

Splendid Spores

Materials

- copies of pages 44 and 45
- aluminum foil
- white bread
- quart-size (liter-size) resealable plastic bags labeled with students' names
- magnifying glasses
- scissors
- glue
- pencils
- water

Procedure

Prepare a bulletin board (away from bright light) to display the plastic bags. It should be located in a place that is easily accessible for student observations. If you do not have a board that is out of the direct light, staple a large piece of poster paper to the top of the board and let it hang loosely over the bags. The paper can be lifted for observations.

Find an open area outside, preferably out of the reach of animals, and roll out the foil. Give each student a slice of bread. Have the students place their bread slices on the foil and sprinkle them with a few drops of water. Leave the bread out overnight. The next day, have the students put each slice of bread in a plastic bag (be sure to label the bags with their names). Tightly seal the bags and staple them to the bulletin board. Make sure the students' names show. Provide magnifying glasses for observations and the journal records (page 45) for writing about their observations.

Ask the students to hypothesize about the following questions:

- Why was the bread dampened?
- Why was the bread left outside overnight?
- Why was the bread put into plastic bags?
- Why was the bread placed in a darkened area?
- What will happen to the bread?

Have the students complete the sequencing activity on page 44. Allow them to use magnifying glasses to observe the black mold growth. At the specific intervals suggested on the journal record (page 45), have them record their observations.

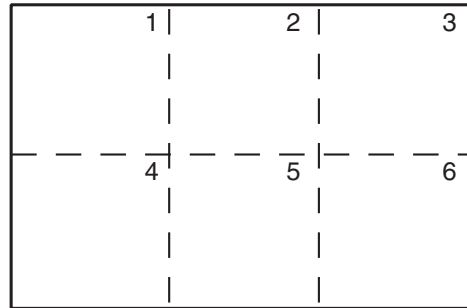
Fundamental Facts

Black bread mold has a fuzzy, spider-web appearance. It is a type of parasitic fungi that lives on non-living organic matter. It begins as a microscopic, airborne spore that germinates on contact with any moist surface of nonliving organic matter. It spreads quickly, forming a fine network of filament clusters that obtain food by absorbing it directly from the organic matter it has attached itself to. When the *sporangia* (knob-like spore cases) ripen, they break open, and the spores float in the wind until they land and begin the reproduction cycle again. Fungi and bacteria can be found anywhere other life exists. They work together to decay and decompose all organic matter.

Splendid Spores *(cont.)*

Materials

- white paper
- glue
- pencil
- crayons, markers, or colored pencils



Procedure

1. Fold a sheet of white paper in half lengthwise. Fold the length into three equal parts. Crease the folds.
2. Open the paper. It should have six equal boxes. Number the boxes 1–6.
3. Put the title “Growing Mold from Spores” at the top of the page along with your name.
4. Cut out the sentence boxes below and arrange them in sequential order from 1–6.
5. Glue the sentences in order along the bottoms of the boxes.
6. Draw an illustration to represent each step.

Sprinkle a few drops of water on the bread.

Use a magnifying glass to observe the bread in the bag. Record changes on your Journal Record.

Put the bread in a plastic bag and seal it tightly.

Put a slice of white bread on a piece of aluminum foil.

Place the bag in a darkened area.

Put the bread outside and leave it out overnight.

Splendid Spores *(cont.)*

Journal Record

Directions: Describe the process that was used to collect spores on the bread slices. Keep a close watch on the bread slices and enter your observations below. Make entries only on the specific days listed.

Day 1—Describe the process for collecting spores on the bread slices.

Day 4—Observation #1 _____

Day 7—Observation #2 _____

Day 10—Observation #3 _____

Day 12—Observation #4 _____

Day 15—Observation #5 _____

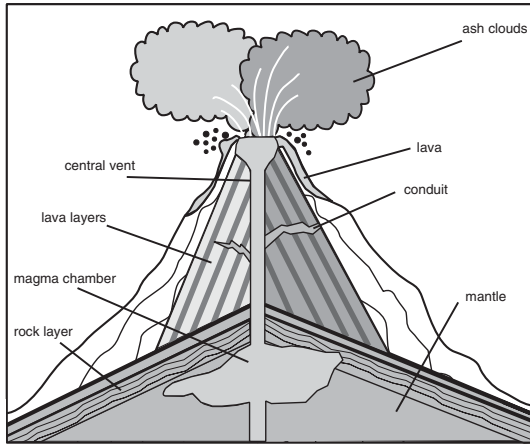
Record any additional observations below and on the back of this paper.

Answer Key

Page 22

1. b, c, d 4. b, c, d
2. a, d 5. a, d
3. b, c, d 6. a, b, d

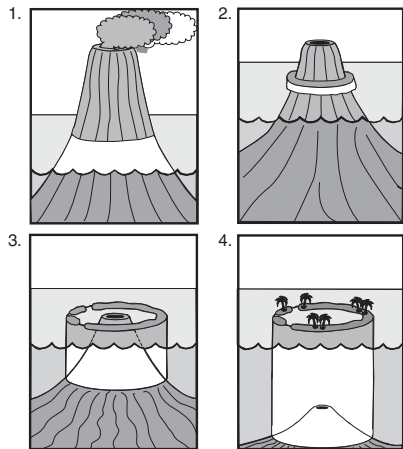
Page 33



Page 34

1. 318 feet (97 m)
2. 5 miles (8 km) wide, 25 miles (40 km) wide
3. 2 feet (61 cm)
4. 300 square miles (777 square km)
5. 8,477 feet high (2,584 km)

Page 39



Page 44

1. Put a slice of white bread on a piece of aluminum foil.
2. Sprinkle a few drops of water on the bread.
3. Put the bread outside and leave it out overnight.
4. Put the bread in a plastic bag and seal it tightly.
5. Place the bag in a darkened area.
6. Use a magnifying glass to observe the bread in the bag. Record changes on your Journal Record.

Page 46

1. caldera
2. seismometer
3. volcanology
4. eruptions
5. magma
6. planets
7. Explosive
8. Pyroclastic
9. Mudflows
10. pumice

Page 47

1. .6 or 60%
2. .5 or 50%
3. .6 or 60%
4. .9 or 90%
5. .67 or 67%
6. Example: $13 \div 22 = 59\%$

Page 48

California



- Eureka 50%
- Sacramento 59%
- San Francisco 67%
- Parkfield 90%
- San Bernardino 60%
- Los Angeles 60%

Page 49

1. Parkfield, 90% probability
2. Eureka, 50% probability
3. California

Page 50

1. in 70 minutes at 3:05
2. about 20 times
3. 1 hour at 10:27
4. 100 minutes
5. approximately 7,508 times

Page 53

1. Cascades—Northwestern U. S.
Sierra Nevada—Western U. S.
Black Hills—North Central U. S.
Appalachians—East Central U. S.
2. Cascades—volcanic mountains
3. Appalachians—fold mountains
4. Black Hills—dome mountains
5. Sierra Nevada—block mountains
6. Accept responses that reflect information presented on page 52.