Name:
Date:
Class:

Lesson 5.1: Agriscience and the Scientific Method

Know and Understand

Answer the following questions using the information provided in this lesson.

1. The field of science that studies the physical world is _____. (5.1.1)

A. formal science
B. natural science
C. social science
D. physical science

Answer:

2. The term used to describe all the ways that agriculture interacts as a field of science is _____. (5.1.1)

A. agriscience
B. biotechnology
C. natural resources science
D. bioscience

Answer:

3. In which step of the scientific method do you select the variables and ensure the constants are in place? (5.1.2)

A. Identify the problem.
B. Formulate the hypothesis.
C. Conduct an experiment to test the hypothesis.
D. Collect and analyze data.
E. Reach a conclusion.

Answer:

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4. Which step of the scientific method involves making observations, researching the topic, and writing a research question? (5.1.2)

A. Identify the problem.

B. Formulate the hypothesis.

C. Conduct an experiment to test the hypothesis.

D. Collect and analyze data.

E. Reach a conclusion.

Answer:

5. Which step of the scientific method includes identifying facts and making inferences? (5.1.2)

A. Identify the problem.

B. Formulate the hypothesis.

C. Conduct an experiment to test the hypothesis.

D. Collect and analyze data.

E. Reach a conclusion.

Answer:

6. Which step of the scientific method includes determining the outcome based on the data? (5.1.2)

A. Identify the problem.

B. Formulate the hypothesis.

C. Conduct an experiment to test the hypothesis.

D. Collect and analyze data.

E. Reach a conclusion.

Answer:

7. *True or False?* Omitting minor data from an experiment is okay when it does not support your hypothesis. (5.1.2)

Answer:

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8. Which section of a written research report is a summary of the research and findings? (5.1.2)

A. Materials and methods

B. Abstract

C. Results

D. Discussion/conclusion

Answer:

9. Which section of a written research report includes studies that have already been completed in this area? (5.1.2)

A. Literature review

B. Abstract

C. Introduction

D. Materials and methods

Answer:

10. Which section of a written research report describes the experimental process in detail? (5.1.2)

A. Abstract

B. Introduction

C. Literature review

D. Materials and methods

Answer:

Use the following scenario to answer questions 11 through 13.

Frankie owns a trout farming operation. He has heard that the temperature of the world's oceans and natural waters is rising. He wants to understand how water temperature affects fish growth. Frankie uses four large fish tanks, each set at a different temperature. The tanks are set at 40°F, 50°F, 60°F, and 70°F (4.4°, 10°, 15.5°, and 21°C, respectively). He puts 100 freshly hatched trout in each of the tanks and lets them grow for five months. At the end of five months, he weighs all the surviving fish in each tank and calculates their average growth.

11. Which of the following is the research question in this scenario? (5.1.2)

A. How many fish should be in a tank with 70°F (21°C) water?

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B. Will trout die at temperatures below 40°F (4.4°C)?

C. How does increased water temperature affect fish growth?

D. What is causing climate change?

Answer:

12. What is the dependent variable in this scenario? (5.1.2)

A. The number of fish.

B. The weight of the fish at the end of five months.

C. The temperatures of the tanks.

D. That fish will grow more in warmer water.

Answer:

13. What is the independent variable in this scenario? (5.1.2)

A. The number of fish.

B. The weight of the fish at the end of five months.

C. The temperatures of the tanks.

D. That fish will grow more in warmer water.

Answer:

14. Provide an example of a potential problem that could be used to design an experiment for each of the following agricultural areas: animal production, water/irrigation, and crop production. (5.1.2)

Answer:

15. Formulate a hypothesis for the chicken feed experiment used as an example in this lesson. (5.1.2)

Answer:

16. Explain the difference between independent variables and dependent variables. (5.1.2)

Answer:

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