

Fire needs three fundamental elements for it to occur:

1. There must be fuel
2. There must be oxygen
3. There must be heat

Remove any one of these elements and fire will go out — or fail to start.

Since you cannot control the amount of oxygen in the atmosphere, and have limited control over natural sources of heat (such as lightning), it becomes all the more important to focus on the element you can control: fuel.

A fire's behavior — how it moves — is also controlled by elements in its environment. Basically, fire behavior is influenced by:

1. Available fuel
2. Weather factors, such as sun and wind
3. Topography

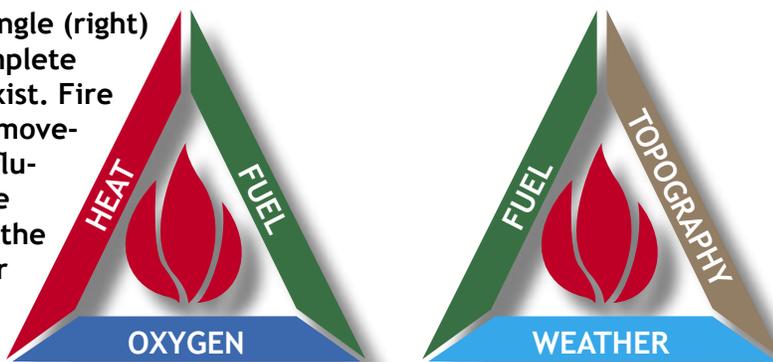
You cannot change the weather, and — in most cases — you can't flatten mountains or fill in valleys. But you can control the amount of fuel available to a fire.

The common denominator in the fundamentals of fire and the fundamentals of fire behavior is fuel. This is something that you can control that will reduce the likelihood of a fire starting and spreading. ❁

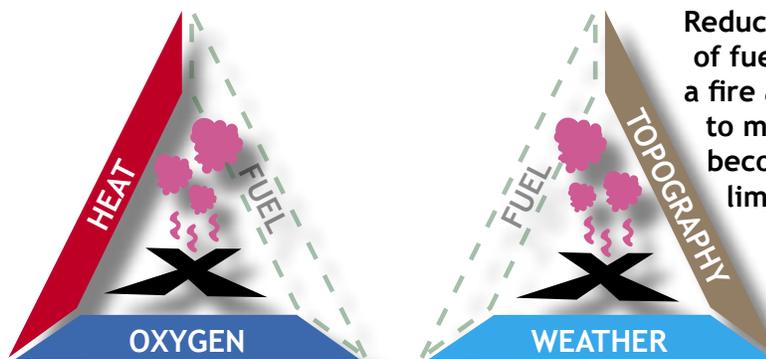
**Pop Quiz Answers:** 1 - H. Nearly everything in this photo will burn, except the metal ladder and the metal vent pipes. The glass won't burn, but it will burst — letting fire into the house — especially if the deck catches fire. 2 - C. The shake roof is this home's greatest liability. Firebrands from a wildfire a mile away could set this house on fire, and the resulting intense fire could burn the house to its foundation in minutes. 3 - F. The trees are of least concern. Green, healthy tree crowns can protect a roof from airborne sparks and firebrands. These trees have had their lower branches removed, making them less likely to transfer fire from the ground to the crowns.

## Fundamentals of fire

The fire triangle (right) must be complete for fire to exist. Fire growth and movement are influenced by the elements in the fire behavior triangle (far right).



## The common denominator is fuel



Reduce the amount of fuel available to a fire and its ability to move and grow becomes severely limited. Remove fuel and the fire goes out.



1. What sources of fuel for a fire do you see in this photo?

- |                    |                     |
|--------------------|---------------------|
| A. Tall, dry grass | E. Wooden posts     |
| B. Wooden deck     | F. Trees            |
| C. Shake roofing   | G. Pine needles     |
| D. Wooden siding   | H. All of the above |

2. Which fuel is of greatest concern?

3. Which fuel is of least concern?