Evolution Objectives:

Define these key terms:

evolution biological evolution theory fossils struggle for existence fitness adaptation natural selection descent with modification common descent homologous structures vestigial organs overproduction genetic variation survival of the fittest mutation cross-over chromosome shuffling genetic recombination ecological niche adaptive radiation speciation geographic isolation reproductive isolation extinction tree of life

Scientists: Charles Darwin James Hutton Thomas Malthus Jean Lamarck Charles Lyell Alfred Wallace

- Define the term evolution.
- Describe the theory on biological evolution.
- State three observations made by Charles Darwin from his voyage.
- Identify contributions made by scientists that helped to develop Darwin's theory of evolution.
- Distinguish between old and new rock layers.
- Explain the four parts of natural selection believed by Darwin.
- Identify three weaknesses in Darwin's theory.
- Explain the modern theory of evolution using the terms mutation and genetic recombination.
- Explain how observations of geologic time, fossils, anatomy, embryology, and biochemistry support the theory of evolution.
- Explain how modern day examples represent Darwin's theory of natural selection for the following: industrial melanism, antibiotic resistance, & pesticide resistance.
- Compare and contrast speciation from adaptive radiation.
- Explain and provide examples for geographic and reproductive isolation.
- Differentiate between allopatric and sympatric speciation.
- Analyze evolutionary trees to determine the presence, relatedness and extinction of organisms.