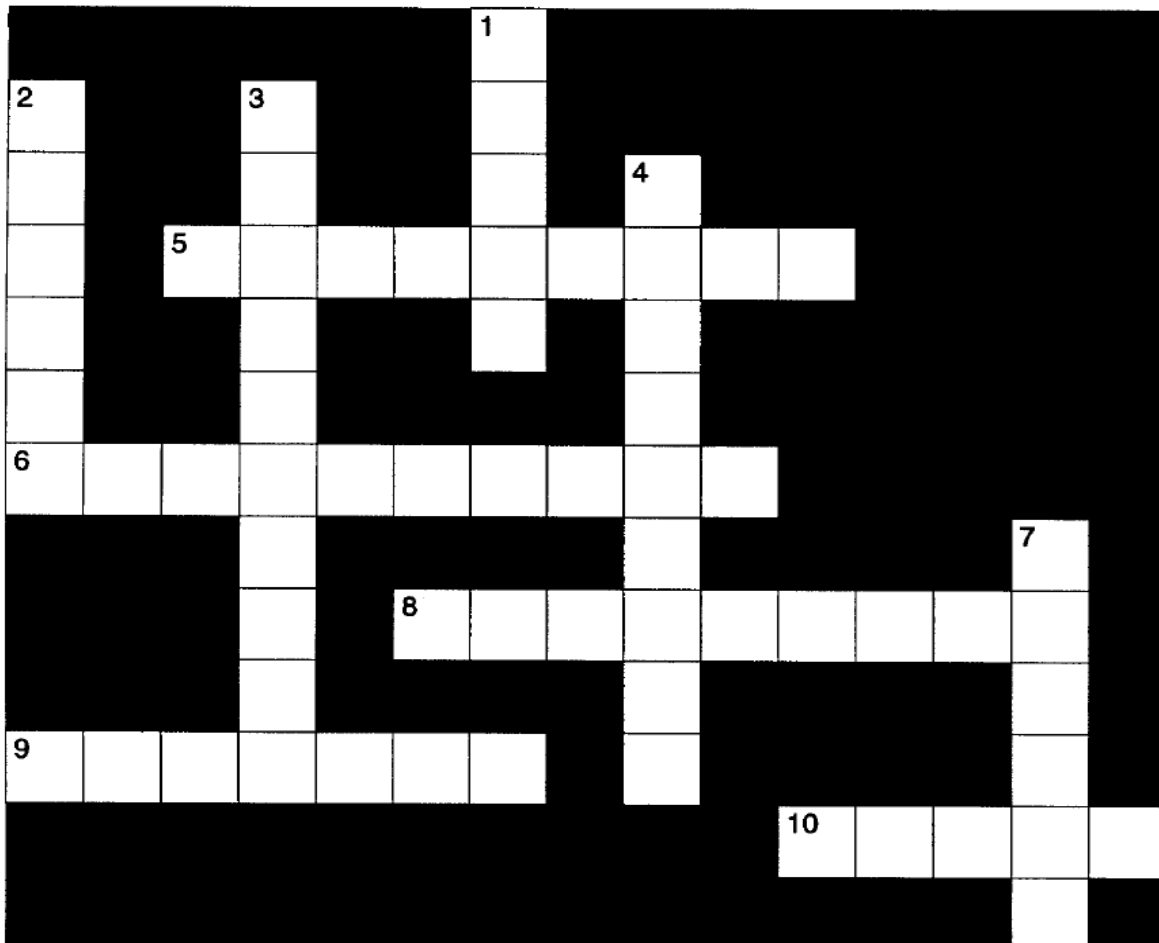
Use the information from the reading to complete the crossword puzzle.

ACROSS

- 5. a pine tree with thick bark
- 6. "drills" for insects in burned trees
- 8. a plant adapted to fire
- 9. lay eggs in burned trees
- 10. sticky substance produced by plants

DOWN

- 1. this tree sends up new shoots after a fire
- 2. underground shelter
- 3. a fire that burns under the surface
- 4. tall, slender pine tree
- 7. pine needles and dead leaves





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TEACHING GUIDE

Overview

In this activity, students will read a passage about wildfires and their impact on wildlife. Then, students will complete a crossword puzzle to assess their understanding of the article. Finally, students will research a major fire in Arizona's history and share their knowledge.

Suggested Procedures

1. Print the worksheet above. If possible, print it double sided.
2. Have the students read the entire passage (all of the first page and the first part of the second page).
3. Have students complete the crossword on the second page. All of the answers can be found in the text.
4. Discuss the answers and then ask students the following questions:
 - In what ways are fires bad for wildlife? In what ways are they good for wildlife?
 - How might we know when a fire is good and when it is bad?
5. Inform the students that they are now going to research a large historic fire in Arizona. They will write a report that includes: 1) how and where the fire started, 2) how long it lasted, 3) how many acres burned, and the effects of the fire on wildlife and habitat. Below is a list of recent fires. You can have the students select or they can choose:
 - Dude Fire, 1990
 - Lone Fire, 1996
 - Rodeo Chediski Fire, 2002
 - Aspen Fire, 2003
 - Cave Creek Complex, 2005
 - Horseshoe Two Fire, 2011
 - Wallow Fire, 2011
 - Yarnell Hill Fire, 2013
 - Sawmill Fire, 2017
 - Woodbury Fire, 2019
 - Bighorn Fire, 2020
 - Bush Fire, 2020
6. Give the students time to research and write their reports. Once finished, have them share some of the major discoveries of their research. Discuss the similarities and differences between the fires. Consider adding them to a chart showing cause and size. Students can then graph fire by size.
7. To recap, ask some questions:
 - In what way are human actions changing the fire regimen in Arizona? Is this good or bad?
 - What patterns do you notice about fires in Arizona?

Grade

5th

AZ Science Standards

- 5.L4U3.11

Science and Engineering Practices

- Obtain, evaluate and communicate information

Crosscutting Concepts

- Patterns