

Evolution Standards 3 & 4 Study Guide

Standard 3: Classify evidence supporting biological evolution

The three types of evidence for biological evolution discussed in class: _____
_____, _____, and _____.

For each of the following, explain and provide an example by drawing a diagram/picture or explaining an example:

<i>Structure</i>	<i>Explanation (Picture or Words)</i>	<i>Example</i>
<i>Homologous</i>		
<i>Analogous</i>		
<i>Vestigial</i>		

Similar structures due to evolutionary origin (forearm bones in humans, birds, elephants, & porpoises) are called _____. Structure that have a similar purpose but different ancestors due to evolutionary origin are called _____ structures

Fossils provide _____ of the past. Fossils that show the _____ between ancestors and descendants are called _____. Fossils can be reconstructed and analyzed to provide information about _____.

past _____ and explain show how _____ can change over time.

Match the following examples with the correct types of evidence:

Examples:

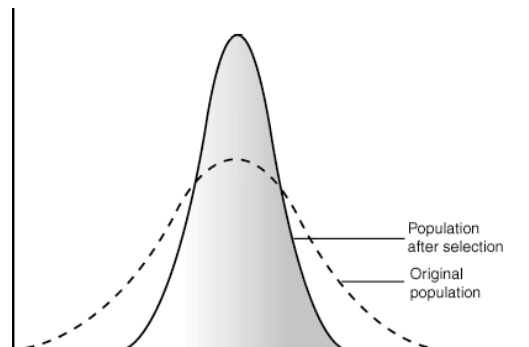
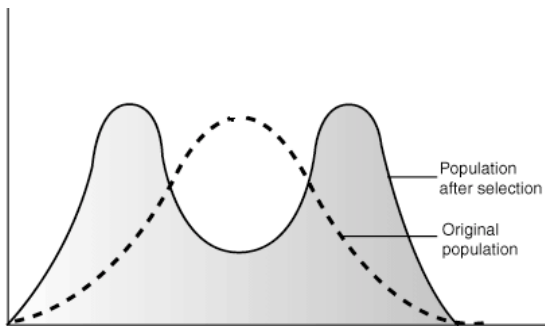
- A. Comparing amino acid sequence between two species: _____
- B. Using radiometric dating to determine age of samples: _____
- C. Comparing structures between two different organisms to determine relatedness:

- D. A whale and turtle have 5 amino acid differences in the protein cytochrome c.

Modern horses descended from a species that had a foot with four hoofs; modern horses have a single hoof. When the ancestor of modern horses lived the environment was wet and marshy and having four hoofs was best fit for the environment. As the environment changed to a solid ground, having less hoofs was best fit for the environment. **Using the terms transitional form and intermediate, explain how this represents evidence for biological evolution.**

Standard 4: Identify patterns of selection acting upon a species:

Identify the following two types selection demonstrated in the graphs below and explain how the population has changed:



Draw a graph showing directional selection and explain how the population changes:

Due to selection, populations are always changing. In polygenic traits, a _____ shows the distribution or range of phenotypes for the trait. If one extreme of the trait is best fit for the environment this represents _____ selection; if both extremes of the trait are best fit for the environment this represents _____ selection; if the middle or average form of the trait is best fit for the environment this represents _____ selection. _____ Selection occurs when an individual selects a mate based on specific trait characteristics. For example, male peacocks have brightly colored feathers to attract mates.

Types of Isolation:

A process of isolation or separating of a population due to a physical barrier _____. A process of isolation or inability of a population to no longer reproduce is called _____. This can occur by a physical inability, change of mating ritual, or a change in mating timing. A(n) _____ isolation occurs when there is a change in how organisms act or carry out functions in order to survive that separates or isolates the population.

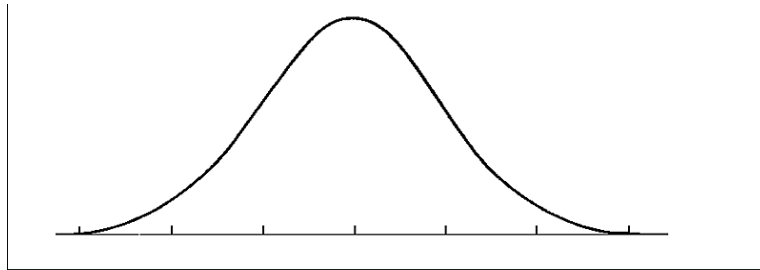
This is an example of what type of biological evolution evidence? _____

A form of evidence for biological evolution in which bone structures are present in an organism but no longer used: _____

Biological evolutionary process in which new species arise: _____

What is the following type of graph? _____

- Label the axes
- Identify where the average form of the trait is located?
- Indicate what would happen in the following situation:
 - The graph shows tongue length in chameleons and long tongue length allows chameleons to catch insects more often.
- How does this represent natural selection?



If given hypothetical species population which has variation in the number of fur spots on its' body, describe how natural selection could change the population over time if increased spots was better fit for the environment.

The chemical pesticide DDT has been used to remove insects from crops for many years. While initially very successful in killing harmful insects, DDT has been found to be less and less successful. Explain, using your understanding of natural selection, why this occurrence has been observed and the insect species have become more resistant to the DDT pesticide.