



A Germ Safari

Let's explore some of the microbial life in our world.

We need:

- A loaf of white bread
- Sandwich zip bags
- Hand sanitizer
- A permanent marker
- Adult supervision

We might like to have:

- A water filled spritzer bottle
- Rubber gloves
- A magnifying glass or loupe
- A variety of sanitizing products such as:
 - Soaps or detergents
 - Bleach
 - Disinfectant wipes
 - Rubbing alcohol
 - Ammonia
 - Etc.

Background: Individual microbes are far too small to see without a powerful microscope. In order to be able to see if we have collected any molds, fungi, or bacteria, we need to encourage them to reproduce. If their population grows enough, we will be able to see that we have found some of these microbes. We will use the bread as food, or growing medium, for our organisms, and we will put slices of bread in sandwich bags to keep them moist and to contain whatever we grow.

Procedure: We want to wipe a surface, such as a counter top or a door knob with a slice of bread, and then store the slice in a sealed plastic bag for a period of time to see if anything grows on it.

Making this science: What if we take a fresh piece of bread and seal it in a plastic bag without wiping it on anything? We need to do this; it is called a "control." Did we wash our hands before we started? Does it help if we moisten the bread with some water? How long does it take to see results? Do our cultures grow better in light or in darkness? Do they grow better if they are inside or outside of a refrigerator? Do we always get the same results if we do one test of a certain surface or if we do several tests of the same surface? What would be a good way to test if a certain sanitizing product is more or less effective than a different one? Can we find bread that doesn't have preservatives? How will we remember what we did to each slice of bread? (What is that permanent marker for?)

Suggestion: Do not open the bags, and throw away all of your samples when you're done!