

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.

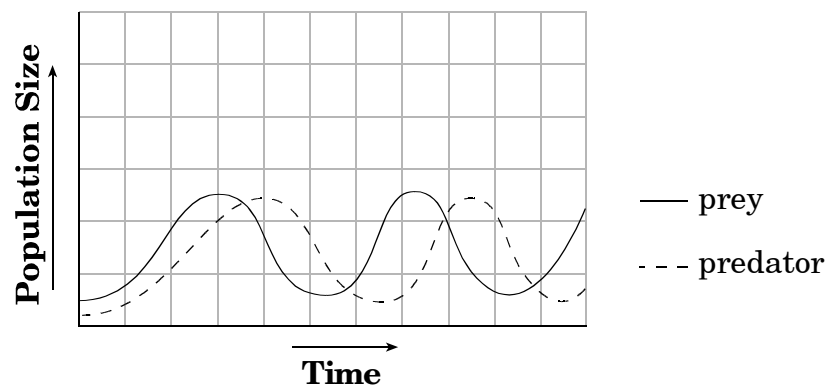
<b>Time Reference</b>	<b>Percentage of Black Snails</b>	<b>Percentage of Light Brown Snails</b>
prior to volcanic eruption	9%	91%
one year after eruption	84%	16%
five years after eruption	91%	9%
ten years after eruption	75%	25%
fifteen years after eruption	51%	49%

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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