Funky Fungus

Objective
Students will observe the growth of fungus on bread.

Background
Decomposition is a fundamental process on which all life depends. When a plant or an animal dies, the energy stored in them is not lost. Bacteria, fungi and other microscopic organisms produce special enzymes to break down dead plants and animals so they can use them as food. These organisms, called decomposers, live in the soil, air and water. They are nature's recyclers. They have the ability to produce special enzymes which allow them to break down dead plants and animals and use them for food. As they eat, they grow and multiply at an amazing rate. In just four hours, one bacterium can grow to a colony of 5,096. And at days end there are millions and billions of them working together. In one teaspoon of soil there are more bacteria and fungi than all the people on Earth. Despite their microscopic size, you have probably seen evidence of them right in your home—that orange with blue-green mold in the back of the refrigerator or that black or white fuzz on the slice of bread kept too long in the bread box. These are colonies of our microbial friends hard at work in the fine art of decomposition.

Vocabulary
bacteria—a widely-distributed group of typically one-celled microorganisms, many of which produce
diseases. Many are active in processes of fermentation, the conversion of dead organic matter into soluble food for plants and the fixing of atmospheric nitrogen.
decomposition—organic decay
decomposers—organisms which break materials down into parts and cause them to rot
enzymes—any of numerous proteins or conjugated proteins produced by living organisms and functioning as biochemical catalysts
fungus—any of numerous plants lacking in chlorophyll, including yeasts, molds and mushrooms

Procedures
1. Provide copies of the Scientific Method Format included with this lesson. Students will use the form to record observations as you conduct the experiment as a class.
2. Follow these steps to grow fungus on bread. NOTE: SOME CHILDREN MAY BE EXTREMELY ALLERGIC TO MOLD. AFTER THE PETRI DISH IS SEALED, DO NOT REMOVE THE LID.
3. Place a slice of bread on a flat surface.
4. Place the bottom plate of the petri dish on the bread, edge down, and press.

Oklahoma Academic Standards

GRADE 3
Life Science 1-1; 4-3

GRADE 4
Life Science 1-1

GRADE 5
Life Science 2-1,2

Materials
3 petri dishes

3 slices of bread

2 samples of soil from different locations—25 grams each

2 small zip lock bags

deionized water

graduated cylinder
eyedropper

low power microscope

Remove the excess bread from the outside of the dish, leaving the cut bread inside the petri dish. Repeat for other two dishes.

5. Label the petri dishes “soil #1,” “soil # 2” and “control.”
6. Place one of the soil samples in a zip-closing bag. Add 50 ml of deionized water. Shake well.
7. Place the other soil sample in a zip-closing bag. Add 50 ml of deionized water. Shake well.
8. Let the two samples sit for 3-5 minutes or until the soil is settled.
9. With an eyedropper, place 5-10 drops of water from the first soil sample solution on the bread in the petri dish labeled “soil # 1. Spread the drops across the bread rather than concentrating them in one area. Place the top on the petri dish. DO NOT REMOVE THE LID FOR THE DURATION OF THE EXPERIMENT.
10. Repeat for the second soil sample solution for the bread in the petri dish labeled “soil # 2.”
11. Place the lid on the top of the petri dish labeled “Control.”
12. Place all three petri dishes in a paper bag for storage. Place the bag in a warm, dark environment (desk drawer, cabinet, etc.)
13. Ask students what they think will happen to the bread. Students will record their predictions on their Scientific Method Format forms.
14. Each day remove the plates from the bag.
15. Students will record their observations by writing and by drawing diagrams of the fungal colonies. Notice the different colors and sizes of the colonies.
16. Examine the fungal colonies under a low power microscope to look for fruiting structures (reproductive structures).