

1. Which situation would result in the ***greatest*** increase in the human population?

- A decreased birth rate and increased death rate
 - B increased infant mortality and decreased death rate
 - C decreased death rate and increased birth rate
 - D increased birth rate and increased infant mortality
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2. A local scientist has studied the population distribution of a species of snail that lives on the sandy beaches of an island. The island experiences a volcanic eruption. The data from the scientist's study of the snail population is summarized below.

Time Reference	Percentage of Black Snails	Percentage of Light Brown Snails
prior to volcanic eruption	9%	91%
one year after eruption	84%	16%
five years after eruption	91%	9%
ten years after eruption	75%	25%
fifteen years after eruption	51%	49%

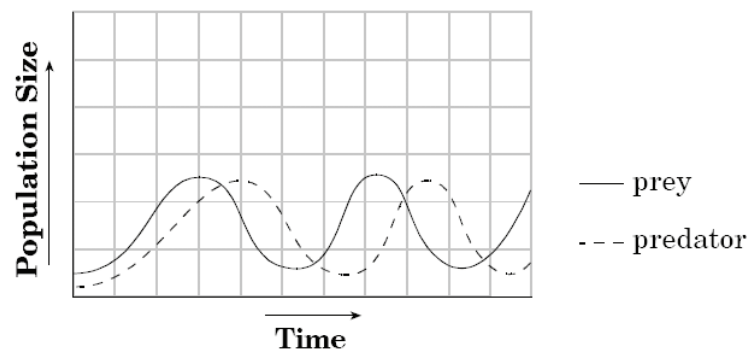
Prior to the volcanic eruption, which of the following could explain why the percentage of black snails was so much lower than the percentage of light brown snails?

- A The black color made them more likely to find food successfully.
- B The allele for black color is lethal in the homozygous condition.
- C The black snails were easier for predators to locate on the light-colored beach.
- D The light brown snails were better than the black snails at using all the available resources.

3. In a forest ecosystem, which is an abiotic factor?

- A the amount of rainfall
 - B the size of the deer
 - C the type of trees
 - D the number of birds
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4. This graph shows a predator-prey relationship.



What is illustrated by this graph?

- A density dependent factor
- B food web
- C mimicry
- D circadian rhythm

5. A community is studied and several interactions are observed and recorded.

Type of Interaction	Effect on Organism X	Effect on Organism Y
A	Harms	Harms
B	Benefits	Harms
C	Benefits	No effects
D	Benefits	Benefits

Which type of interaction could illustrate the process of mutualism?

- A interaction A
- B interaction B
- C interaction C
- D interaction D
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6. In the carbon cycle, atmospheric carbon dioxide is converted into organic material by which process?
- A cellular respiration
- B decomposition
- C photosynthesis
- D transpiration
7. A bird expert finds that in areas where a certain pesticide is used, birds lay eggs with extremely thin shells, reducing the number of surviving young. Based on the information, which is a reasonable conclusion?
- A Pesticides that do not kill organisms directly can still impact populations.
- B Airborn pesticide residue is dissolving the outer layer of the eggs in the nests.
- C The pesticide only affects female birds.
- D Thin shells are a successful adaptation to the insecticide.

8. Why do ecosystems rarely contain more than a few trophic levels?
- A Energy transfer efficiency is high.
 - B Energy transfer efficiency is low.
 - C Energy amounts remain constant.
 - D Energy cannot flow through levels.
9. Recent climate data suggests a global warming trend. The **most likely** cause could be an increase in which gas?
- A oxygen
 - B carbon dioxide
 - C nitrogen
 - D hydrogen sulfide
10. Silt and nutrients from eroding farmland flow into a lake. As a result, which will **most likely** increase first?
- A fish population
 - B shore vegetation
 - C algae growth
 - D dissolved oxygen

End of Goal 5 Sample Items

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