Name: _____ Date:_____

General Biology II Lab #3: The Fungus Amongus

Pre-Lab Reading: Chapter 29 Pages 601-623 focus on Table 29-1 (Be sure to bring your textbook with you to lab!)

Pre-Lab Vocabulary:

1. Hypha (hyphae)-
2. Mycelium-
3. Saprophyte-
4. Parasite-
5. Rhizoids/Stolons-
6. Sporangiophores/sporangia-
7. Gametangia/zygosporangium-
8. Ascocarp/ascospores-
9. Basidia/Basidiospores-

Procedure 1: Phylum Chytridiomycota

Allomyces, a water mold, belongs to this group. **Examine the culture of this fungus.** It contains both the gametophyte stage and the sporophyte stage. **What differences do you see?**

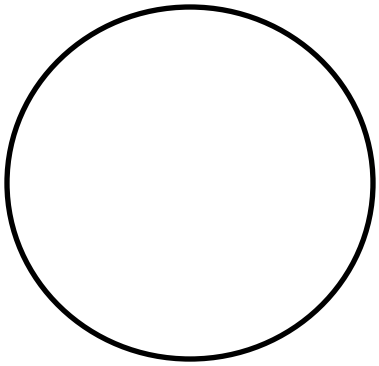
On the gametophyte side of the culture there are gametangia – slightly brown balls. These include both the female and male reproductive structures and will produce gametes. **What is the unique characteristic of the gametes and spores of this group?**

Procedure 2: Phylum Zygomycota
A well-known example from this phylum is Rhizopus, or bread and fruit "mold"
Examine the live *Rhizopus stolonifer* culture – **can you identify the sporangia? Draw what you see.**

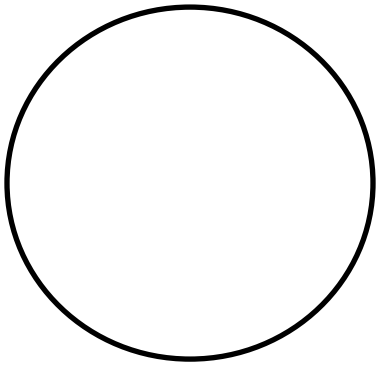
Examine the prepared slides of Rhizopus and **identify** reproductive structures, **compare with Figure 29-9 on page 610 of your text**.

<u>Draw and label the following:</u>

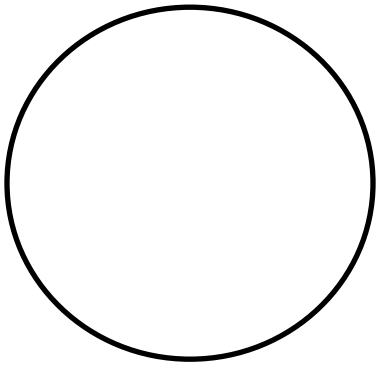
Mycelium sporangia



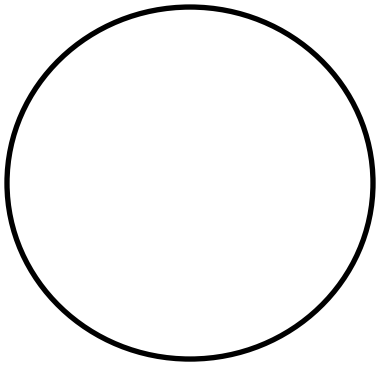
Zygote formation – formed from the fusion of hyphae from 2 different fungi.



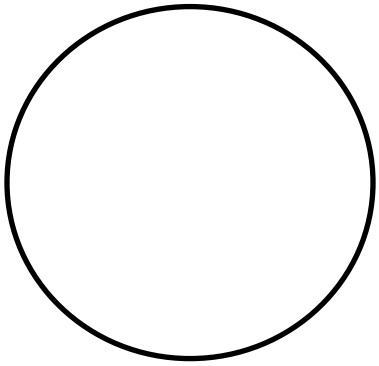
Zygospores slide – spores form by meiosis of the zygotes.



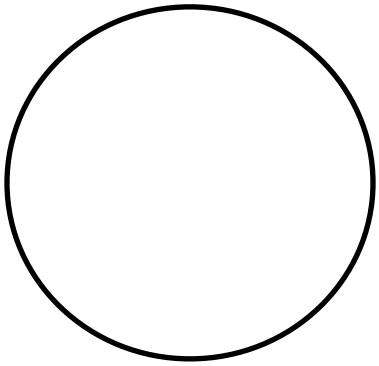
Procedure 3: Phylum Ascomycota – "cup" fungus, yeasts, morels, truffles
An example of Ascomycota is Penicillium. Examine the live culture of *Penicillium notatum* and **draw what you see. *What important medicinal role does Penicillium play?***



