



Lesson: Forests and Fires

Grade Level: 3-10

Activity Duration: 45 minutes

Objectives:

- Students will identify the three things that must be present for a fire to occur
- Students will identify several ways in which forest fires are fought
- Students will recognize that a severe series of forest fires occurred in Yellowstone in 1988
- Students will be able to identify several ways in which forest fires start
- Students will be able to identify several ways in which fires impact the ecosystem

Kit Materials:

- "Ecosystems" poster
- "Ecosystem Cycles" poster
- Mason jar
- Candle
- Modeling clay
- Photo of 1988 fires
- Photo of pre-fire Yellowstone forest
- Photo of post-fire Yellowstone forest
- "Ecological Consequences of Fire" guide
- "1988 Fires" guide
- Pie tin

Classroom Materials:

- Small piece of newspaper (about the size of your thumb)

Lesson Procedure:

1. Ask students if they have had an experience with wildfires. Remind them that big fires can occur both in grasslands and in forests. Tell them that today you will be talking about forest fires, and that in 1988, Yellowstone Park experienced a huge number of fires.
2. Show students the image of a Yellowstone forest before the fires of 1988, and the image of the forest after the fires. Ask them to name some differences between the photographs, and to consider how the fires impacted the plants and animals.
3. Explain to students that you are going to take a look at how fires start. Ask them if they know how many fires are started in Montana, and make a list on the whiteboard. Encourage them to think of natural causes and manmade causes (lightning strikes, campfire sparks, sparks from the underside of a car, etc.)
4. Ask students to name some reasons why fires might get worse, or more difficult to fight (dry grass, wind, drought, etc.)
5. Tell students that there are three things that are essential to the life of a fire. You will be demonstrating all three, and as you go, you can make a class list of what these three things are.
6. Use the modeling clay to stabilize the larger candle in the jar (you can just dig the candle's end into the clay.) Light the candle, then put the lid on the jar. The candle will go out. Ask the students why they think this happened (you took the **oxygen** away). Explain to them that all fires need oxygen to burn. Is there a way for firefighters to take oxygen away from a fire? What about a very small fire?
7. Place the piece of newspaper in the pie tin (in a safe location!) Light it on fire, and have students count how long it takes for it to burn out. Ask them why it burnt out (there is no fuel left for the flame to feed on). Ask them if there is a way for people to take **fuel** away from a forest fire (or before a forest fire begins).
8. Go back to the jar and the candle. This time, light the candle and sprinkle some water on it. Ask students to think about why water puts out the flame (it cools it down). Fires need heat to exist. If you take heat away, they cannot continue. Ask students if they can think of why the Yellowstone fires eventually stopped (fall snow and rain came and extinguished them).
9. Use the "Ecological Consequences" and "1988 Fires" guides to have a class discussion about how fires changed the ecosystems in Yellowstone (if students need a refresher on ecosystems, they can refer to the poster or do the "What is an Ecosystem" lesson)