

Oklahoma School Testing Program



Oklahoma Core Curriculum Tests

2008–2009 Released Items

End-of-Instruction
Biology I

Oklahoma State Department of Education
Oklahoma City, Oklahoma



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Section 1

Section 1

Directions

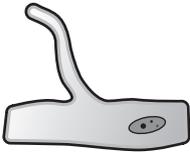
Read each question and choose the best answer.

1 In her laboratory manual, Kimiko read that fluid should never be heated in a test tube sealed with a cork. What is the reason to avoid heating fluid in a sealed test tube?

- A** The cork could become hot and catch fire.
- B** The fluid would condense on the cork and contaminate experimental results.
- C** It would be too difficult to add materials to the test tube.
- D** Pressure could increase until the cork and fluid shoot out of the test tube.

2 Which cell is best for absorbing materials from its environment?

F



G



H



J



3 Which of these is the most appropriate unit of measurement to determine the volume of an adult human's stomach?

- A meter
- B kilogram
- C liter
- D kiloliter

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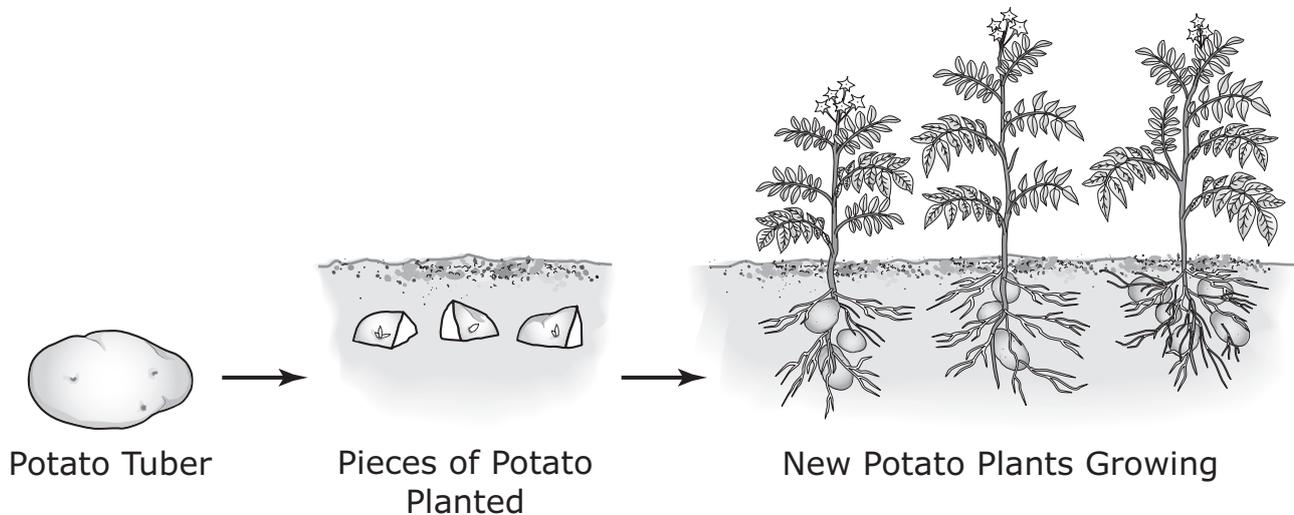
- 4** In the early part of the 20th century, populations of the whooping crane decreased greatly as their habitat was converted to farmland.

How would a population of whooping cranes most likely change if it were placed in a protected environment with unlimited resources?

- F** It would continue to decline.
- G** It would slowly increase then decrease.
- H** It would fluctuate slightly.
- J** It would increase exponentially.

- 5 A type of cloning occurs in many plants. In this process new plants grow from a piece of the parent plant. Strawberries reproduce this way from runners. African violets can be grown from a leaf. Pieces of potato tuber can be used to grow new potato plants, as shown below.

Reproduction of Potatoes from a Tuber



The method of producing plant offspring shown in the diagram depends on which process?