Another example of Ascomycota is Aspergillus. Examine the live culture of *Aspergillus niger* and **draw what you see. What does *Aspergillus niger* produce that is commercially important?**



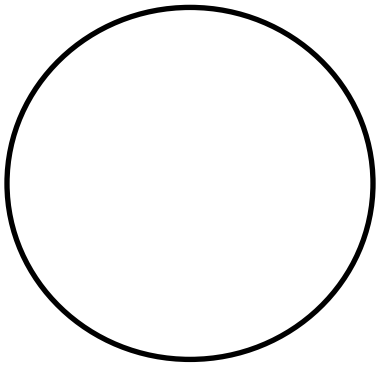
Examine the slide of budding **yeast**, a unicellular Ascomycetes and **draw what you see**.



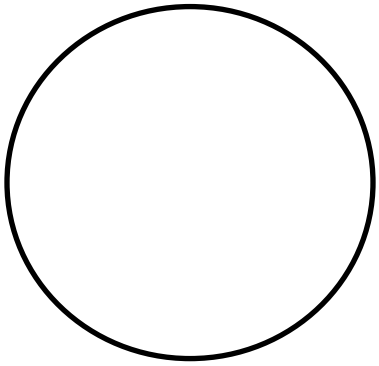
<u>Questions:</u>
What is the difference between budding and binary fission?

What are the other two types of asexual reproduction found in fungi?

Another example of Ascomycetes is **Morels**. **Morels** look like mushrooms but belong to the Ascomycota phylum. **Examine the preserved Morel** (which is unfortunately a very small specimen). They can be larger in size, but are typically smaller and more delicate than common, store-bought mushrooms. The small depressions on the surface are equivalent to a "cup" where the asci are located. They are rare, only occurring briefly in the northern forests in the early spring, usually around oak trees. **Draw a Morel below.**



Our last example is the cup fungus **Peziza** (**page 614** in your text). Observe the sample of Peziza and the slide with a cs. of the cup. **Draw and label the asci.**

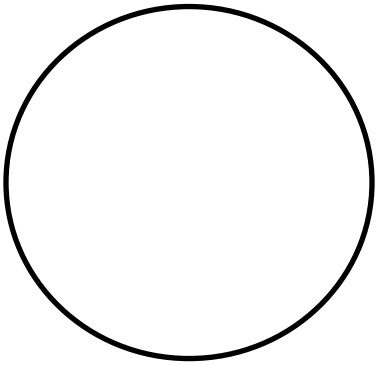


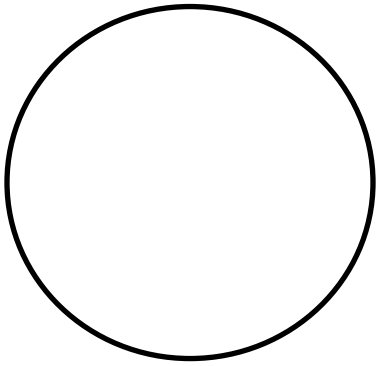
Question:
What type of reproduction is occurring in the asci?

Procedure 4: Phylum Basidiomycota or "Grocery store fungus"
Examine the different types of mushrooms (incl. the gourmet mushrooms). Examine the large Portobello mushroom.
Question:
Where are the reproductive structures, and what are they called?

Examine jar filled with bracket fungi. Bracket fungi are very tough and can weigh several hundred pounds. They attach to trees and form a "shelf". **Read the article about the "giant fungus". Write two sentences about it.**

Procedure 5: Lichens, a mutualistic relationship.
Re-read pages 617-618 in your text for a brief refresher on this unusual relationship.
Examine the different 3 kinds of lichens in the boxes and **draw a picture of each one and label**.





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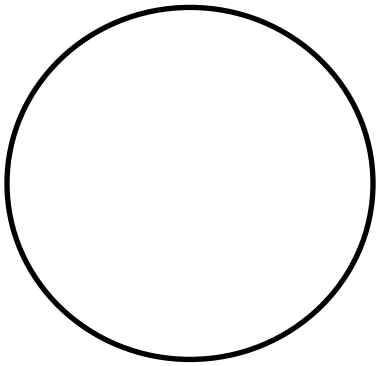
Examine the lichen c.s. slide, which demonstrates intimate relationship between the alga and fungus that make up lichen. **<u>Draw and label the algae and fungus structures.</u>**



Questions to e x p a n d your mind.

1. List and explain several reasons why are fungi so important as to require a whole lab section just about them?

2. Describe 2 human diseases caused by fungi, including the fungi **name, disease, symptoms, and treatment**.

3. Up until this chapter you probably thought a fungus was just another type of plant. Now that you know the difference, explain the types of relationships that exist between fungi and plants.