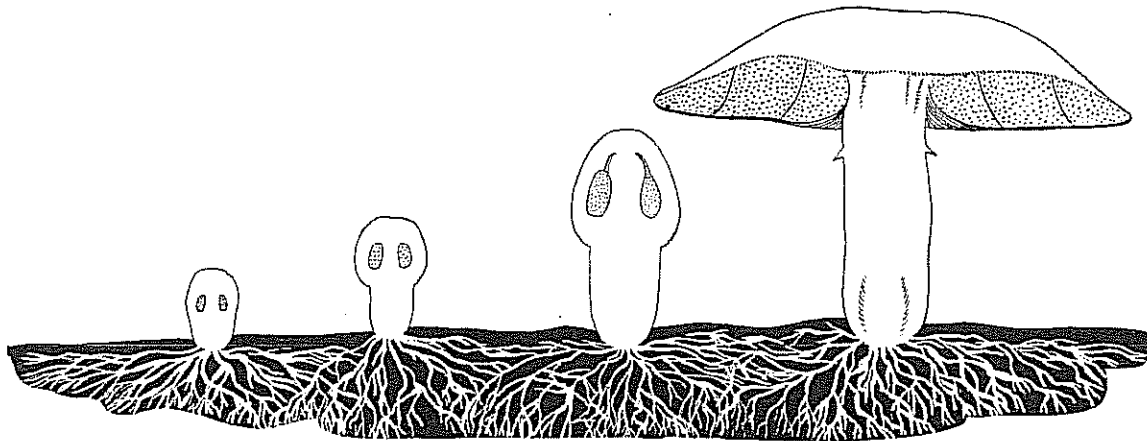
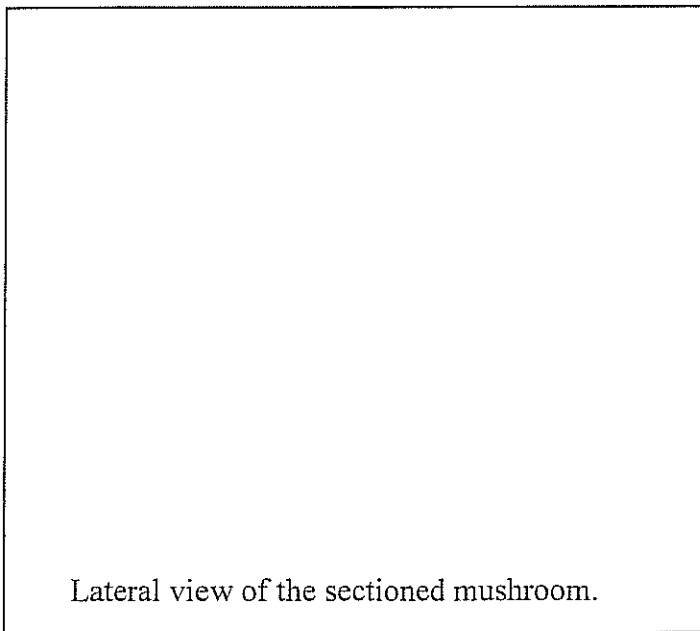


The figure below shows the various parts of a mushroom, including those below the ground. We usually think of a mushroom as its umbrella-shaped reproductive structure which appears suddenly, usually after a rain. The vegetative body is the filamentous mycelium in the ground, composed of many branching hyphae. Hyphae mass together to form the stipe, cap, and gills of the familiar mushroom. Spores are discharged from the gill surfaces. The veil-like annulus below the cap was attached to the rim of the cap and covered the gills before the mushroom opened.

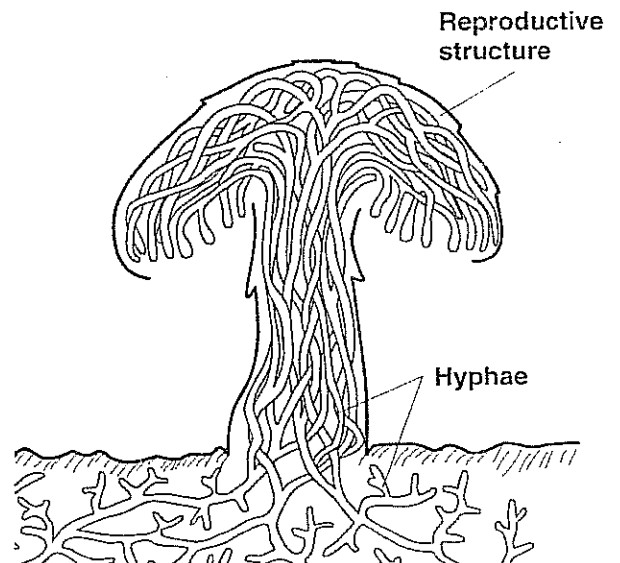
On the diagram of the mature mushroom below, label the hyphae, stipe, annulus, cap, gills, and spores ("dot-in" some, as if they are falling from the gills).



