NORTHWEST FIRE SCIENCE CONSORTIUM

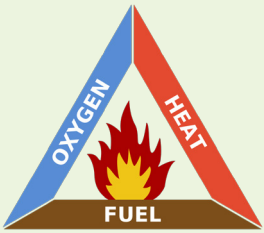
What is? FIRE TRIANGLE

The Fire Triangle is a simple way of understanding the components of fire.

FIRE FACTS

Each side of the triangle represents one of three components needed to have a fire – oxygen, fuel and heat. Fire is a chemical reaction and without one of these components, fire cannot exist or be sustained.

The air that surrounds us contains approximately 21% **oxygen**. Air supporting a fire must be at least 16% **oxygen** content to burn.



Fuel is considered any material capable of burning and is characterized by its moisture content (how wet the fuel is), size, shape, quantity, and the arrangement in which it is spread over the landscape. ***What are fuel sources?*** Any kind of combustible material - grass, shrubs, trees, houses, propane tanks, wood piles, decks.



A **heat source** is responsible for the initial ignition of fire, and heat is also needed to maintain the fire and permit it to spread. Heat allows fire to spread by removing the moisture from nearby fuel, warming surrounding air and preheating the fuel in its path. ***What are examples of heat sources?*** Lightning, cigarettes, powerlines, catalytic converters, small engine sparks, matches, magnifying glass.



A fire occurs when all three of these components react together in time and space. A fire can be put out, prevented or the impacts reduced by removing, reducing or separating these elements. In a forest environment, a fuel management activity such as thinning the trees is a method of reducing the amount and arrangement of fuel that is capable of burning. Additionally, reducing unwanted ignition sources by humans helps to decrease the probability of a fire occuring.

For more information:

Agee, J.K. 1996. Fire Ecology of Pacific Northwest Forests. Island Press, Washington, D.C. / Covelo, California.

National Fire Protection Association (NFPA), All About Fire, http://www.nfpa.org/press-room/reporters-guide-to-fire-and-nfpa/all-about-fire

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