



## **Evolution Review**

**Name:** \_\_\_\_\_

Look over the topics and vocabulary listed below as you prepare for your upcoming test on evolution. There are also some practice problems at the end of this review so you can see what type of questions you will be expected to answer.

### **Vocabulary to be familiar with:**

Evolution	mutation
natural selection	vestigial structures
artificial selection (selective breeding)	embryology
sexual selection	homologous structures
speciation	analogous structures
adaptation	genetic variation

### **Concept understanding:**

1. What did Charles Darwin propose as the driving force for evolution? How does it work?
2. How do environmental changes affect natural selection?
3. How does genetic diversity or variation affect a population's ability to adapt to a changing environment?
4. What is speciation? How can it occur?
5. How are artificial selection and sexual selection different from natural selection?
6. What are the major evidences we use to support evolution? Make sure you understand each of them and how they support the process of evolution.
7. How do mutations play a role in evolution?

### **Practice Problems:**

1. Which of the following is an example of genetic variation in humans?
  - a. Many people have different eye colors
  - b. One person has a scar but her friend does not
  - c. Todd eats meat but his brother Ryan is a vegetarian
  - d. Many people are different ages
2. Which of the following are ways that genetic variability between individuals of a population is caused (circle all that apply)?
  - a. Random mutations
  - b. Mitosis
  - c. Asexual reproduction
  - d. Sexual reproduction

3. If you came to an island that had tremendous diversity with its bird's species, how might you explain why some birds have evolved larger beaks than others?
  - a. Large beak size occurred as a result of mutation
  - b. The ancestors of this bird species encountered a tree with larger than average seeds. They needed to develop larger beaks in order to eat the seeds and over time, they adapted to meet this need.
  - c. Some members of the ancestral population had larger beaks than others. If larger beak size was an advantage in protecting their offspring from predators, they would become more likely to survive and reproduce.
  - d. All of these are reasonable explanations as to why that particular species of bird has a large beak.
4. In a changing environment, which species will have the best chance for survival?
  - a. The one with the smallest body size
  - b. The one with the largest population
  - c. The one with the most intelligent individuals
  - d. The one with the most genetic variation
5. Which of the following examples below best describes artificial selection?
  - a. Moths that have adapted features that make it look like a twig.
  - b. The appearance of the leafy sea dragon helps it blend in and look like seaweed.
  - c. Some male birds found in the tropics have adapted unique mating dances to attract a mate.
  - d. Human have bred dairy cows to produce tremendous amounts of milk to meet the needs of our population.
6. What is the relationship between the wing of a bird and the fin of a whale?
  - a. They are homologous because they represent modified forms of a trait present in a common ancestor.
  - b. They are analogous because while each carries out the same function, the trait has appeared randomly in each animal.
  - c. They represent vestigial structures that were once necessary but are no longer used.
  - d. They show embryological similarities.
7. According to Darwin, which of the following is NOT a part of the process of evolution?
  - a. Each species produces more offspring than can survive
  - b. Offspring compete with one another for limited resources
  - c. Organisms in populations are genetically unique
  - d. Offspring with the most favorable traits are less likely to survive and pass on their genes.
8. Scientific evidence shows that modern dogs, wolves and foxes all have a common ancestor. Further evidence shows that dogs are more closely related to wolves than to foxes. Which of the following observations provides the best evidence that dogs are more closely related to wolves than foxes?
  - a. The diet of dogs and wolves are more similar than the diets of dogs and foxes
  - b. The lifespans of dogs and wolves are more similar than the lifespans of dogs and foxes
  - c. The genetic sequences of dogs and wolves are more similar than the genetic sequences of dogs and foxes
  - d. The body sizes of dogs and wolves are more similar than the body sizes of dogs and foxes.
9. A population of termites initially consists of darkly colored and brightly colored members. The dark coloration is caused by a dominant allele while the bright coloration pattern is the result of a recessive allele. Insectivores can easily locate the brightly colored termites. What would you predict to happen to the frequency of the alleles in this population after a few generations?
  - a. The frequency of the dominant allele would decrease
  - b. The frequency of the recessive allele would increase
  - c. The frequency of the dominant allele would increase
  - d. The frequency of the recessive allele would decrease
10. A single species of squirrel evolved over time into two species, each on opposite sides of the Grand Canyon. This change was most likely due to:
  - a. Higher mutation rates on one side
  - b. Low genetic diversity in the initial population
  - c. The geographic isolation of the two groups
  - d. Differences in food preferences