

Quiz bank

Scientific Method and Experimental Design – For each question, circle all answers that apply.

1. Which of the following is true about a positive control?
 - a. A known positive result
 - b. A safeguard against a false positive
 - c. A safeguard against a false negative
 - d. Included in diagnostic tests
2. Which of the following is true about a negative control?
 - a. A known negative result
 - b. A safeguard against a false positive
 - c. A safeguard against a false negative
 - d. No outcome is ever expected
3. Which of the following is true about an experimental control (control group)?
 - a. Used for acquiring baseline data
 - b. Can also be a negative control
 - c. Used to compare relative effects
 - d. No outcome is ever expected
4. The independent variable of an experiment:
 - a. Is something you can change
 - b. Is something you can control
 - c. Affects the dependent variable
 - d. All of the above
5. The dependent variable of an experiment:
 - a. Is the result
 - b. Is something you can control
 - c. Affects the independent variable
 - d. All of the above
6. True or false? The Scientific Method is a strict set of steps that must be adhered to absolutely and without deviation to obtain reliable and credible data.
7. True or false? If your hypothesis is incorrect your experiment was a failure.
8. True or false? The Scientific Method can only be used for scientific inquiries.
9. True or false? Proper and appropriate experimental design is critical for the obtainment of usable, reliable, and applicable data.
10. True or False? Variables are the conditions, aspects, or components that are changeable and controllable during an experiment.
11. True or False? The independent variable is what can be altered to affect the outcome.
12. Controls can be:
 - a. Safeguards
 - b. Results
 - c. Data
 - d. Unknown
13. Variables can be:
 - a. Controlled
 - b. Dependent
 - c. Changed
 - d. All of the above

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Foodborne Outbreak Lab/Scientific Method Focused Questions

1. What is (are) the independent variable(s) in the case of the five layer bean dip? Explain.

Hypothetical Inquiries/ Scientific Method and Experimental Design

1. Identify the independent variable(s), dependent variable(s), and controls (if any) you would have if you were to design an experiment for each of the following questions. Briefly describe the test(s) you would perform and what challenges or problems you may face (if applicable) during experimentation and evaluation.

a. Does aspirin make cut flowers last longer than plain water?

b. Which type of nail polish remover works better? Acetone or acetone-free?

c. Will an iron nail rust faster in tap water than distilled water? How about deionized water?

d. How does available surface area affect the speed at which water boils in a microwave?

e. How does water temperature affect algae growth?

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Short Answer Scientific Method Questions

1. What is an independent variable? What is a dependent variable? What is the difference?
2. Are negative controls and experimental controls the same? Explain.
3. Compare and contrast the three types of controls based on their function.
4. If you have a positive result in your negative control, what is the problem?
5. If you have a negative result in your positive control, what is the problem?
6. What is a false positive? What is a false negative? Is one worse than the other? Explain your reasoning.