

The Five Fingers of Evolution

1. According to the text, what is the definition of evolution?
 - a) A complex process involving biological engineering.
 - b) Simply change in the gene pool over time.
 - c) The process of natural selection only.
 - d) The physical growth of a population.
2. What example is used to introduce the concept of a gene pool?
 - a) A group of birds migrating to a new island.
 - b) A boat capsizing with 10 survivors.
 - c) A laboratory experiment involving fruit flies.
 - d) The study of ancient fossils.
3. In the story provided, what is the initial frequency of the red-hair gene?
 - a) 25%
 - b) 50%
 - c) 75%
 - d) 100%
4. How does the text describe the relationship between sex and genetics?
 - a) As a way to introduce new species.
 - b) As the primary cause of mutation.
 - c) As simply a reshuffling of the genetic deck.
 - d) As a mechanism that changes gene frequency automatically.
5. How many processes are described that can result in evolution?
 - a) Two
 - b) Three
 - c) Four
 - d) Five
6. What does the little finger represent in the mnemonic device?
 - a) Mutation
 - b) Gene flow
 - c) Small population size/shrinking
 - d) Non-random mating
7. What happens if a population shrinks significantly?
 - a) Mutations decrease.
 - b) Chance can take over in determining the gene pool.
 - c) Natural selection becomes impossible.
 - d) Gene flow is eliminated.
8. What does the ring finger represent?
 - a) Mating (a ring represents a couple)
 - b) Natural selection
 - c) Migration
 - d) Genetic engineering
9. Which finger represents "mutation"?
 - a) Thumb
 - b) Pointer finger
 - c) Middle finger
 - d) Ring finger
10. What term does the text use for the movement of individuals into or out of an area?
 - a) Migration
 - b) Mutation
 - c) Gene flow
 - d) Natural selection
11. Which of the following is NOT one of the five processes listed?
 - a) Small population size
 - b) Artificial selection
 - c) Mutation
 - d) Gene flow
12. Which process is identified as the only one that creates organisms better adapted to their environment?
 - a) Mutation
 - b) Natural selection
 - c) Gene flow
 - d) Non-random mating
13. What mnemonic is used for natural selection?
 - a) The little finger
 - b) The pointer finger
 - c) The middle finger
 - d) The thumb
14. Why is red hair considered an advantage in northern climates?
 - a) It prevents cancer.
 - b) It allows ancestors to absorb more light and synthesize more vitamin D.
 - c) It makes individuals more attractive to mates.
 - d) It helps with camouflage.
15. Why was red hair a disadvantage in southern climates?
 - a) It led to increased vitamin D deficiency.
 - b) It caused individuals to be less visible to prey.
 - c) Increased UV radiation led to cancer and decreased fertility.
 - d) It made it harder to find food.
16. The text mentions that even the thumb itself is an adaptation formed through:
 - a) Mutation
 - b) Natural selection
 - c) Gene flow
 - d) Artificial selection
17. What is "microevolution"?
 - a) Evolution involving large changes in body structure.
 - b) Evolution occurring in microscopic organisms.
 - c) Evolution referring to a small change.
 - d) Evolution that occurs within a single generation.
18. What can microevolution eventually lead to?
 - a) A decrease in population.
 - b) Macroevolution, or speciation.
 - c) The end of natural selection.
 - d) A return to the original gene pool.
19. What does the text say about all living organisms on the planet?
 - a) They were created through artificial selection.
 - b) They are unrelated to one another.
 - c) They share ancestry with a single common ancestor.
 - d) They have stopped evolving.
20. How is the human hand described in the conclusion?
 - a) As an engineering masterpiece created over millions of years.
 - b) As the most complex adaptation in the animal kingdom.
 - c) As an example of rapid microevolution.
 - d) As proof of non-random mating.