

STUDENT NAME _____
BIOLOGYQUARTER THREE ASSESSMENT

TEACHER _____

Today you will be taking the BIOLOGYQUARTER THREE assessment. This test is designed to test your skills and knowledge in science. It has questions taken from science classes, as well as about experiments. You should make sure to read each question carefully, including the information given at the beginning of each section. Examine the diagrams to help you understand the questions as well. Some questions may refer to diagrams or information from the previous page.

For the multiple choice sections, make sure to place your answers on your Scantron sheet.

Make sure the Scantron has your full name, neatly written, as well as your student ID number on the right hand side of the box.

For the open ended questions, make sure to read all the information, and write your answer clearly in the space provided

1. (D32) The patient needed a vaccination. Vaccinations prevent disease by _____.

- a. preventing viral DNA from entering the body
- b. destroying toxins produced by bacteria
- c. stimulating the production of antibodies
- d. increasing red blood cell production

2.(D42) Water is necessary for life. During Connecticut winters, the ground freezes, making it difficult for trees to absorb water. How are Connecticut trees adapted to survive cold winters?

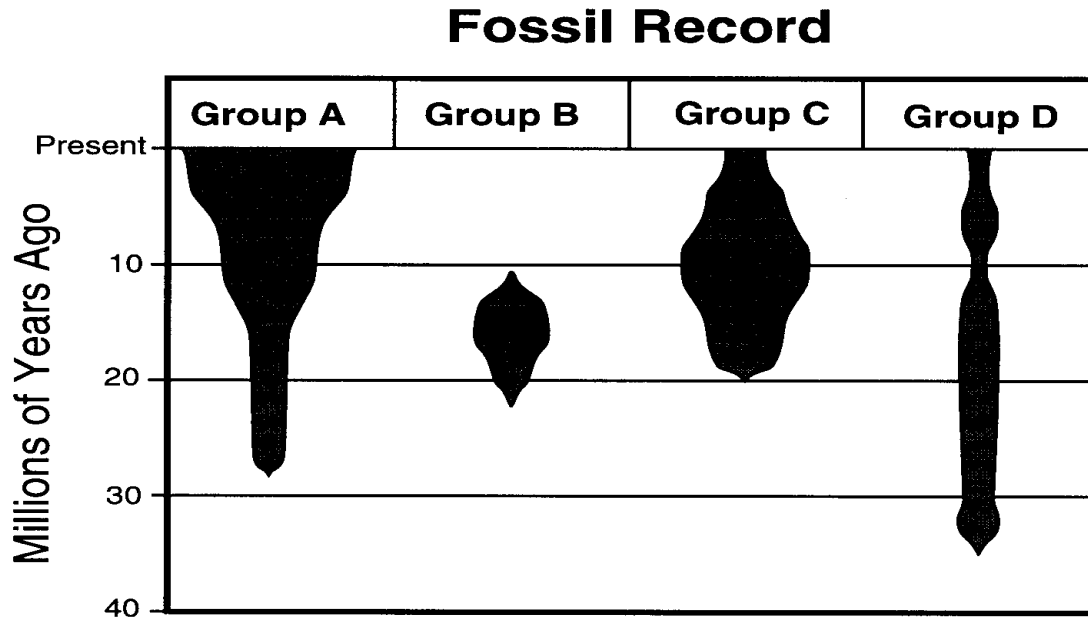
- a.. They use sap as a water source.
- b. They reverse the photosynthetic process.
- c. They drop their leaves and become dormant
- d. They use the water produced during cellular respiration.

3. (D43) Which is the MOST significant factor that affects the carrying capacity of the environment for humans?

- A) Sanitation
- B) Quantity of Food Supply
- C) Transportation
- D) Amount of Living Space



In a section of the Grand Canyon, scientists have found fossil remains of several different groups of organisms. The diagram below represents the number and age of the fossils the scientist found. The width of each shaded area in the diagram indicates the relative number of fossils found.



4. (D40) Which of the following statements does the fossil record support?
- Group C is now extinct.
 - Group D has been in existence the longest.
 - Group A is the most recent organism to come into existence.
 - Group B was the most numerous organism 10 million years ago.
5. (D41) The scientists hypothesize that the four groups of fossilized organisms originated from a common ancestor. Which of the following would provide the best evidence that their hypothesis is correct?
- The number of fossils found in each group is similar.
 - Present day members of the group live in the same environment.
 - Fossils from each group were found in the same rock layer.
 - Members of the groups have similar physical structures.



6. (DINQ1) Which is a question about populations of a tropical insect species that could NOT be investigated through a scientific investigation?

- A) How does the food supply affect the growth rate of a population?
- B) How does the gender ratio of males to females affect the growth rate of a population?
- C) How does the genetic variation within a population affect its growth rate?
- D) How does the attractiveness of the insects to humans affect its growth rate?

7. (DINQ2) Which is probably the most reliable or credible source of scientific information about a scientific issue, such as cloning?

- A) A presentation by a politician.
- B) An article in a scientific journal with results of research.
- C) A website from a college student.
- D) A talk radio show.

A group of students decides to do an experiment to test the hypothesis that the density of a molasses solution affects the amount of CO₂ produced when combined with a yeast solution. They use the same volume of molasses solution mixed with yeast solution and measure the amount of CO₂ produced.

8. (DINQ6) To measure the volume of the yeast solution they should use:

- A) A spring scale, measuring in ounces
- B) A balance, measuring in grams.
- C) A ruler, measuring in cubic centimeters.
- D) A graduated cylinder, measuring in milliliters.

9) (DINQ8) Which property should be placed on the y axis (the side) in making a graph of their results?

- A) The time it took to react.
- B) The volume of the yeast solution.
- C) The amount of CO₂ produced.
- D) The density of the molasses solution.

10. (DINQ5) What is the best control group for their experiment?

- A) Measuring the amount of CO₂ produced by yeast combined with water.
- B) Measuring the amount of CO₂ produced by yeast with 50% molasses solution.
- C) Measuring the amount of CO₂ produced by 50% molasses combined with water..
- D) Measuring the rate of CO₂ produced by 100% molasses with the yeast solution



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Use the information on the next pages to answer the open-ended experimentation questions. Answer the questions in the space provided. Make sure to write clearly and neatly, while answering the question fully. Remember to answer the question, then WRITE a good explanation. You can always add diagrams or charts if you think it will help explain your answer.

Yeast Experiment

A group of students wrote the following procedure for their experiment.

Procedure:

1. Place 35 mL of 25% molasses solution into three small collection tubes.
2. Place 1 mL of the yeast suspension into each collection tube.
3. Place your palm over a small collection tube and mix each suspension well.
4. Carefully slide a larger tube down over the smaller tube. Invert the tube. Repeat for each tube.
5. Measure the height of the bubbles in the smaller tubes and record.
6. Place one tube at 10°C in a refrigerator. Leave the second one out at room temperature at 25°C.

Place the third tube in a warming oven at 35°C. Make sure all tubes are in the dark and in an undisturbed location. Leave the three samples for 24 hours.

7. Measure the change in bubble size after 24 hours. Record the data.

The table below shows the results of the group's experiment.

Here is their data:

Temperature (in °C)	Height of CO ₂ Bubble in mm
10	2
25	8
35	10

Use these results to answer the following questions:

