

AP BIOLOGY UNIT 2 TEST REVIEW: Evolution

This assignment is meant to help you review for your Unit 2 Test on Monday (4/7). The exam will cover information from our Evolution Unit (Chapters 22-26). This review assignment is a guide to follow as you study, but is not necessarily everything that will be on the exam. You will be asked to define vocabulary, describe theories, explain concepts, and use evidence-based writing in free response questions. The exam will consist of some multiple-choice questions and some writing prompts. Use any medium that you'd like to complete this review (notes, flashcards, etc). **Please** let me know if you have any questions.

Define/Explain/Illustrate/Give examples of the following terms/topics:

- Darwin and his voyage, works, and main ideas
- Mayr's inferences and observations
- Selection (artificial, natural, stabilizing, disruptive, and directional)
- Specifically, be able to draw and explain the precursors and outcomes of natural selection in a population
- Homologies vs. analogies and convergent vs. divergent evolution and their relationships to one another (i.e. analogies lead to convergent evolution because...)
- Evidence for evolution (homologies, analogies, Darwin's finches, biogeography, natural selection, survival of the fittest, variation, fossil record, molecular homologies, mutations, Mendel, genetic drift, migrations, the human eye, HIV evolution, resistant bacteria, heterozygote advantage, speciation, vestigial structures, endosymbiosis, Pangea) **This is the short list of the evidence for evolution covered in this unit. Use your knowledge of these facts to help you with the next bullet point.**
- So given all this evidence, why is evolution not "just a theory"?
- Why can't individuals evolve?
- The 5 Hardy-Weinberg Equilibrium postulates
- The 4 precursors to evolution
- The heterozygote advantage in malaria/sickle cell
- Speciation, types, and what drives it (think: reproductive isolation, allopatric, sympatric, polyploidy, sexual selection, adaptive radiation, evo-devo, Hox)
- Carl Woese y'all
- Tree of Life basics
- Origins of life on Earth
- Clock analogy for geologic time and how young we as a species are. Be sure to be able to understand how to read this clock and the geologic record on pg. 519, but do not memorize it.
- Mass extinctions and their evidence
- The process of how we evolved from the primordial soup into the tree of life (i.e. prokaryotes first, oxygenated atmosphere, endosymbiont theory, snowball earth, eukaryotes, Cambrian explosion, the move to land from the ocean, continental drift, up to the 3 domains).
- From our labs:
 - Hardy-Weinberg Equilibrium calculations
 - How to disrupt equilibrium and the effects of this disruption
 - Chi-squared calculations
 - BLAST and its abilities to solve complex evolutionary questions
 - How to build and read phylogenetic trees/cladograms