



## Fire & Soil

### CONCEPT

*Fire affects both above and below the soil. Nutrient levels, the addition of alkaline ash, and erosion due to loss of plant material, are all examples of how fire affects the soil.*

### OBJECTIVE

*Students will be able to*  
 –identify soil pH, fertility, temperature and moisture levels

–explain how soil temperature and moisture influence the possibility of fire

–describe the layers of a soil horizon

### METHOD

*Have students work in groups to read through their handout, conduct the lab, and answer the questions on their investigation worksheet.*

### MATERIALS

–Student Handout

–Student Investigation Worksheet

–Apple

–Knife

–See GLOBE protocols for the Soil Investigation

### DURATION

*1 – 2 class sessions*

### Procedure

1. Show the students an apple and explain that it represents the planet Earth. The skin represents the protective surface. Water covers 75% of the surface: oceans, lakes, and streams. Proceed to cut the apple in quarters and remove three of the quarters.
2. Show the remaining quarter and explain that it represents dry land but that 50% of it is made up of desert, polar, or mountainous regions too hot, cold, or high to be productive. Proceed to cut the piece in half and remove one half.
3. Show the remaining piece and explain that of this 12.5%, 40% is severely limited by terrain, fertility, or excessive rainfall. It is too rocky, steep, shallow, poor, or too wet to support food production. Proceed to cut the 40% portion away.
4. Show that what is left is approximately 10% of the apple. Proceed to peel the skin from the remaining sliver. Explain that this small fragment of land area represents the soil we depend on for the world's food supply. This fragment competes with all other needs – housing, cities, schools, etc. Explain that this tiny bit is what we will study.
5. Have students read the *Fire & Soil* handout.
6. Discuss how fire affects the soil.

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### *GLOBE Soil Investigation*

1. Divide the class into small groups and hand out materials to follow GLOBE protocols under *GLOBE Soil Investigation* including soil pH, fertility, temperature, moisture, and characterization (soil horizon).
2. Have students complete all the questions on the *8-Student Investigation Worksheet*.
3. Have students present their answers.
4. Discuss the answers with the students.

### Video Connections

GLOBE – Soil

### Extensions

Visit [www.Globe.gov/](http://www.Globe.gov/) for additional related activities under the GLOBE Teacher's Guide.

### Key Words

Acid	Alkaline	Annual	Bedrock
Clay	Germination	Horizon	Hydroxyl
Ion	Loam	Organic	Organism
Parent Rock	Percolate	pH	Sand
Silt	Terrain	Topsoil	