Fires Favorite Demonstration

Created by: Adapted from BLM's Fuels-What Burns Best Lesson.	**Time Required:** 45 minutes
Subject: Science	**Grade Level:** 5th

Overview	Students will learn that fire burns different materials at different rates.
Goal(s) & Objective(s)	Students will be able to determine which types of fuels burns best. Students will examine why different fuels burn the way they do. Students will learn that fire burns different materials at different rates and be able to identify characteristics of faster burning fuels.
Prerequisite: **Materials**	This is a teacher demonstration to support fires, plants, land, **Materials:** 1. Metal buckets - 4 2. Wooden matches - 28 3. An assortment of the following plant materials placed inside labeled bags or boxes: 4. Green grasses & plants 5. Dead/dry grasses & plants (cheat-grass) 6. Sagebrush 7. Large bucket of water 8. Spray bottle 9. Access to a hose 10. Metal trash can (for disposal of materials after the experiment)
Teaching Activities: ***Instructional Approaches/Strategies***	**Introduction:** **1.** Go over Fire Fact sheet as a class- this will give students background knowledge on fire. **Procedures** 1. Divide the class into six teams, each of which will be paired with one adult volunteer. 2. Each team will assemble a mixture of fuels according to one of the recipes below. All fuels must fit inside the buckets, with nothing hanging out over the edges. Use only the fuels included in each recipe; nothing else should be added. Fuel Recipes: A. Green grasses or plants (Note: If these are gathered more than a day before the experiment takes place, they should be stored in a

	plastic bag in the refrigerator.) B. Dead and dry grasses & plants C. Sagebrush D. Same mixture as B, but sprayed lightly with water 3. Using only the seven matches provided for each bucket, the adults should attempt to light the fuels, one bucket at a time. To allow the students to see how each fuel burns. 4. Encourage students to take note of how each bucket burns- slowly, quickly, big flames, small flames, did id just smolder, etc.? 5. After 15 minutes, stop the activity. **Closure** As a class, take a tour of the buckets. Discuss how successful each fire was and why it burned well or did not
Assessment:	Ask Students to discuss what this experiment tells them about fuels in a wild land fire.

Background: Students will most likely note that it was difficult to ignite the “green” fuels and the fuels that had been sprayed with water. Challenge them to explain why. (They had more moisture than the other fuels. The heat from the flame first has to evaporate the moisture before it can ignite the fuel.) Students might also note, however, that once the green fuels started burning, they actually burned quite well. Why? (They have plenty of stored energy—more, in fact, than dead plant materials. Pine needles also contain oils and other compounds that burn well.) Have students compare and contrast the ability of large and small materials to burn. Why would the smaller pieces ignite more easily? (The smaller pieces have more surface areas exposed to the heat of the flame and to oxygen.)