Lesson 5 — Protists and Fungi
Biology 182 Pima Community College, Downtown Campus

Lesson 5 Learning Objectives
After completing this lesson, you should be able to:
Describe the theory of endosymbiosis and supporting evidence. Describe characteristics for algae and protozoa. Describe locomotion and feeding structures for *Euglena, Amoeba* and *Paramecium*. Describe structure and ecological roles of fungi. Describe how fungi benefit and harm humans.

Step 1: Textbook Questions
To answer the questions below, read Chap. 29, 561-566, and Chap. 32, 617-621, 628-633 in your text. (I’d encourage you to thumb through the pages not assigned in these chapters for beautiful pictures and interesting tables.)

29.1 Eukaryotic Origins and Endosymbiosis
1. How are eukaryotes distinguished from prokaryotes?

2. Based upon the theory of endosymbiosis, where did mitochondria originate? What is some of the evidence supporting this?

3. Based upon the theory of endosymbiosis, where did chloroplasts originate?

29.2 – Overview of Protists
4. Compare paraphyletic to monophyletic. How does this apply to the Kingdom Protista?

5. Describe reproduction in protists.
32 Fungi: Introduction
6. What fungi are used widely in production of bread, beer and wine?

32.1 Defining Fungi
7. What are hyphae?

8. Why can mushrooms appear suddenly, such as after a rain?

9. What are mycelia?

10. How do cell walls of fungi differ from plant cell walls?

11. What is the evolutionary significance of chitin in fungus?

12. Are fungi more closely related to plants or animals?

13. What is the most common means of reproduction among fungi?

14. How do fungi obtain food? Are they autotrophs or heterotrophs?
15. What is bioremediation? Why are fungi useful for this?

32.8 Ecology of Fungi
16. What is the ecological role of fungi in the biosphere?

17. Lichens are composed of what two types of organisms?

18. Where are lichen usually found in deserts?

19. Why are lichens generally absent in and around cities?

32.9 Fungal Parasites and Pathogens
20. Give three example how fungi are harmful to humans.

Step 2: Multimedia Activity
Use the textbook publisher's website to complete the following activities. Don't worry that the numbering is different than the units in your text – these activities are from a previous version of the text.

35.2 – Characteristics of Protists
21. Which kingdoms arose from protist ancestors?

22. Name three traits usually used to classify protists.
35.3 – ESP - Photosynthetic Protists
23. Photosynthetic protists with chloroplasts are called____________.
24. Which type of algae are thought to be most closely related to plants?

25. Kelp are which type of algae?

35.3 – ESP - Protozoa
26. Animal-like protists are often referred to as ________________.

27. Name three ways that protozoans move.

28. How do protozoans reproduce?

29. An amoeba moves and captures food via ____________.

30. In Paramecia: Food enters into the ________________

31. ____________ receive ingested food and contain digestive enzymes.

32. ____________ expels indigestible food from the food vacuole to exterior.

35.3 – ESP – Fungus-like protists
33. ____________ are fungus-like during part of their life cycles and amoeba-like during others.

36.2 – ESP – Diversity of fungi
34. Black bread mold is a _________________. It contains a thick walled structure around the zygote and produces spores.

35. Truffles, morels, powdery mildew and Dutch elm disease are ________________, or sac fungi.

36. Mushrooms, puffballs and smuts are ________________, or club fungi.

37. Imperfect fungi include fungi from the genus _________________.

38. What are mycorrhizae? How do they help plants?

Step 5: Self- Quiz
Exam 3 will cover lessons 4-5. Use the online self-quiz to review material from lesson 5 to prepare for your exam.