

RAFT IDEAS

Topics: Microbes, Mold,
Data Collection,
Classification

Materials List

- ✓ Zip-lock plastic bags, small, ~5 cm x 7 cm (2" x 3")
- ✓ Agar, prepared according to package instructions
- ✓ Sugar
- ✓ Water
- ✓ Pan & Stove
- ✓ Cotton swabs
- ✓ Masking Tape
- ✓ Pen
- ✓ Zip-lock bag

This activity can be used to teach:
Next Generation Science Standards:

- Cycles of matter and energy (Grade 5, Life Science 2-1, Middle School, Life Science 2-3)
- Ecosystems and populations (Middle School, Life Science 2-1)
- Science & Engineering Practices (Grades 4-12)



Fungus Amongus

Discovering the Moldy, Microbial World



Microbes are everywhere! And good, bad, or otherwise, people should not ignore them. Where are microbes hiding in your environment?

Assembly (Note: these quantities will yield 12 – 15 Zip-lock “culture dishes”)

1. Add a spoonful of sugar to 240 ml (1 cup) of hot prepared agar and stir until dissolved. Cover pot and allow mixture to cool for 5 minutes.
2. Add 10 – 15 ml (2 – 3 teaspoons) of agar mixture to each zip-lock plastic bag. Zip the plastic bags shut (note: air in the baggies is a good thing.)
3. Lie plastic bags flat and allow agar to cool and solidify (in refrigerator if desired.) Prepared agar should be about the consistency of firm finger Jell-O.

To Do and Notice

1. Rub a cotton swab onto an area to test (i.e. – kitchen sink, floor, garbage can, cleaning sponge, inside of backpack).
2. Open a Zip-lock “culture dish” and rub test swab onto the prepared agar.
3. Close the bag and secure the closure with masking tape. (**Safety Note:** Once sealed, the bags should **NOT** be opened again!) Repeat steps 1 – 3 for each area to be tested. Label the masking tape with the date and test area.
4. Place the plastic bag(s) in a drawer or in an out of the way place, away from direct sunlight. Make observations and notations every day for 7 – 10 days. Look for dark, fuzzy-looking circles on the agar surface. These circles are types of fungi called molds, multi-cellular organisms that grow from highly resistant spores. A higher amount of mold in a plastic bag means more mold spores were present in the tested (swabbed) area... potentially more harmful. Try to count the number of colonies and different types of mold (different shades and/or colors) present in each zip-lock culture.
5. After 10 days, place all the zip-lock cultures into a zip-lock sandwich bag, close it, and throw it away. **DO NOT OPEN AND/OR INSPECT THE CULTURES!**

The Science Behind the Activity

In terms of life on planet Earth, the microbes win! They were here first, they can survive in the harshest environments, and the microbial biomass outweighs the animal biomass hands-down! Most microbes either help us or live in harmony with us, but some are harmful. Many microbes actually help humans, such as yeasts that we use to make bread and beer and molds that we use to make antibiotics. Fungi were once mistaken as plants, but we now know that they are more closely related to animals.

Web Resources (Visit www.raft.net/raft-idea?isid=71 for more resources!)

- Fun facts and information about microbes can be found at the Microbe Zoo: <http://commtechlab.msu.edu/sites/dlc-me/zoo/>
- Information about fungi can be found at the Virtual Museum of Canada at: <http://www.virtualmuseum.ca/virtual-exhibits/exhibit/the-fungus-among-us/>