Microbiology Week 4 Study Guide

**Reading**: Ch. 11 Characterizing and Classifying Prokaryotes and Ch. 12 Characterizing and Classifying Eukaryotes

Note: We will be covering abbreviated aspects of these chapters. Don’t let the chapters intimidate you.

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**Chapter 11:**

1. What are the six basic shapes of prokaryotes?
2. Why are endospores formed and what functional role do these play in some organisms? (Be able to identify a few key endospore forming organisms (Ex. *Bacillus and Clostridium)*
3. What are 3 common types of reproduction in prokaryotes?
4. Sketch common arrangements of cocci and bacilli (per figures 11.8-9)
5. What is the primary classification feature utilized by *Bergey’s Manual of Systematic Bacteriology*?
6. Which 3 key features distinguish archaea from bacteria?
7. What are extremophiles?
8. Define: thermophiles and hyperthermophiles
9. What are methanogens? What role do they play in the environment? Where are they found?
10. What are deeply branching bacteria?
11. What are phototrophic bacteria?
12. What are cyanobacteria?
13. Define: nitrogen fixation
14. What are low G + C bacteria?
15. How are high G + C bacteria different?
16. What is the common feature of gram-negative bacteria in the phylum proteobacteria?

**Chapter 12:**

1. What are the four main aspects of eukaryotic reproduction that is more complicated than prokaryotic organisms?
2. Define: haploid
3. Define: diploid
4. What happens in each phase of mitosis? (prophase through telophase)
5. What is cytokinesis? What’s happening there?
6. How is meiosis different from mitosis?
7. Define: schizogony
8. How has the classification of eukaryotes developed from the 18th century to present?
9. What are three characteristics shared by all protozoa?
10. Define: macronucleus (in protozoa)
11. Define: micronucleus (in protozoa)
12. Define: trophozoite stage of protozoa
13. Define cyst stage of protozoa
14. How does the cyst stage benefit protozoa?
15. How do most protozoa reproduce?
16. Cite 3 characteristics that distinguish protozoa from other groups of eukaryotes.
17. What is chitin?
18. Define: mycology
19. How are fungi beneficial?
20. Define: mycoses
21. What are the two basic body shapes of fungi?
22. Define: dimorphic
23. Define: mycelium
24. How do fungi acquire nutrients?
25. Define: saprobe
26. Define: haustoria; which fungi have these?
27. Describe asexual and sexual reproduction in fungi. (budding, asexual spore formation, sexual spore formation)
28. Define: coenocyte
29. What are lichens?
30. Why don’t lichens grow in dark caves or ocean depths?
31. Detail some of the functions of lichens.
32. What is unique about algae?
33. Define: phycology
34. Describe the alternation of generations in algae reproduction.
35. How are water molds different from fungi?
36. How do water molds function in the environment?
37. Why do we study large eukaryotic organisms, ex: helminths and arachnids, in microbiology?
38. What is the difference between a mechanical vector and a biological vector?
39. Describe the distinctive features of arachnids.
40. What are 5 diseases vectored by ticks?
41. What are 2 diseases vectored by mites?
42. Describe the physical features of insects?
43. List diseases transmitted by fleas, lice, true flies, mosquitoes, and kissing bugs.