- A mutation during natural selection
 - B mitosis during asexual reproduction
 - C self-pollination during regeneration
 - D meiosis during sexual reproduction
- 6 Which of these is most likely to result from the processes of mutation and crossing over during reproduction?
- F offspring that are genetically identical to their parents
 - G offspring that are genetically identical to each other
 - H decreased genetic variation among offspring
 - J increased genetic variation among offspring

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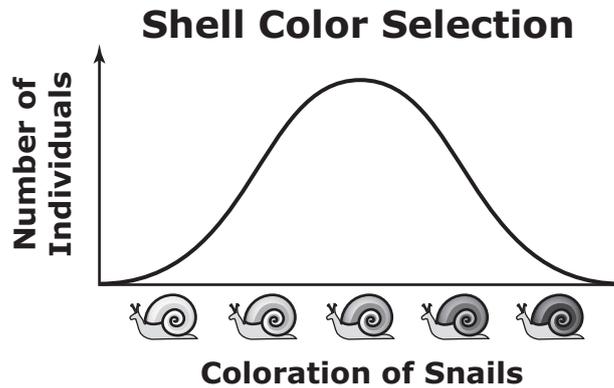
- 7 The Linnean classification system places organisms in groups based on how closely they are related. The kingdom is the classification level containing organisms that are most distantly related while the species level contains organisms that are most closely related. The Linnean classification of the largemouth bass is shown below.

Classification of Largemouth Bass	
Kingdom	Animalia
Phylum	Chordata
Class	Actinopterygii
Order	Perciformes
Family	Centrarchidae
Genus	<i>Micropterus</i>
Species	<i>salmoides</i>

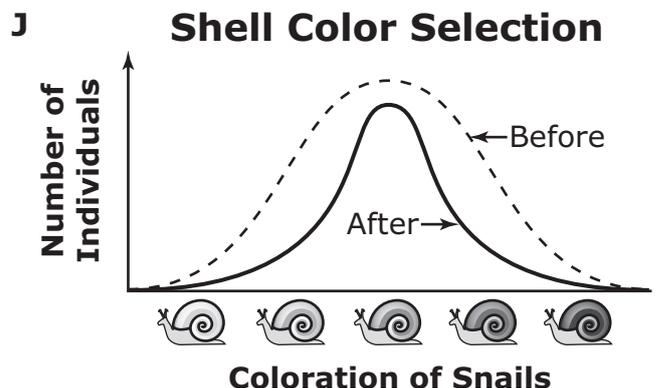
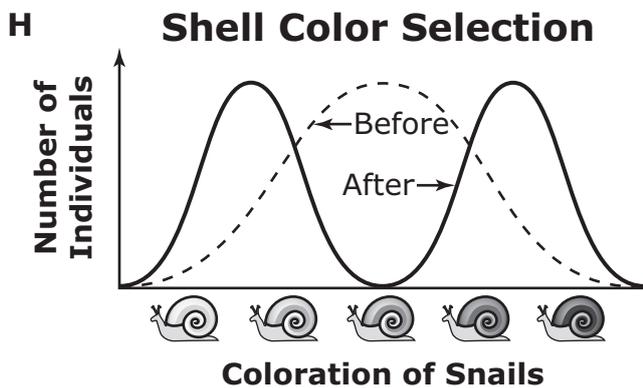
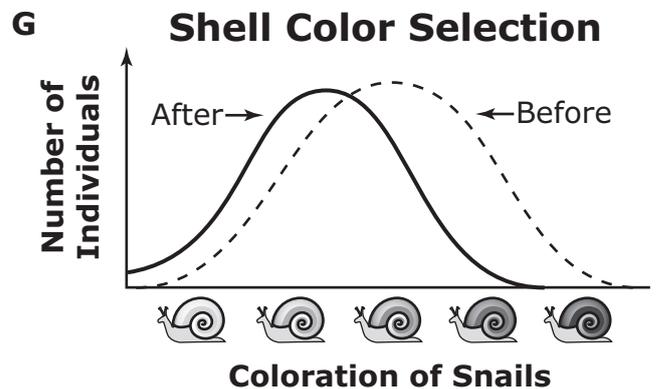
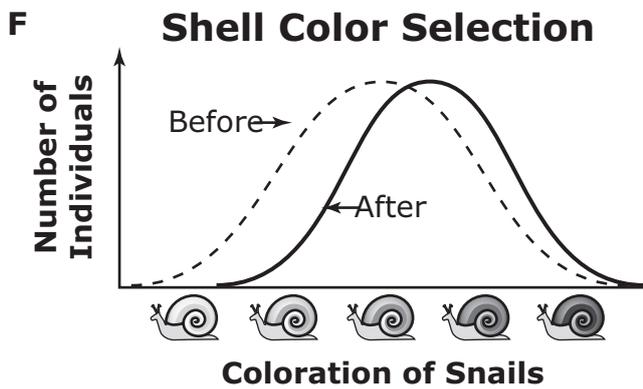
Which of these levels of classification contains organisms that are more distantly related than those in the order Perciformes?