Section (slice) a mushroom lengthwise through the stipe and cap. Examine the cut surface with a stereoscope to see if you can detect the many hyphae massed together to form the reproductive structure. Examine the gills and notice how they are produced on the lower side of the cap. Draw the sectioned mushroom in the space below and label the stipe, annulus (if present), cap, and gills.



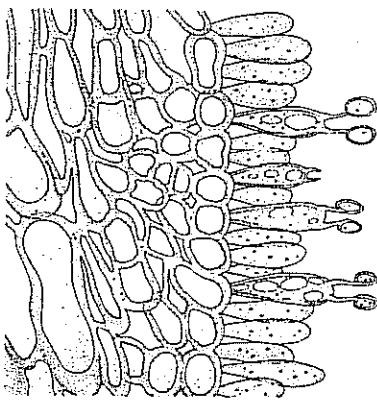
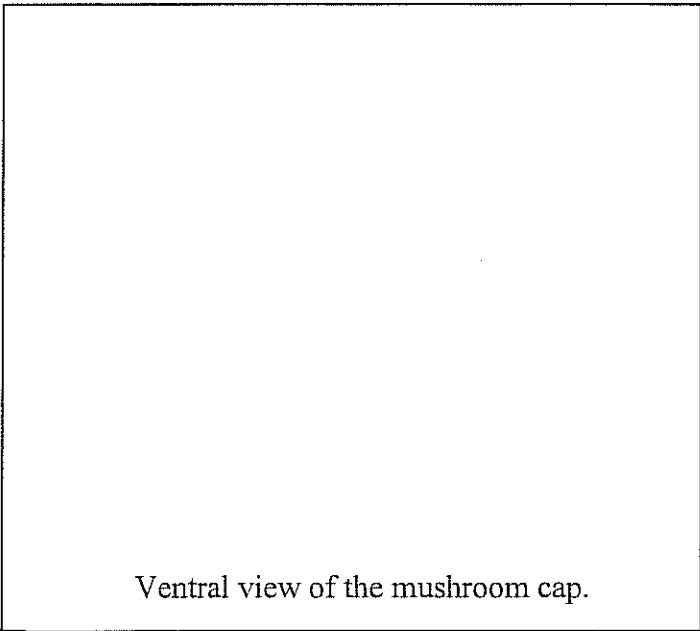
Verified _____



Cut the cap from the stipe of another mushroom and lay it with the gills up. Draw this view of a mushroom in the space provided to the right and label the stipe, gills, and cap.

Completed _____

Using your forceps, lift a portion of several gills from the cap. Hold the gills together and make a clean cross cut with the razor blade to even the ends of the stack. Then, while holding them together, use the razor blade to cut a very thin cross section of the gills. Place the cross sections in a drop of water on a microscope slide, add a cover slip, and examine with low power using the compound light microscope. (Hint: If the cover slip does NOT seal flat on the slide, your sections are too thick...try again!)



Brownish, oval spores should be visible on the gill surface. Depending on the species of mushroom you examine, the spores should be produced in groups of two or four. Bring the spores into sharp focus. Then, shift the focus and examine the tips of the hyphae below the gill surface. The hyphae which bear spores branch into the gills and end in club-shaped basidia at the gill surfaces. When you magnify the surface of a gill, you can see the ends of basidia as rounded structures just below the spores. Compare your slide with the figure to the left and label the following on the diagram: spore, basidium.

Slide completed _____

- 5. Stalk
- 6. Pileus or cap
- 7. Gills
- 8. Annulus (ring)
- 9. Basidiospores
- 10. Basidium
- 12. Hypha

