

Applied Practice

***Ecological Resources
and Survival
STAAR Biology EOC***

RESOURCE GUIDE

Volume 11

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APPLIED PRACTICE
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Ecological Resources and Survival
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Choose the best answer to each question.

- 1 In the phosphorus cycle, weathering and erosion move phosphates from rocks into the soil, lakes, and rivers. How does phosphorus enter a food web on land?
- A The phosphates that are dissolved in the groundwater are taken up by the roots of primary producers.
 - B The phosphates solidify into rocks, which are covered with lichen and mosses.
 - C The phosphates are in the lake water, which is consumed by the marine wildlife.
 - D The phosphates in the soil diffuse into the skin of organisms that live in the soil.
-

- 2 In a population, the maximum number of individuals possible based on what the environment can sustain is referred to as the —
- F maximum population
 - G threshold capacity
 - H carrying capacity
 - J apex population
-

- 3 The majority of carbon located on Earth is found in —
- A land animals
 - B rocks
 - C the atmosphere
 - D the oceans

- 4 How does nitrogen move from the soil into the food webs of an ecosystem?
- F Bacteria break down dead organisms and release nitrates and ammonium into the soil.
 - G Plants release nitrogen molecules into the atmosphere during cellular respiration.
 - H Nitrogen molecules diffuse into the leaves of plants during photosynthesis.
 - J Nitrates and ammonium are absorbed by the roots of primary producers.

Use the following table to answer questions 5-7.

Species	Population before Cicada cycle	Population after Cicada cycle	Population Growth Rate
Wild turkeys	200	250	0.22
Tree saplings	80	30	-0.625
Shrubs	100	50	-0.5
Squirrels	300	220	-0.26

- 5 The magicicada cicadas emerge every 13 years in large population sizes. Their populations are significant enough to have an impact on other species in the area. Which species was most negatively impacted by the arrival of the cicadas?
- A Wild turkeys
 - B Tree saplings
 - C Shrubs
 - D Squirrels

- 6 Which of the following is the best explanation of why the population of wild turkeys increased after a cicada cycle?
- F The cicadas reduced the number of organisms that prey upon the wild turkeys.
 - G The cicadas consumed turkey eggs, reducing the number of new turkey offspring.
 - H The wild turkeys fed on the cicadas, and this additional food source allowed them to increase their rate of reproduction.
 - J Cicadas increased the competition among primary consumers in the forest, allowing the turkeys to have a more efficient transfer of energy throughout the food web.
-

- 7 Which primary consumer was negatively affected by the arrival of the cicadas?
- A Wild turkeys
 - B Tree saplings
 - C Shrubs
 - D Squirrels
-

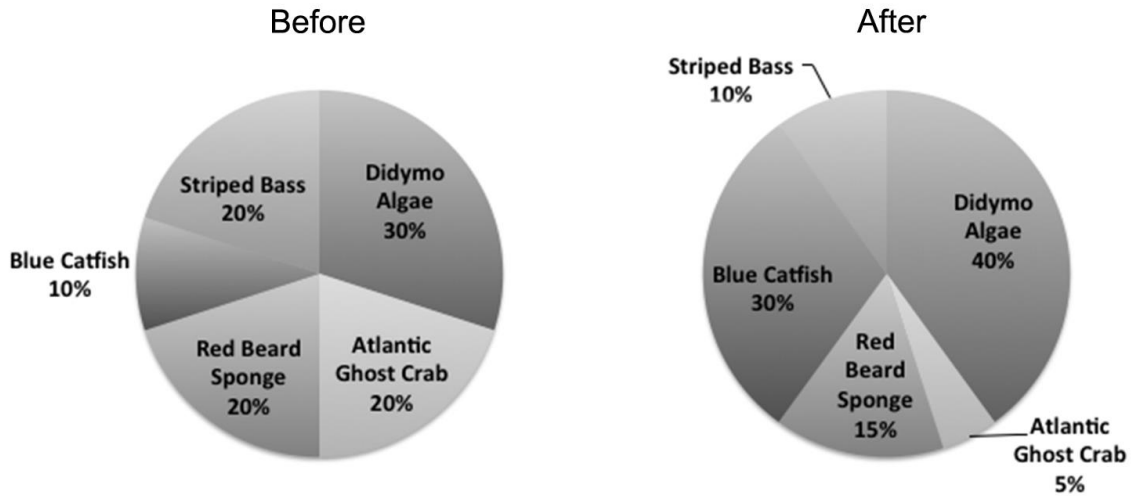
- 8 What process releases carbon dioxide from living organisms into the atmosphere?
- F Aerobic respiration
 - G Nitrogen fixation
 - H Photosynthesis
 - J Denitrification

- 9 Bacteria and fungi break down organic wastes and return nitrogen to the soil in the form of —
- A nitrates
 - B ammonium
 - C nitrogen gas
 - D nitrites
-

- 10 When the environment in an ecosystem changes, the change often reduces the population size of primary producers in that ecosystem. This alters the food web by —
- F forcing top predators to move to other ecosystems in search of a greater number of prey
 - G increasing the number of top predators in the ecosystem
 - H increasing the carrying capacity of the ecosystem for other organisms
 - J reducing the carrying capacity of the ecosystem for other organisms

Use the following chart to answer questions 11-13.

Population of Organisms in Chesapeake Bay Before and After Desalination of the Waters



11 Which of the following organisms was most positively impacted from the change in salinity in the waters of the Chesapeake Bay?

- A Didymo algae
- B Atlantic ghost crab
- C Blue catfish
- D Striped bass

12 Which of the following organisms was most negatively impacted by the change in salinity in the waters of the Chesapeake Bay?

- F Striped bass
- G Atlantic ghost crab
- H Red beard sponge
- J Didymo algae