- A Actinopterygii
- B *Micropterus*
- C Centrarchidae
- D *salmoides*

8 A characteristic such as shell color in snails can influence the snail's ability to avoid predation.



Which graph illustrates the results of the environment selecting for light shell coloration?



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- 9 A horticulturist hypothesized that if he increases the level of carbon dioxide (CO_2) in the air of his greenhouses, then his plants will absorb carbon more quickly. He collected the following data from an experiment performed on his plants.

Plant Growth in Different
Carbon Dioxide Levels

CO_2 Level in Air (parts per million)	Average Plant Mass at Start of Experiment (grams)	Average Plant Mass at End of Experiment (grams)
260	502	551
360	500	607
460	504	755
560	501	854

Which statement is true about the data in the table?

- A The data supports the hypothesis because the plants grew more when the level of CO_2 increased.
- B The data supports the hypothesis because the plants grew less when the level of CO_2 increased.
- C The data contradicts the hypothesis because plants grew less when the level of CO_2 increased.
- D The data contradicts the hypothesis because the plants grew more when the level of CO_2 increased.

- 10** A scientist was studying two organisms and determined the relationship between them was parasitism. Which statement must be true to classify the relationship as parasitism?
- F** One organism benefits while the other organism is harmed.
 - G** A smaller organism lives inside the body of a larger organism.
 - H** One organism feeds on the body fluids of another organism.
 - J** Both organisms are harmed by the relationship.

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11 A certain plant can be pollinated only by one species of moth. The moth lands on one plant and collects pollen. Then it flies to another plant where it lays its eggs and deposits the pollen. The larvae feed on the plant's seeds as they develop, but they do not eat all of the seeds.

A disease infected a population of this moth in 1996. From 1996 to 2002 a scientist studied this moth population and the population of the plant in the area.

Moth and Plant Population Study

Year	Number of Moths	Number of Plants
1996	18654	3655
1997	9327	3649
1998	6644	2800
1999	5997	2663
2000	7841	2514
2001	10624	2703
2002	14922	3016

According to the table, which of these best describes the relationship between the plant and the moth?

- A** A change in the moth population is followed by a similar change in the plant population because the plant requires the moth in order to reproduce.
- B** A decrease in the moth population causes a decrease in the plant population because the moth and plant compete for the same resources.
- C** An increase in the moth population causes a decrease in the plant population because the moth is a parasite.
- D** A change in the moth population does not affect the number of plants.

- 12** José wants to test the effect of temperature on the activity of a digestive enzyme. He will need the white part of a hardboiled egg, two test tubes, an ice bath, and 20 milliliters of the digestive enzyme pepsin.

These are steps in the experiment, but they are not shown in the correct order:

1. Place one test tube in the ice bath and one on a sunny windowsill.
2. Record observations.
3. Place 1 gram of egg white and 5 milliliters of pepsin in each test tube.
4. Make and record a hypothesis.

In what order should José perform the steps?

F 1 - 2 - 3 - 4

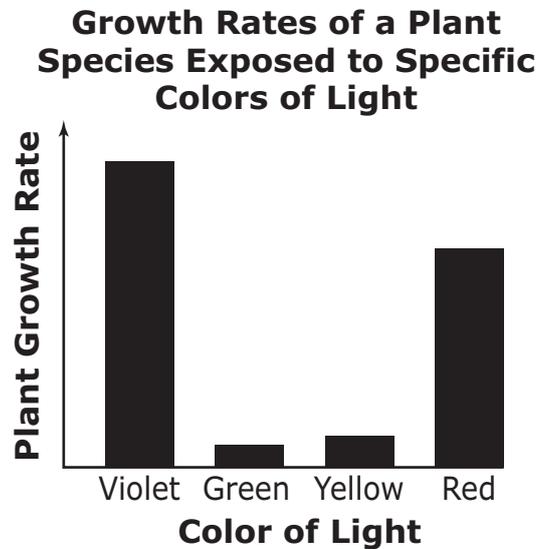
G 4 - 3 - 2 - 1

H 4 - 3 - 1 - 2

J 1 - 2 - 4 - 3

Section 1

- 13 Marcus is studying how exposure to different colors of light affects plant growth. Before the experiment he states the following hypothesis: If plants are exposed to red light, then they will have the greatest growth rate. Marcus performs the experiment and graphs his results.

