

**AP Biology**  
**TEXT: *Biology, Campbell and Reece***  
**7<sup>th</sup> Edition**

**Chapter 24 – The Origin of Species**  
**Guided Reading**

1. Define the following terms:
  - a. Speciation
  - b. Anagenesis
  - c. Cladogenesis
2. What is the biological species concept?
3. What are the differences between *prezygotic* and *postzygotic* barriers to reproduction?
4. Identify each of the following as prezygotic or postzygotic barriers and write a brief definition of each:
  - a. Habitat isolation
  - b. Temporal isolation
  - c. Behavioral isolation
  - d. Mechanical isolation
  - e. Gametic isolation
  - f. Reduced hybrid viability
  - g. Reduced hybrid fertility
  - h. Hybrid breakdown

5. Explain these concepts of species:
  - a. Morphological species concept
  - b. Paleontological species concept
  - c. Ecological species concept
  - d. Phylogenetic species concept
6. What is the basis for allopatric speciation?
7. What does sympatric speciation mean?
8. What is the difference between autopolyploidy and allopolyploidy?
9. In what types of organisms are polyploidy speciation more common and why do you think this occurs?
10. What is adaptive radiation and why do island chains tend to be discussed often with this topic?
11. Compare and contrast the models of punctuated equilibrium to gradualism as models for the rate of evolution. Does one have to exclude the other?

12. Define the following terms:

- a. Heterochrony
- b. Allometric growth
- c. Paedomorphosis
- d. Homeotic genes

13. What impact have the **Hox** genes had on vertebrates?

14. How does the evolution of the horse exemplify the concept that evolution is driven by the interactions of the organism and their environment?

15. **Complete text Investigation 24.2 “How do new species arise from genetic isolation” found on disc or through online text under Concept 24.2 heading – type your completed data table with headings and answer questions 1-7 of the activity using complete sentences that EXPRESS a complete thought. This means that a sentence “the number is....” Would be unacceptable because it does not stand alone.**