

Biology Chapter 15: Homework

Hmwrk 15-1

1. What is evolution and how is it a theory?
2. Who was Charles Darwin and what did he do aboard the H.M.S. *Beagle*?
3. Explain *in your own words* Darwin's observations on the following topics:
 - a. patterns of diversity
 - b. living organisms
 - c. The Galápagos Islands

Hmwrk 15-2

1. What did most Europeans in Darwin's days believe?
2. What did James Hutton and Charles Lyell help scientists recognize? Explain their findings *in your own words*.
3. Who was Jean-Baptiste Lamarck and what did he hypothesize?
4. Explain *in your own words* Lamarck's observations on the following topics:
 - a. tendency toward perfection
 - b. use and disuse
 - c. inheritance of acquired traits
5. Was Lamarck correct or incorrect?
6. Who is Thomas Malthus and what did he hypothesize?

Hmwrk 15-3

1. Who is Alfred Russell Wallace and why is he important?
2. What is artificial selection and what does artificial selection depend on?
3. Darwin had a theory that evolution occurs by natural selection. Define natural selection and how survival of the fittest and struggle for existence affect this.
4. Briefly describe *in your own words* what evidence exists for the theory of evolution in the following categories:
 - a. geographic distribution of living species
 - b. homologous body structures
5. Summarize *in your own words* Darwin's theory of evolution.

Biology Chapter 15: Study Guide

Section 1

- Vocabulary

Evolution

Theory

Fossil

- Know who Charles Darwin is and what he did aboard the H.M.S. *Beagle*
- Be able to describe the observations that Darwin had about patterns of diversity, living organisms and fossils, the Galápagos Islands
- Know what Darwin noticed about the variety of species from the different islands

Section 2

- Know what most Europeans in Darwin's day believed
- Know what was being discovered around the time of Darwin's sea departure that was challenging the traditional view of life
- Know who Hutton and Lyell are, what they studied and their importance
- Know who Lamarck is and what his theory of evolution was
- Be able to describe Lamarck's ideas on the tendency toward perfection, the use and disuse of traits and the inheritance of acquired traits
- Be able to describe why some of Lamarck's ideas are incorrect
- Know who Malthus is, what he studied and his importance

Section 3

- Vocabulary

Artificial selection

Natural selection

Struggle for existence

Descent with modification

Fitness

Common descent

Adaptation

Homologous structure

Survival of the fittest

Vestigial organ

- Know what Darwin discovered when the specimens that he brought back were fully examined
- Know who Wallace is, what he studied and his importance
- Know what the *On the Origin of Species* is, who wrote it and its importance
- Be able to describe the importance of Darwin's discovery of inherited variation in terms of his theory of evolution
- Know what artificial selection is and how it is used
- Be able to describe Darwin's theory of evolution by natural selection in terms of the struggle for existence, survival of the fittest and descent with modification
- Be able to describe Darwin's evidence of evolution in terms of the fossil record, geographic distribution of living species, homologous body structures and similarities in embryology
- Know what Darwin meant with the term "more fit" and know some of the ways that certain organisms can be "more fit" than others
- Know some of the ways in which organisms can survive by adapting
- Be able to describe some homologies that exist

- Know who Ernest Haeckel is and what he did
- Be able to write the five parts to Darwin's theory of evolution in your own words
- Be able to describe some strengths and weaknesses of Darwin's theory