

Biology Chapters 16 and 17: Homework

Hmwrk 16-1

1. Define what relative frequency is and how it relates a change in it relates to evolution.
2. There are two sources of genetic variation. Describe them *in your own words*.
 - a. mutations
 - b. gene shuffling
3. What is the difference between single-gene traits and polygenic traits? Give an example of each.

Hmwrk 17-1

1. What is the fossil record and what is its importance?
2. Describe the process that forms fossils *in your own words*.
3. What is relative dating and how is it used?
4. What is radioactive dating? Be sure to describe what a half-life is.
5. What is the geologic time scale?

Biology Chapters 16 and 17: Chapter 17 Worksheet

Answer each question as completely as possible. Answers that cannot be read will be counted as incorrect.

1. How old is the earth?
2. What did the earth's early atmospheres probably contain?
3. Who are Stanley Miller and Harold Urey? What did they do?
4. What is macroevolution?
5. What is adaptive radiation?
6. What is the difference between convergent evolution and coevolution?

Biology Chapters 16 and 17: Study Guide

Chapter 16

- Vocabulary

| | | |
|-----------------------|-----------------------|------------------------|
| Gene pool | Stabilizing selection | Temporal isolation |
| Relative frequency | Disruptive selection | Reproductive isolation |
| Single-gene trait | Genetic drift | Behavioral isolation |
| Polygenic trait | Founder effect | Geographic isolation |
| Directional selection | Speciation | |

- Know how genetic variation is studied and what a population is
- Know how evolution is defined in genetic terms
- Know the two sources of genetic variation
- Know what single-gene traits and polygenic traits are and an example of each
- Know how natural selection works on single-gene traits and polygenic traits
- Know the differences between directional, stabilizing and disruptive selection and be able to differentiate between the three graphs (see pages 398 and 399)
- Know what genetic drift and how it can affect the relative frequencies
- Know what a founder effect is and how it can affect the relative frequencies
- Know what speciation is and how reproductive, behavioral and geographic and temporal isolation affect it

Chapter 17

- Vocabulary

| | | |
|-----------------|---------------------|--------|
| Paleontologist | Index fossil | Era |
| Fossil record | Half-life | Period |
| Extinct | Radioactive dating | |
| Relative dating | Geologic time scale | |

- Know what paleontologists do
- Know the importance of the fossil record
- Know the ways in which fossils can form
- Know what relative dating is and how it is important
- Know the role that index fossil play and the two requirements for a fossil to be an index fossil
- Know what radioactive dating is used for and what a half-life is
- Know what the geologic time scale is, the major eras and the Precambrian Time
- Know how the geologic time scale is broken down into sections.

Biology Chapters 16 and 17: Chapter 16 Worksheet

Are the following statements true or false? Answers that cannot be read will be counted as incorrect.

_____ Natural selection only occurs on single-gene traits and not on polygenic traits.

_____ Stabilizing selection occurs when individuals at the upper and lower ends of the curve have a higher fitness than those in the middle.

Answer the following questions in complete sentences. Answers that cannot be read will be counted as incorrect.

1. What is genetic drift?

2. What is the founder effect?

3. Compare the three types of isolating mechanisms.

a. geographic isolation

b. behavioral isolation

c. temporal isolation

Label the graphs with the correct type of isolation.

