

1. Which statement is a characteristic of a scientific hypothesis?
 - A. All of the answer choices are correct.
 - B. A scientific hypothesis predicts a testable result.
 - C. A scientific hypothesis is specific.
 - D. A scientific hypothesis is based on observation.

2. Suppose a student hypothesized that mice would grow best if fed apple slices. She used four mice, all of which she grew for seven days. She fed the first mouse apple slices, the second raw steak, the third fruit punch, and the fourth was not fed any food. At the end of seven days, she found the following changes in weight for the four mice: the one fed apple slices gained 1.00 g, the one fed raw steak gained 0.61 g, the one given fruit punch gained 4.20 g, and the one given only water died by week's end. Did the results of her experiment support her hypothesis?
 - A. No. The mouse gained the most mass from the fruit punch, not the apple slices.
 - B. Yes. The mouse gained more mass from the apple slices.
 - C. Yes. Fruit punch is made from apples, so the weight gain from the fruit punch can be attributed to apples in the punch.
 - D. No. The mouse's death implies that there are dangerous conditions in the lab, thus none of the results are reliable.

3. Suppose a student hypothesized that mice would grow best if fed raw pasta. He fed one mouse the raw pasta, another mouse was fed apple slices, and another mouse received no food. Both the raw pasta mouse and the control mouse had lost mass by the end of two days but the apple slice mouse gained mass. The student concludes that his hypothesis is not supported by his data. Which of the following is the next step?
 - A. Perform the experiment a second time with two new mice.
 - B. Generate a new hypothesis.
 - C. Reanalyze the data to get different results.
 - D. Perform another experiment using different foods.
 - E. The dependent variable in an experiment is which of the following?
 - F. What the investigator measures or records
 - G. What the investigator deliberately varies during the experiment
 - H. What the investigator tries to keep constant
 - I. An educated guess

4. True or False: A control is a standard of comparison, usually a test in which one variable is not changed. TRUE

5. True or False: In a scientific experiment, replication is recommended but not necessary. TRUE

6. True or False: Viruses are living single-celled organisms. TRUE

7. Staph, tetanus, and food poisoning are caused by _____.
- A. Bacteria
 - B. Viruses
 - C. Fungi
 - D. H.P.V.

Identify the steps of the scientific method given in the following questions (8-12) based on this statement:

Jane lives on a farm in Kansas. Every year she harvests many strawberries. Unfortunately this year, the strawberries did not grow.

8. Jane believes that the strawberries did not grow this year, because Kansas did not get much rain. (What step is this?)
- A. Make a conclusion
 - B. Conduct an experiment
 - C. Ask a question
 - D. State a hypothesis
 - E. Analyze the results
9. The strawberries that received the most water grew the biggest. (What step is this?)
- A. Make a conclusion
 - B. Conduct an experiment
 - C. Ask a question
 - D. State a hypothesis
 - E. Analyze the results
10. The strawberry plants were placed in the same setting with an equal amount of sunlight shining on the plant. Each plant received a different amount of water: 1 cup, 3 cups, 5 cups.
- A. Make a conclusion
 - B. Conduct an experiment
 - C. Ask a question
 - D. State a hypothesis
 - E. Analyze the results
11. The strawberry plant that received 1 cup of water grew $\frac{1}{2}$ inches after a week, 3 cups of water grew 1 inch, and 5 cups of water grew $2\frac{1}{2}$ inches.
- A. Make a conclusion
 - B. Conduct an experiment
 - C. Ask a question
 - D. State a hypothesis
 - E. Analyze the results
12. Why did the strawberries not grow this year?
- A. Make a conclusion
 - B. Conduct an experiment
 - C. Ask a question
 - D. State a hypothesis
 - E. Analyze the results

13. A well-tested and widely accepted hypothesis that explains a large quantity of data.

- A. Independent variable
- B. Dependent variable
- C. Theory
- D. Hypothesis

14. A testable explanation of some phenomenon can never be proven, only tested

- A. Independent variable
- B. Dependent variable
- C. Theory
- D. Hypothesis

15. Which of the following is an element of a "good experiment"?

- A. Laboratory grade chemicals
- B. The scientist should know in advance what the outcome will be
- C. All experiments should be conducted in a laboratory
- D. Try to change only one variable at a time

16. What is a pathogen?

- A. An organism that carries a disease-causing organism from one host to another.
- B. An agent that causes disease.
- C. Bacterial organisms only
- D. An organism that harbors a disease and is harmed by it.

17. What is a vector?

- A. An organism that carries a disease-causing organism from one host to another.
- B. An agent that causes disease.
- C. Bacterial organisms only
- D. An organism that harbors a disease and is harmed by it.

18. The study of factors affecting the health and illness of a population is called

_____.

- A. Ecology
- B. Epidemiology
- C. Pathology
- D. Virology

19. The bacterium, *Yersinia pestis*, was transferred from fleas on rats to humans. Which organism is the vector?

- A. *Yersinia pestis*
- B. Fleas and rats
- C. Rats and humans
- D. Humans

20. True or False: Bacterial infections can be treated or controlled by the use of antibiotics. TRUE