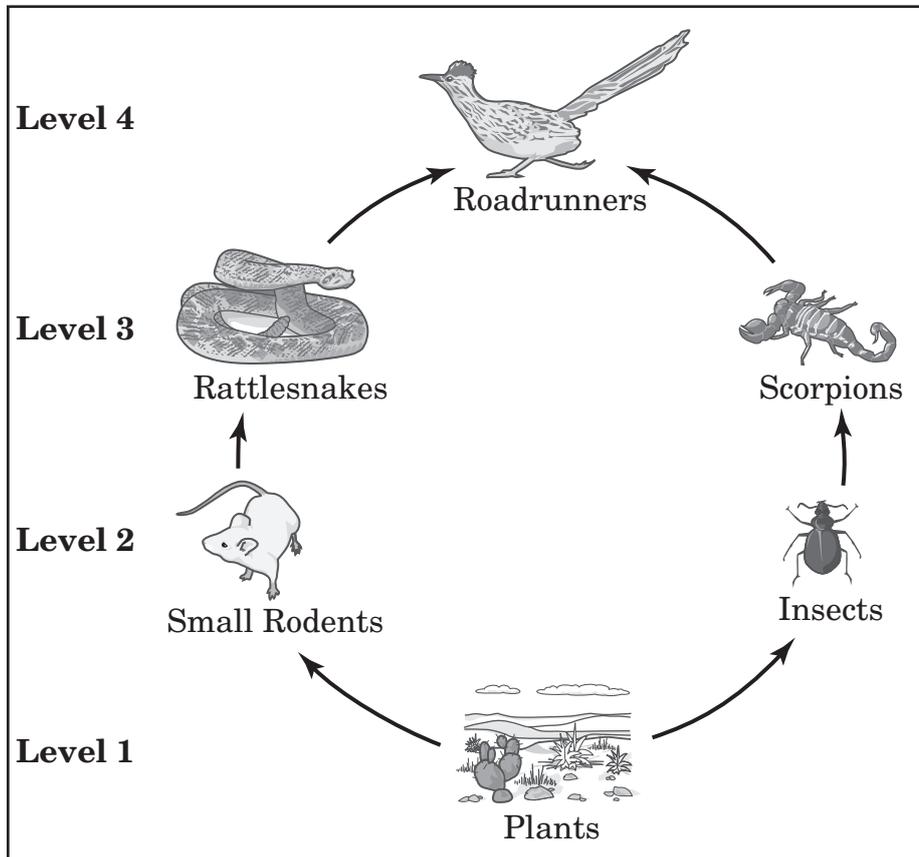


According to the graph, what should Marcus conclude about his hypothesis?

- A** The hypothesis is correct. Plant growth rate was low in red light.
- B** The hypothesis is incorrect. Plant growth rate was unaffected by light color.
- C** The hypothesis is correct. Plant growth rate was greatest in red light.
- D** The hypothesis is incorrect. Plant growth rate was greatest in violet light.

- 14 According to this food web, what will most likely happen if the number of roadrunners declines greatly?

