

Chapter 15 Evolution -- Homework

Section 15.1 Darwin's Theory of Natural Selection DUE 1/22/10

State Standards: Evolution 7a. Students know why natural selection acts on the phenotype rather than the genotype of an organism; E. 7d. Students know variation within a species increases the likelihood that at least some members of a species will survive under changed environmental conditions; Ev.8a. Students know how natural selection determines the differential survival of organisms; Ev.8d. Students know reproductive or geographic isolation affects speciation.

Part I : Vocabulary: evolution, natural selection

Part II: Questions:

1. What evidence convinced Darwin that species could change over time?
2. List the four principles of natural selection.
3. How can natural selection change a population?
4. How is natural selection different from artificial selection (selective breeding)?
5. How are the terms "evolution" and "natural selection" related?

Section 15.2 Evidence of Evolution DUE 1/29/10

State Standards: Evolution 8a and 8d as above and Evolution 8e. Students know how to analyze fossil evidence with regard to biological diversity, episodic speciation, and mass extinction

Part I: Vocabulary: comparative embryology, biogeography, derived traits, ancestral traits, homologous structures, analogous structures, vestigial structures, morphological evidence, camouflage, mimicry, fitness

Part II: Questions:

1. Describe how fossils provide evidence of evolution.
2. Compare and contrast derived and ancestral traits.
3. Compare and contrast homologous and analogous structures. How can you relate vestigial structures?
4. What is morphological evidence of evolution?
5. How do physiology and biochemistry provide evidence of evolution?
6. Compare and contrast camouflage and mimicry
7. How does comparative biochemistry lend support to evolution?

Section 15. 3 Shaping Evolutionary Theory DUE 2/4/10

State Standards: Evolution 7a, 7d, 8a, 8d, 8e, as above and Evolution 7b. Students know why alleles that are lethal in a homozygous individual may be carried in a heterozygote and thus maintained in a gene pool; Ev.7c. Students know new mutations are constantly being generated in a gene pool; Ev.7e. Students know the conditions for Hardy-Weinberg equilibrium in a population and why these conditions are not likely to appear in nature; Ev. 7f. Students know how to solve the Hardy-Weinberg equation to predict the frequency of genotypes in a population, given the frequency of phenotypes; Ev.8b. Students know a great diversity of species increases the chance that at least some organisms survive major changes in the environment

Part I: Vocabulary: Hardy –Weinberg principle, genetic equilibrium, genetic drift, founder effect, bottleneck, pre- and post-zygotic isolating mechanisms, allopatric speciation, sympatric speciation, adaptive radiation, coevolution

Part II : Questions:

1. What patterns are observed in evolution?
2. What factors influence speciation?
3. Compare and contrast gradualism and punctuated equilibrium
4. Use a diagram to explain the difference between stabilizing, directional and disruptive selections.

Part III Test Review: Ch 14: Pp 411-413 Complete # 1-10; 17-24 (from Chapter 14)

Test Review: Ch 15: Pp 445-447 Complete # 1-5; 10-17; 23-27 and Pp 448-449 #2, and 3