

Will It Sprout?

Activity based on
Gopher to the Rescue! A Volcano Recovery Story

I. Introduction:

This activity, based on the book *Gopher to the Rescue! A Volcano Recovery Story* is designed to show what seeds need to sprout in an area disturbed by a volcano. This activity is suitable for all grade levels when used in conjunction with the other activities based on the same book. It may be used as a stand alone activity for grades K-2.

II. Materials:

- *Gopher to the Rescue! A Volcano Recovery Story*
- Four small planting pots
- Hard dirt (It will take a little ingenuity to find the right kind of soil. Dirt from last year's pots which is hard and without nutrients is the just the right thing).
- Potting soil
- Fertilizer
- Seed Packet

III. Concepts

- A. Plants need soft soil and nutrients to live.
- B. Plant seeds need soft soil and nutrients to sprout.
- C. Food Chain
 1. Large carnivores eat
 2. Smaller carnivores and herbivores
 3. Herbivores eat plants.
 4. Without plants, animals can't live
 5. If seeds do not have the right soil to sprout, there will be no plants and no animals.

IV. Skills

- A. Understanding that plants have essential needs for surviving
- B. Understanding plants' needs for surviving
- C. Understanding the food chain
- D. Understanding how a natural disaster such as a volcano can damage the ecosystem.
- E. Understanding how man-made disasters can damage the ecosystem

F. Understanding that after a disaster, healing will take place.

V. Attitudes

- A. Increasing awareness of the devastation wrought by a natural disaster
- B. Appreciating effects of a natural disaster
- C. Appreciating effects of man-made disasters
- D. Appreciating effects of individual's actions on an ecosystem
- E. Appreciating that after a disaster there will be healing.

VI Science Vocabulary:

- ash
- carnivore
- ecosystem
- eruption
- fertilizer
- food chain
- herbivore
- nutritious
- root
- volcano

VII. Pre-Reading Discussion:

- A. Ask students to share what they know about volcanic eruptions and how they think the mountain will change. What will happen to plants and animals on the mountain.

VIII. Post-Reading Discussion:

- A. Share with students what the habitat was like before the eruption.
 - 1. The mountain was covered with conifers (hemlocks, firs, trees that look like Christmas trees) (First three spreads in the book).
- B. Share with students that the mountain became covered in hard crusty ash.
 - 1. Spreads 4-5 in the book.
 - 2. Discuss what could live in that sort of environment.
- C. Discuss with students how plants might come back to the mountain
 - 1. Seeds that blow in the wind.
 - 2. What about seeds that don't blow in the wind?
 - a. Conifer seeds (encased in pine cones) fall to the ground close to the tree. They depend on animals to distribute to far locations in their gut or in their coats.
 - 3. It will take a lot longer for conifers to return to the mountain.
- D. What do plants need to sprout?
 - 1. Place to send down their roots
 - 2. Nutrition
 - 3. Moisture
- E. Some animals survived.

1. Gophers survived
 - a. By digging their tunnels and bringing up nutritious bacteria from under the surface, they provided places where seeds could sprout.
2. Other animals survived, and other animals lived in the areas which were not damaged.
 - a. They all depended on the plants to return to the mountain before they could return.

IX. Pre-Activity Discussion:

- A. *Gopher to the Rescue! A Volcano Recovery Story* is a book about the recovery after the eruption of Mount St. Helens. The book hinges on gopher's efforts—a hardworking little guy that helped the mountain recover. After the eruption, large portions of MSH were covered in hard crusty ash. Gophers, as they went about their normal business, broke up the ash and brought up nutritious soil from below the surface. If a seed falls on the hard crusty ash, it will not sprout. If a seed falls on the dirt gophers have brought up, it should sprout. Elk were also helpful to the recovery. Their hard hooves broke up the ash as well. They also provided fertilizer. If a hoof print happened to have some fertilizer in it, and a seed were to fall in it, the seed would sprout.

X. Activity: Will it Sprout?

- A. With students, fill three pots with hard crusty soil.
1. Label first pot: Hard, Crusty Ash.
 - a. drop a few seeds in the pot.
 2. Label second pot: Elk Hoof print.
 - a. Break up the soil on this pot with a pencil or other hard implement.
 - b. Drop a few seeds in the pot.
 3. Label third pot: Elk Hoof print with fertilizer.
 - a. Break up the soil on this pot with a pencil or other hard implement.
 - b. Drop some fertilizer on the pot.
 - c. Drop a few seeds on the pot.
- B. Fill one additional pot with good, fertilized potting soil.
4. Label this pot Gopher Tunnel.
 - a. Drop a few seeds in the pot.
- C. Place pots in a location where they will get light.
- C. Water all four pots as directed in seed packet.
- D. Results in a few weeks should be:
1. Gopher Tunnel Pot sprouts first.
 2. Elk Hoof Print with fertilizer sprouts next.
 3. Elk Hoof print may sprout next or may not sprout at all.
 4. Crusty ash may sprout next or may not sprout at all.

XI. Post-Activity Discussion

- A. Gopher tunnel will provide the best place for a seed to sprout.
- B. Water will break down the soil to some degree even though nothing breaks it down.
- C. Seeds need soft soil to sprout.
 - 1. Soil can be softened in many ways, including water.
- D. Seeds need nutrition to sprout and the plant needs nutrition to continue to live.
 - 1. Animal waste and animal and plant decay provides the fertilizer in natural areas.
 - 2. Man-made fertilizers are used in gardening and farming, but also animal waste (manure) and plant decay (compost) are used as well.