

## Chapter 24 Review

1. What are the various ways that species can be differentiated? What are similarities and differences between them?
2. What are the many types of pre- and postzygotic reproductive barriers that prevent species from producing viable, fertile offspring?
3. Explain allopatric speciation.
4. Explain sympatric speciation.
5. What is adaptive radiation and when can adaptive radiation occur?
6. What is polyploidy and how does polyploidy serve as a reproductive barrier? What is polyploidy's role in sympatric speciation?
7. What is the concept of exaptation? How can exaptation account for certain evolutionary features?
8. Explain the differences in the tempo of evolution for the gradualism and punctuated equilibrium model.
9. Why might people think that evolution moves in one direction, establishing a trend? How does branched evolution help explain that evolution is not goal oriented?
10. What is "evo-devo" and what is its connection to macroevolution?

## Chapter 25 and 26 Review

1. How is the fossil record used in constructing phylogenies? What are the limitations of the fossil record?
2. Why might analogous features (a result of convergent evolution) disrupt the construction of accurate phylogenies?
3. How could hierarchical classification be represented in a phylogenetic tree?
4. What are two ways that time could be incorporated into a depiction of evolutionary history? Explain each.
5. How are parsimony and likelihood used to find the most reasonable arrangement for a phylogenetic tree?
6. What information can molecular clocks provide us with? What are some difficulties associated with molecular clocks?
7. Describe the conditions of early Earth which would make life on Earth possible.
8. How do we date rocks and fossils?
9. How did photosynthesis change the conditions of early Earth? What allowed life to colonize the land?
10. Explain the role of endosymbiosis in the evolution of eukaryotes.

### Know how to:

- Use H-W theorem to calculate allelic and genotypic frequencies.
- When it is appropriate to conduct a chi-squared test, how to create a null hypothesis, and then use the test to accept or reject that hypothesis.
- Use chi-square to determine whether or not a population is evolving.
- Determine what type of selection is occurring and what a graph would look like for the frequency of individuals with different traits.
- Recognize different species concepts and reproductive barriers.
- Use data to construct a character table and cladogram
- Interpret information from a phylogenetic tree, phylogram, ultrametric tree, or cladogram
- Use grid-in answers and answer a free response question (Monday)

**Bring a calculator (non-programmable, non-phone, no exceptions) Friday, pen, and pencil.**