

# The Fungi

10.12.09

Name \_\_\_\_\_

Date \_\_\_\_\_ Hour \_\_\_\_\_

## INTRODUCTION

Did you know that if you have athlete's foot you are growing a fungus? The fungi include yeasts, mushrooms, and molds. Some fungi, such as certain wild mushrooms, contain substances that are poisonous. Other fungi add to the food supply. Cultivated mushrooms are considered an edible treat, cheese is produced by a fungus, and yeast is used in making bread and alcoholic products. Fungi are also important to the pharmaceutical industry in making antibiotics. Penicillin, for example, is produced by a blue-green mold.

Fungi have no chlorophyll and thus cannot make their own food. They grow on other organisms and consume organic material produced by these organisms. The fungi can be either parasites (such as athlete's foot), which grow on living organisms, or saprophytes, which grow on dead organisms.

The cell structure of fungi differs from that of plants in several ways. Most importantly, the cell walls of fungi are made of chitin, the same material that forms the hard exoskeleton of insects. Also, the cells of many species of fungi have more than one nucleus. Biologists who study fungi are called mycologists.

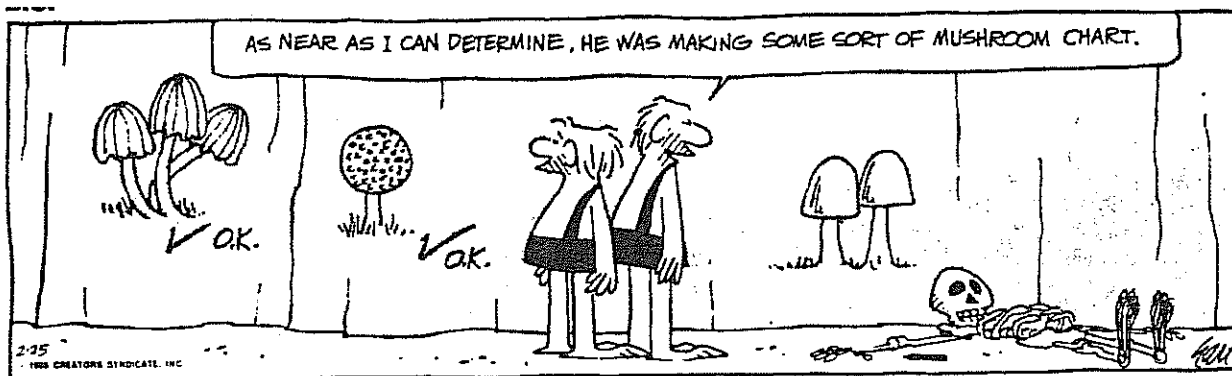
Name the material not found in fungi that allows plants to produce food. \_\_\_\_\_

Tell what it means when an organism is called a parasite. \_\_\_\_\_

Tell what it means when an organism is called a saprophyte. \_\_\_\_\_

Name the material found in fungi that makes the cell walls tough. \_\_\_\_\_ Tell one other place in nature this material is found. \_\_\_\_\_

Give the name for the biologists that study fungi. \_\_\_\_\_



Agar Preparation for the study of fungi....

PUT YOUR SAFETY GLASSES ON and keep them on throughout the activity.....

Place approximately 400 mL of water in a 600 mL beaker and bring it to a boil on the hotplate. (The materials below can be added to the beakers before the water actually begins to boil BUT the water, with contents, **must boil for five minutes** before going to the next step.)

Group assignments:

1. **Potato-dextrose agar (PDA).** FINELY dice approximately one-half of a potato and place it in the beaker of boiling water. **\*\***(Extra step for PDA preparation...later in the lab--After boiling and decanting, add a measure of dextrose (glucose, corn syrup) to the liquid before adding the agar.)**\*\***
2. **Oatmeal agar (OA).** Obtain one measure of oatmeal. Using your fingers, grind the oatmeal into small pieces and add it to the beaker of boiling water.
3. **Dung agar (DA).** Place ~20 pellets of dried rabbit dung in the boiling water.
4. **Soil agar (SA).** Place one measure of garden soil in the boiling water.
5. **Prune agar (PA).** Finely dice three prunes and place them in the boiling water.

Obtain a test tube rack, six 16 mm X 150 mm culture tubes, and tube-caps for each. Label each tube with today's date and the abbreviation for the type of agar your group is making.

After five minutes of boiling, decant 150 mL of liquid (avoid any solids) to a 400 mL beaker—use the markings on the beaker for your volume. **\*\***(PDA group, don't forget to add dextrose to the 150 mL now.)**\*\*** Add ONE capful of agar and stir until it dissolves. Put the 400 mL beaker on the hot plate and bring the agar solution to a boil. STIR CONSTANTLY since the agar will scorch.

Once your agar has reached a boil, pour your six tubes. Fill each tube to within one cm of the top. Add the tube-caps and place the tubes in the rack in (near) the autoclave. Place any left-over agar in the appropriate jar (the agar is expensive) for later use.

Dispose of any material left in the 600 mL beaker. Rinse the beaker and stirrer before putting them away.

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After autoclaving....(the next day)....

\*\*\*The type of agar and the number of plates or slants of each is dependent on the size of your class. Listen carefully to your instructor so you will have the plates/slants needed to complete all of the lab activities.

Obtain \_\_\_\_\_ sterile petri dishes for your group. **THESE ARE STERILE, DON'T OPEN THEM!** Label the top of each dish with the abbreviation for the type of agar, your initials, and today's date. Pour one tube in each dish following your instructor's directions for aseptic technique. Swirl the dish if necessary to get an even coating on the bottom. Allow the dishes to cool and harden in place.

To prepare slants.....Transfer half the contents of the tube of agar to an available empty **STERILE** culture tube. Cap and label each tube with your initials and date. Place the tubes on the slant board to harden at the proper angle.

Wash all tubes, caps, and the beaker—Follow instructions on putting away materials.