

WTK: Evolution Unit

- Media/Resources
 - What Darwin Never Knew
 - HHMI Making of the Fittest: Natural Selection (Rock pocket mouse)
 - Evolution: arms race between newt and garter snake
 - Cosmos: Episode 2 (first 15 min), and Episode 1 (last 17 min)
 - Crash Course Biology episodes #14-19
- Labs/Activities:
 - Natural Selection Simulation (rabbits and wolves)
 - It's Not Fair! (Salamander evolution)
 - Deep Time
 - The Great Fossil Find
 - Hardy-Weinberg Lab
 - Analyzing Amino Acid Sequences

Essential Questions

- I. Chapter 17: Darwin's Theory of Evolution
 - A. What evidence convinced Darwin that species can change over time?
 - B. What 4 factors lead to adaptation and change?
 - C. How does evidence in each of these areas of research help explain evolution?
 1. Biogeography
 2. Radioactive dating
 3. Fossils
 4. Comparing anatomy and development
 5. Genetics and molecular biology
- II. Chapter 18: Genes and Variation
 - A. How is evolution defined in genetic terms?
 - B. What are sources of genetic variation?
 - C. How does selection act on single gene and poly genetic traits?
 - D. What are the 5 conditions necessary for Hardy-Weinberg Equilibrium?
 - E. What leads to the formation of new species?
 - F. Where do new genes come from?
 - G. How may HOX genes be involved in evolutionary change?
 - H. How do molecular clocks work?
- III. Chapter 20: History of Life
 - A. What do Fossils reveal about ancient life?
 - B. How do we date events in Earth's history?
 - C. What happened during the Eras of Earth's history?
 - D. What are two important patterns of macroevolution?
 - E. What do scientists hypothesize about the origin of life?
 - F. What theory explains the origin of eukaryotic cells?
- IV. Chapter 24.3 Primate Evolution
 - A. What characteristics do all primates share?
 - B. What adaptations enable later hominid species to walk upright?
 - C. What is the current thinking about the genus *Homo*?