



Table Rocks Curriculum

Fire Tag

Objective: Students will identify the components necessary for fire to ignite (the *fire triangle*). Students will also explore the positive and negative effects of wildfire on a forest *ecosystem* through playing an interactive game.

Benchmarks Targeted: 1 and 2 (Grades 3-5)

Oregon Standards:

Subject Area: Social Sciences

Common Curriculum Goals: Geography: Understand how people and the environment are interrelated.

Benchmark 1: Understand how peoples' lives are affected by the physical environment

Benchmark 2: Understand how physical environments are affected by human activities.

Subject Area: Social Science

Common Curriculum Goals: Analysis: Identify and analyze an issue.

Benchmark 1: Identify how people or other living things might be affected by an event, issue, or problem.

Benchmark 2: Identify characteristics of an event, issue, or problem, suggesting possible causes and results.

Length of Lesson: 45 minutes

Materials:

- ✓ 1 red, 4 green, and 25 blue necklaces (use bandanas or make them out of cardboard and yarn)
- ✓ Yarn
- ✓ Stapler
- ✓ Large outdoor or indoor space

Key Vocabulary: *ecosystem, fire triangle, fuel, fire line, prescribed burn*

Background:

See Chapter Introduction.

Procedure:

Preparation:

Using the information given in the Chapter Introduction, discuss the necessary components of fire and the *fire triangle* with students. Have the class list possible sources of these components that exist in the Table Rocks environment.

Activity:

This game will show how fire spreads, methods to extinguish fire, and provide a visual understanding of a *fire line*.

- 1) Select five students from the class and pull them aside. Assign one of them to be “wildfire” and put a red necklace on that student.
- 2) Assign the other four to be wildland firefighters and put green necklaces on them. Give each firefighter five blue fire-protection necklaces.
- 3) Have the rest of the class scatter to different parts of the play area and stand still; they are trees in the forest. Have them spread out their arms like branches.
- 4) Ask the wildfire student to stand in the middle of the playing area and have the firefighters stand around the wildfire in the middle of the play area. The game starts when the teacher yells “FIRE!”
- 5) The wildfire student grabs the hand of a tree student and the tree then becomes part of the wildfire. Now the two of them run together, holding hands, to grab another tree, causing the fire to build and spread.
- 6) Firefighters try to protect the trees by putting blue fire-protection necklaces around the trees necks. Firefighters can only protect trees that haven’t been caught by the wild fire. When a tree receives a necklace, it must join hands with other protected trees to make a “*fire line*” (a natural or man-made line of protection that the fire cannot cross such as a trench, a road, or a river).
- 7) When the fire runs out of *fuel* (tree students), it burns out. At this point, the wildfire students should drop their hands and stand in place. These students now represent new trees that have sprouted in the burned soil. In time, these young trees will become a forest.
- 8) Follow the game with a discussion about some of the many plants, animals, and *ecosystems* that depend upon fire to survive. Discuss why the fire was extinguished? How do we extinguish fires today? (By removing one of the components of the *fire triangle*, usually *fuel*.) Is this the same method that extinguished the fire in the game? (Yes, the *fire line* helped to protect the remaining trees and removed *fuel*, to prevent the fire from spreading.)

Follow-up:

Address the significance of the blue fire-protection necklaces in the game “fire tag.” What do these represent? Investigate the role a firefighter plays in fire management and protection (see “Extension” section). Ask students which of the three components of the *fire triangle* they think would be the easiest to remove in order to stop a fire. Why? Which would be the most difficult to remove? Why? How could one go about removing one of these components? Discuss *fire lines*, the removal of vegetation and *fuel* surrounding a fire therefore disabling it from spreading. The removal of oxygen is obtained by smothering the fire with water or a chemical retardant.

Ask students for ideas of how they can prevent forest fires. Ask students to explore ideas of how land managers prevent high intensity severe fires? (Often a combination of practices, such as reducing *fuel* loads through removal of overgrown vegetation, planning *prescribed burns*, and managing naturally ignited fires, is necessary.)

Extensions:

- Ask a local firefighter to visit the class to talk about the equipment and techniques used to suppress fires. Have a BLM wildland firefighter or fire manager come in and discuss forest fires and *prescribed burns*.
- Visit the National Interagency Fire Center website at <http://www.nifc.gov/stats/index.html> to see a summary of wildland fire statistics, historically significant wildfires, and season statistics and summaries. You can explore and discuss the number of fires and acres burned, and the cost of suppressing these fires for all the Federal agencies from 1960 to 2004. With this information, you can generate an age-appropriate math unit or lesson.
- Explore < <http://www.smokeybear.com/wildfires.asp> > for more information, teacher resources, and activities.
- After a discussion of the components of fire—*fuel*, heat, and oxygen (see Fire Ecology Chapter Introduction), go for a hike around your school. While hiking, have kids consider *fuel* sources, heat sources, and oxygen availability.
- Take a field trip to a recently burned area. Contact the BLM Medford District Office at (541) 618-2200 for information on a safe site nearby.
- Explore additional resources at:
<<http://www.blm.gov/education/LearningLandscapes/teachers.html>>

Discussion Questions:

What are the three components of the *fire triangle*? On Table Rocks what are the sources of these components?

*Fuel, oxygen, and heat. On Table Rocks, the **fuel** is provided by shrubs, brush, grass, dead trees, dried leaves, and branches. Oxygen comes from the air. Heat can be provided by a lightning strike or from human carelessness such as throwing a lit cigarette on the forest floor, setting a fire and not properly extinguishing it or carefully monitoring it, or starting a fire during fire season.*

What does the U.S. Forest Service motto “Only You Can Prevent Forest Fires” mean? If fire is good sometimes, why prevent them?

*This message is aimed to prevent man-made fire that spreads, either by accident (such as being careless in camping situations) or intentionally by arson. High intensity severe fires can disturb the natural fire cycle of an **ecosystem** and can be terribly destructive. This type of fire should be prevented even if it occurs in a naturally fire-prone area.*

***Prescribed burns* are fires intentionally set by land managers. Why do they do this?**

*Prescribed or controlled burns are planned and watched by trained professionals to reduce the amount of **fuel** in a given area. Reducing the **fuel** (logs, branches and brush) can prevent fires from spreading and growing uncontrollably large. When these high intensity, severe fires occur, they are much more destructive to the **ecosystem** than natural fires. They scorch the soil, which makes it difficult for seeds to grow. The regeneration and recuperation process takes a much longer time. **Prescribed burns** set at frequent intervals can clear overgrown vegetation, aiding in the prevention of unconventional, catastrophic fires. With the human population increasing, many homes are being constructed in or along forest boundaries. These homes are at a greater risk of being destroyed by a wildfire. **Prescribed burns** reduce these risks.*

References:

BLM Learning Landscapes. Michael Smith. 2002. Bureau of Land Management. 11 February 2008 <[http://www.blm.gov/education/Learning Landscapes/teachers.html](http://www.blm.gov/education/Learning_Landscapes/teachers.html)>.

Fire Effects Information System. Jane Smith. 20 March 2006. USDA Forest Service. 11 February 2008 <<http://www.fs.fed.us/database/feis/about.html>>.

McGlaufflin, Kathy, ed. Project Learning Tree: Environmental Education Pre K-8 Activity Guide. 1995. American Forest Foundation, Washington, D.C, American Forest Foundation, 1995.

National Interagency Fire Center. 25 October 2006. US Department of the Interior. 11 February 2008 <<http://www.nifc.gov>>.

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