

Fungus Exercise
(20 points)

To find the website for this assignment, look in the Bio. Sci. 4 menu under **Web-based lab assignments**, and then click on **Fungi – The fifth Kingdom**. Note – You must also click on (Complete list of online topics) when you reach the "All About Fungi" page. As you explore the fifth kingdom, find answers to the following set of questions:

Chap 1 - Kingdoms, Classification and Biodiversity:

1. The cladogram indicating the evolution of three major domains of life was based on evidence provided by the analysis of _____ nucleotide sequences.
2. According to the information included in this document, there are now five eukaryotic kingdoms, including *Plantae*, *Animalia*, *Protista* (or Protozoa), *Chromista* and *Eumycota*. Organisms generally considered to be fungi belong to which of these kingdoms?

3. According to this document, a fungus (pleural fungi) can be defined as:

Chap 2b - Simple Fungi – Chytridiomycota, Hyphochytriomycota and Oomycota (pictures):

4. What color are the zoospores inside the zoosporangium of *Saprolegnia* in the (400x) photographs shown? _____
5. Which two photographs (by number under Oomycota) look most like our prepared slides of *Saprolegnia* (sexual oospores) # ____ and *Albugo* (asexual sporangiospores) # ____.

Chap 3a - Eumycotan Fungi – The Mainstream:

6. The two major reasons given for the incredible success that fungi enjoy are fungal spores and fungal hyphae. Explain briefly why these structures are so important.

Spores permit...

Hyphae permit...

Also enjoy the pictures of spores and hyphae.

Chap 3b - Phylum *Zygomycota* (Class *Zygomycetes*):

7. The term 'Zygos' is Greek for _____.
8. Fungi often occur in both sexual (Teleomorphic) and asexual (Anamorphic) forms. Which of these is more likely to be encountered in the field (on moldy bread, fruit, horse dung, etc.)?
_____.
9. The scanning electron micrograph (SEM) of a sporangium shows that it contains hundreds of non-motile _____ spores that are covered by a delicate outer membrane called a peridium (peri = around).
10. What is the genus name of the fungi that shoot their sporangiospores, like a canon, toward light? _____
11. Fungi that form arbuscular mycorrhizae or endomycorrhizae help plant roots absorb minerals, especially _____ from the soil. In exchange, the fungi obtain sugars (the product of photosynthesis) from the plant.

Chap 4a - Phylum *Dikaryomycota* (Subphylum *Ascomycotina*) - Watch the animations:

12. Fungi in this phylum generally have septate hyphae with chitinous cell walls (although yeasts are unicellular). What feature of these fungi is used to classify them within the phylum *Dikaryomycota*? _____
13. According to this document, fungi in the class *Ascomycetes* form structures called Ascomata that produce the asci containing sexual ascospores. Fungi in the genera *Penicillium* and *Aspergillus* produce asci within a _____ ascomata. These same fungi form asexual conidiospores (conidia) that emerge from the open ends of special conidiogenous cells called _____ (see animation).
14. Fungi identified as *Aspergillus flavus* produce a toxin called Aflatoxin. What type of damage does this toxin cause?

Chap 4b – *Ascomycetes* (many pictures):

15. What is the genus name of the fungi that cause peach leaf curl? _____
16. What is the genus name of the fungus with the poison arrow frog? _____
17. What is the greatest difference between the genera *Morchella* and *Verpa* with respect to their being edible?
18. Soft brown rot on peaches, cherries, etc. is caused by fungi in the genus _____
19. Fungi in the genera *Penicillium* and *Aspergillus* belong to the order _____

LOOK AT THE PICTURES IN THE REMAINING SECTIONS TO LEARN MORE ABOUT FUNGI.