

Activity: Watching Granny Smith Rot



See how important it is to wash your hands before handling food.

What You'll Need:

- apple, thoroughly washed in advance
- peeler, small knife, and cutting board
- access to a sink with soap, warm water, and paper towels
- 4 unused pint- or quart-sized zipper-type freezer bags
- permanent marker to label bags
- regular soap (not antibacterial)
- antibacterial soap
- alcohol hand sanitizer

What You'll Do:

- » 1. Label the freezer bags “unwashed hands,” “regular soap,” “antibacterial soap,” and “alcohol hand sanitizer.”
- » 2. Have a volunteer wash his or her hands thoroughly with regular soap and warm water, lathering the hands for at least 10–15 seconds. Also wash the peeler, knife, and cutting board thoroughly with warm water and soap. Have this person cut the apple into quarters, peel one quarter, place the peeled piece of apple in the bag labeled “regular soap,” and tightly close the bag.
- » 3. Choose a volunteer who has not washed his or her hands in several hours to peel a second piece of apple, place it in the bag labeled “unwashed hands,” and tightly close the bag.

- >>4. Repeat step 3 with two remaining volunteers except have one wash his or her hands with antibacterial soap and the other apply alcohol hand sanitizer. Thoroughly wash the peeler with warm water and soap before and after each use. Place the apples in the appropriately labeled bags.
- >>5. Place all of the bags in a warm place.
- >>6. Observe the apples several times a week for two weeks. Do not open the bags during this time. Record your observations using both words and drawings.
- >>7. At the end of the two weeks, throw away the bags with the apples still inside. Do not open the bags.

Questions to Consider:

- After a week or two, do the apples look the same as they did when they were first cut? If not, how are they different?
- What caused the apples to be different?

What You'll Discover:

You may get varying results depending on the age and variety of apples you use, but the results below are typical.

All of the apple pieces will turn brown within 30 minutes to an hour. This is due to the reaction of the apple with oxygen and is not a result of microbial activity. The appearance of bacterial or mold growth and the resulting rot will not be visible to the naked eye for several days. Typically, an apple cut with unwashed hands grows mold in about 5 days and is covered in mold and decomposing after about 7 to 14 days. An apple handled with washed hands or with hands that have used hand sanitizer only has minor traces of mold after a week or two. This activity vividly shows how unwashed hands transfer bacteria and mold spores to the apples. Washed or sanitized hands transfer fewer microorganisms to the apples.

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