Desert Ecosystem

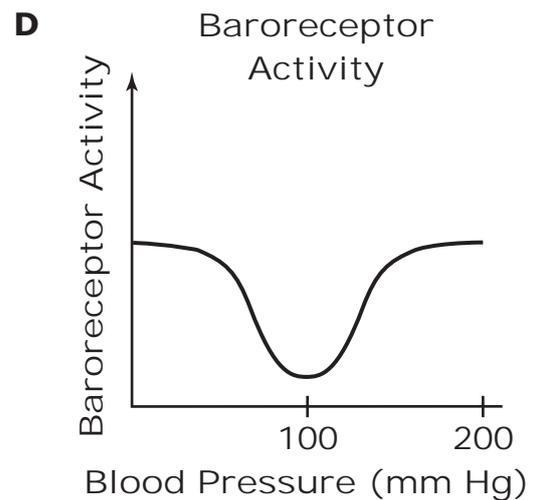
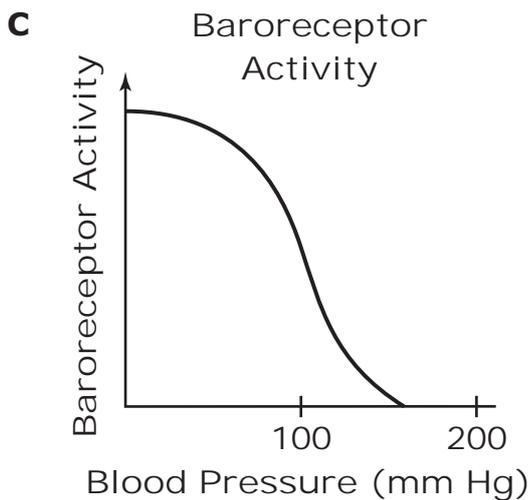
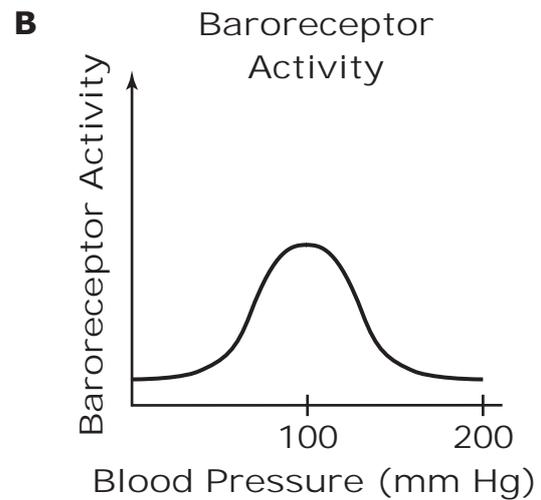
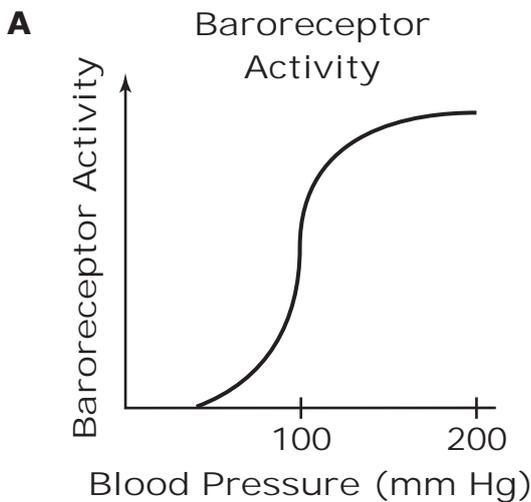


- F The energy present in Level 3 will increase.
- G The energy present in Level 4 will increase.
- H More energy will be recycled in the ecosystem.
- J Less energy will be available to organisms in Level 1.

Section 1

- 15** Blood pressure tends to rise in response to environmental stress. Cells known as baroreceptors help maintain blood pressure near a normal value of 100 mm Hg. The baroreceptors decrease their activity if the blood pressure drops below 100 mm Hg, and increase their activity if the blood pressure rises above that point.

Which of these graphs best describes the relationship between baroreceptor activity and blood pressure?



Use the information below to answer Numbers 16 through 20.

John Needham, an eighteenth century biologist, performed an experiment to support the theory that nonliving things can be transformed into living things. To do this, he briefly boiled a broth solution in a flask that had a loose-fitting cork placed in its mouth. Then he observed the broth in the flask for three days to check for signs of life. He thought that boiling would kill anything that may have been living in the broth, and placing the cork in the flask would keep any living things from entering it. Needham expected that living things would appear in the broth after a few days, turning the broth cloudy. Needham's observations from his experiment are described below.

Needham's Observations

Time	Appearance of Solution
Immediately after boiling	Clear
After 1 day	Clear
After several days	Cloudy

16 Which of these presents the most serious safety hazard?

- F** heating a sealed flask
- G** sealing a flask
- H** filling an empty flask with broth
- J** observing the broth in a sealed flask

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17 Did John Needham's observations support his hypothesis?

- A** yes, because he kept careful records
- B** no, because the broth should have stayed clear
- C** yes, because the contents of the flask became cloudy
- D** no, because it took several days for the broth to turn cloudy

18 What was the dependent variable in Needham's experiment?

- F** the appearance of the broth after boiling
- G** the length of time the broth was boiled
- H** the temperature of the broth in the flask
- J** the volume of the broth in the flask

19 Several years later a biologist named Lazzaro Spallanzani conducted a similar experiment, but boiled his broth for a longer time. His broth did not turn cloudy.

Which statement is the best conclusion based on the results of the two experiments?

- A** The type of broth Needham used could not support living things.
- B** There were no living things in Needham's broth before he boiled it.
- C** Some living things survived the brief boiling time in Needham's experiment.
- D** Growth of living things was stimulated by the longer boiling time in Spallanzani's experiment.

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20 Which of these factors probably had the greatest effect on the outcome of Needham's experiment?

- F** the size of the flask
- G** the type of broth in the flask
- H** the amount of broth in the flask
- J** the type of seal on the flask

STOP

END OF SECTION 1

