

CHAPTER 4	Adaptations, Variation, Mutations, and Natural Selection Quiz	BLM 4.1.4
ASSESSMENT		

Read Section 4.1, pages 114 to 121 in your student textbook. Circle the correct answer from the choices provided.

1. The horns of male rocky mountain bighorn sheep are different sizes. This is an example of _____ in the population.
 - a) an adaptation
 - b) variation
 - c) a mutation
 - d) selective pressure
2. The plumage of a bird such as the American bittern helps to camouflage the bittern so that it blends in with its environment. Protective coloration is an example of _____ that helps the organism to survive and reproduce in its environment.
 - a) an adaptation
 - b) variation
 - c) a mutation
 - d) selective pressure
3. The biochemical and bodily processes of the Richardson's ground squirrel allow it to hibernate, thus avoiding having to be active during the winter. Hibernation is an example of _____ that helps the organism to survive and reproduce in its environment.
 - a) an adaptation
 - b) variation
 - c) a mutation
 - d) selective pressure
4. The kittens in a litter may be black, white, black and white, or calico in colour. This is an example of _____ in the population.
 - a) an adaptation
 - b) variation
 - c) a mutation
 - d) selective pressure
5. Some species of mosquito can quickly adapt because the form of the gene they possess may provide a selected advantage to some individuals. This is an example of _____, which is a change in the genetic material of an organism.
 - a) an adaptation
 - b) variation
 - c) a mutation
 - d) selective pressure

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6. Needle-sharp talons and excellent vision help the owl to capture prey. This is an example of _____ that helps the organism to survive and reproduce in its environment.
- an adaptation
 - variation
 - a mutation
 - selective pressure
7. The horns in a population of rocky mountain big horn sheep are getting progressively smaller year after year. One hypothesis behind the overall shrinkage of bighorn ram horns is that steady hunting of trophy animals is slowly removing the gene for bigger horns. This is an example of:
- an adaptation.
 - variation.
 - a mutation.
 - selective pressure .
8. The number of possible combinations of genes that offspring can inherit from their parents results in greater genetic _____ among individuals in a population.
- adaptation
 - variation
 - natural selection
 - selective pressure
9. Changes to DNA can be harmful, helpful, or have no effect at all on the individuals in a population. Changes to DNA are called _____.
- adaptations
 - variations
 - mutations
 - selective pressure
10. Which choice below completes this statement:
“If a _____ occurs to the DNA in a somatic cell, the mutation disappears when the cell dies. If the _____ alters the DNA in a gamete, the mutation may be passed on to succeeding generations.”
- adaptation; variation
 - variation; adaptation
 - mutation; selective pressure
 - mutation; mutation
11. This is a process that results when the characteristics of a population of organisms change because individuals with certain inherited traits survive local environmental conditions, and, through reproduction, pass on their traits to their offspring.
- natural selection
 - selective pressure
 - variation
 - adaptation

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12. An abiotic environmental condition can be said to select for certain characteristics in some individuals and select against different characteristics in other individuals. In this way, the environment exerts _____ on a population.
- a) natural selection
 - b) selective pressure
 - c) variation
 - d) adaptation

Use the following information to answer the next question.

“In a population of finches, some of the birds may have wider beaks than others. If there is an environmental change that makes having a wide beak an advantage, these wide-beaked finches will be more likely to survive and pass on the genes for wide beaks to their offspring.”

13. Which of the following terms explains the effects that the abiotic environmental factor is exerting on the population of finches?
- a) mutation
 - b) selective pressure
 - c) variation
 - d) adaptation
14. Identify the false statement in the list below.
- a) An adaptation is a physical feature, behaviour, or physiological process that helps an organism survive and reproduce in a particular environment.
 - b) Variety in a population and the environment in which an organism lives create a situation in which natural selection can occur.
 - c) Mutations and reproduction cause variations among individuals.
 - d) Natural selection is the process by which an individual changes and develops certain traits that help the organism be better suited to survive the local environmental conditions and pass these traits to their offspring.