

Evolution Scenarios

Each of the scenarios below describes one of the following evolutionary terms: Adaptation, Biodiversity, Evolution, Extinction, Natural Selection, Phylogeny, Species, Speciation, or Variation. Read and discuss each scenario. Use your understanding of these terms to select the one that best relates to each scenario. When your group has more than one response for each scenario, explain your reasoning.

1. There are only about 1,000 giant pandas left in the wild. An effective captive-breeding program is critical to the animal’s survival. Scientists are racing against time to understand panda biology and behavior in an effort to gain insights that will help this species survive in the wild.

2. Scientists have studied the guppy populations in two pools of Trinidad’s Aripo River system. Guppies in pool #1 are preyed upon by cichlids that tend to eat larger guppies. Guppies in pool #2 are preyed upon by killifish that tend to eat smaller guppies. Guppies in pool #1 have larger broods, reproduce at a younger age, and are smaller at maturity than those in pool #2. If guppies from pool #1 are placed in a pool with killifish predators, the average size of mature guppies increases over time.

3. The land snails of the species Cepaea nemoralis have shells that differ in color and number of stripes. Snails with light-colored, striped shells are found mainly in well-lighted areas, and dark-colored snails lacking stripes are found in shady places. Shell color serves as camouflage for the snails.

4. The Monterey pine and the Bishops pine inhabit the same area of central California, but do not interbreed to produce fertile offspring due to the fact that one releases its pollen in February and the other in April.

5. The long beak of the hummingbird fits easily into the slender neck of the blossom of a flowering plant.

6. A deciduous forest in West Virginia contains the following types of trees: yellow poplar, sassafras, black cherry, cucumber magnolia, red maple, red oak, butternut, shagbark hickory, American beech, and sugar maple.

7. Studies of shared dental and skeletal characteristics indicate that domestic cats and lions are more closely related to each other than they are to horses. Fossil evidence also supports this relationship.

8. The Basilosaurus sp. is a prehistoric ancestor of the modern baleen whale. A comparison of the skeletons of the Basilosaurus sp. and the baleen reveals evidence of a hind leg on the Basilosaurus sp. that is not found in the skeleton of a baleen whale.
Vocabulary of Evolution

Study the following vocabulary then connect and paste the Evolution Terminology Cards (pg 4)

- Adaptation – the alteration of a body structure, behavior or function that makes an organism more successful in surviving to reproduce
- Biodiversity – the variety and number of species in a biological community
- Evolution – the changes seen in life forms over long period of time
- Extinction – the dying out of a species
- Natural Selection – differential reproductive success of phenotypes resulting from interactions with the environment. Phenotypes favored by the environment are successful in producing offspring
- Phylogeny – the evolutionary history of a species
- Speciation – the evolving of new species
- Species – a group of individuals with similar anatomical characteristics who are capable of interbreeding to produce fertile offspring.
- Variation – the differences in characteristics among individuals of a species

Use the definitions of each word to complete the Evolutionary Scenarios Sentences (pg 6)