



# Ingredients of a Fire

## CONCEPT

Three ingredients: **heat**, **fuel**, and **oxygen** are necessary to create fire. These ingredients combined cause a chemical reaction known as **oxidation**.

## OBJECTIVE

Students will be able to explain the three ingredients of fire and the chemical reaction that causes rapid oxidation – combustion.

## METHOD

Have students work in groups to read through their handout, conduct the lab, and answer the questions on their investigation worksheet. You may choose to conduct the lab as a demonstration, or have each group conduct it.

## MATERIALS

- Student Handout
- Student Investigation Worksheet
- Candles set up in aluminum pie plates or foil
- Matches
- Glass jars (big enough to fit over the candles)

## DURATION

1 – 2 class sessions

## Procedure

1. Ask the students to read the *Ingredients of a Fire* handout.
2. Discuss the ingredients of a fire and the chemical reaction that takes place.

## Candle Observation Lab

This lab is designed to demonstrate the ingredients of fire.

1. Divide the class into small groups and hand out materials for conducting the candle observation lab.
2. Go over safety precautions for conducting the lab.
3. Observe the burning candle flame for three to five minutes. Have students answer the questions under section A, questions 1 - 5, on the *4–Student Investigation Worksheet*.
4. Place a glass jar over the candle by slowly lowering it over the flame until it rests on the table.
5. Have students complete the remaining questions on the *4–Student Investigation Worksheet*.
6. Have students present their answers.
7. Discuss the answers with the students.

## Video Connections

Introduction to Fire Behavior – Part I

## Key Words

Carbohydrate  
Fuel

Combustion  
Oxidation

Dehydrated  
Volatile

Foehn