

Cold, Lost and Trying to Stay Warm and Safe!!!

By: Sheri Horsfall and Pam Swanson

Grade Levels 3-5

Subject: Science, Writing, Art

Montana K-12 Science Content Standards: 1-6

Prerequisites: Students must have prior knowledge of the fire triangle. Students must have prior knowledge of how to safely extinguish a camp fire. Teacher and students discuss a hypothetical situation about being lost in a wilderness area and how they would strive to stay warm.

Description: The purpose of this lesson is to have the students reason, write create and discuss how to make and extinguish a safe and successful camp fire.

Goal: Students will learn how to successfully start and extinguish a camp fire correctly, using the components of the fire triangle.

Objectives:

1. The students will work in groups of four students. They will pretend they are on a hiking adventure in the wilderness with their adult supervisors. They suddenly become separated from their supervisors as they go off exploring. The children stumble upon a camping sight along a lake. It is getting dark and they are cold. They decide they better stay for the night. The only survival materials they have in their possession is matches and the charred remains from a previous camp fire.

2. Each team of students will write a paragraph telling how they will build a camp fire.

3. Also, they will write about how to safely extinguish their campfire if a bucket and shovel were not available.

4. After discussing and sharing their ideas on building and extinguishing a campfire, the student will create their fire model in their fire pit (a large pin tin).

5. Each team on an asphalt surface will ignite their campfire with the help of their teacher and parent volunteers with a burning time of no longer than five minutes.

Materials Needed:

1. Paper
2. Pencils
3. Timer
4. Big pie tins
5. Green needles and twigs
6. Small dead and dry branches
7. Large dead and dry branches
8. Charred remains from previous campfires

Sharing and Discussing Results:

1. Was your fire successful, why or why not?

A. Discussion Points:

1. Green fuels have much more moisture than dead fuels, unless it's been raining lately. Moisture affects the Fire Triangle in two ways: first, you have to evaporate the moisture before you can heat the fuel to the ignition point (about 600 degrees F). If things are really wet, the water also keeps oxygen from the fuel.

2. Green fuels usually contain about as much water (by weight) as the plant tissue itself! The moisture of dead, dry vegetation depends on its environment but can be as low as three percent of the material's weight. So green fuels may be difficult to start on fire.

3. Once green fuels start to burn, however, they may produce more heat than dead ones. Green pine needles contain more stored energy than dead ones because they contain oils and other "volatile" compounds that deteriorate after the needles die.

4. Large particles, like the big twig, are much harder to ignite than small particles. That's because the small pieces have much more surface areas exposed to oxygen and to the heat of the match than the large pieces do.

Discussion material found at http://www.fs.fed.us/rm/pubs/rmrs_qyr65.html, page 52.

Related activities:

1. The Bucket Brigade page 49
2. Will it Burn page 53
3. Tinker Tree Derby page 62

Websites:

www.firelab.org

<http://www.firestories.com/Lesson%20Plans.htm>

http://hikingbackpacking.suite101.com/article.cfm/dont_burn_the_forest_down

http://all-camping-tips.blogspot.com/2008/03/campfire-safety-tips-posted-by-jeremy_17.html

