

# Ecology B/C Test

Science Olympiad North Regional Tournament at the  
University of Florida



**Answers go on the team answer sheet.  
DO NOT WRITE ON THIS TEST SET.**

## Principles of ecology

1. List 3 biotic and 3 abiotic factors in a forest (6 points, one for each correctly labeled factor)
2. Would lichens be biotic or abiotic (2 points)
3. List the following in order from largest to smallest: individual, biosphere, community, ecosystem, population, biome (4 points)

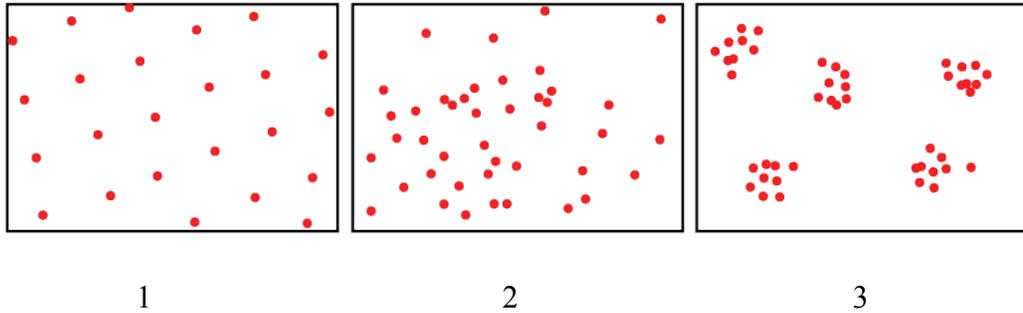


Photo from: <https://www.khanacademy.org/science/biology/ecology/population-ecology/a/population-size-density-and-dispersal>

4. In the image above, what pattern of distribution is image 3 representing? (2 points)

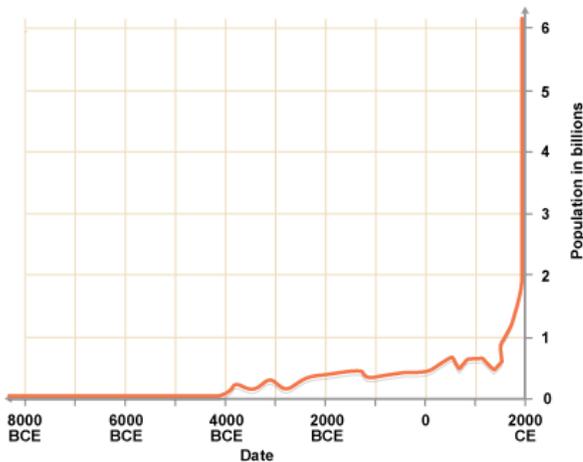


Image from: [http://www.bbc.co.uk/schools/gcsebitsize/science/ocr\\_gateway/understanding\\_environment/population\\_pollutionrev1.shtml](http://www.bbc.co.uk/schools/gcsebitsize/science/ocr_gateway/understanding_environment/population_pollutionrev1.shtml)

5. In reference to the graph of human population above, what is the best explanation for the spike in population? (2 points)

- a. Elimination of black plague
- b. Higher fertility rates
- c. Advancement in medicine

6. What type of relationship is described: Copepod attached to Greenland shark cornea. (2 points)

7. As you go up the food chain, what happens to the number of predators? (2 points)

- a. Population is equal to that of the prey
- b. Population is much larger than prey
- c. Population is much smaller than prey

8. What trophic level would a falcon be placed on? (3 points, two answers)

9. How does energy flow through a food pyramid? (5 points)

10. In which cycle does animal waste play the biggest part? (2 points)

- a. Nitrogen cycle
- b. Phosphorus cycle

- c. Hydrologic cycle
- d. Carbon cycle

11. What two parts of the earth make up the lithosphere? (2 points)
12. Draw a food web for a coral reef environment. Include: 3 producers, 2 primary consumers, 3 secondary consumers, and 2 tertiary consumers. Try to be as specific as possible when naming animals. (only to be graded in event of tie. 10 points)

#### Terrestrial biomes

1. What type of biome is found near the equator and at a relatively low altitude? (2 points)
2. Explain why large trees do not grow in tundra areas. (2 points)
3. Why do fires occur naturally in grasslands? (3 points)
4. Would you expect a thick or thin humus layer of soil to be found in a savanna area?  
Why? (5 points)
5. Which of the following is true of desert biomes? (2 points)
  - a. High precipitation
  - b. Low precipitation
6. TRUE OR FALSE: deserts are only ever hot in the day and chilly at night. (2 points)

7. Explain an adaptation a plant may have in the desert. (3 points)
8. Give an example of an adaptation desert animals may have? (2 points)
9. Compare and contrast location, seasons, precipitation, and adaptations for desert biomes and grassland biomes. (only to be graded in event of tie. 10 points)

#### Human impact on terrestrial ecosystems

1. Why is it important to the ecosystem that hunting trophies from Africa are banned in all countries? (3 points)
2. Approximately how much of the earth is covered in desert? (2 points)
  - a. 25%
  - b. 10%
  - c. 5%
  - d. 2.5%
3. What action from animals is slowly expanding the desert areas? (3 points)
4. How do humans encourage desertification? (2 points?)
5. TRUE OR FALSE: crop rotation can help prevent desertification. (2 points)

6. What have much of the Earth's grasslands been lost to? (2 points)
  - a. Agricultural development
  - b. Sea level rise
  - c. Dropping temperatures
7. Which of the following is NOT a global environmental concern? (2 points)
  - a. Climate change
  - b. Overpopulation
  - c. Irrigation
  - d. Ozone depletion
8. What is point source pollution as compared to nonpoint source pollution? Give an example of both. (4 points)
9. Explain cause and effects of acid rain. (5 points)
10. Which of the following is not an invasive species in the Everglades? (2 points)
  - a. Green iguana
  - b. Great blue heron
  - c. Climbing fern
  - d. Burmese python
11. What is the greatest effect of global warming? Make a thesis for why that factor is the greatest and not another factor. (only to be graded in event of tie. 10 points)