



Unit 1 – Introduction to Biology

Lesson 4 Quiz: Designing Biological Experiments

Question 1

Why do scientists clearly define the experimental system before beginning an experiment?

- A.** To reduce the cost of research
- B.** To make the procedure understandable and repeatable
- C.** To guarantee the expected result
- D.** To eliminate the need for controls
- E.** To avoid collecting data

Question 2

Which variable is deliberately changed by the scientist?

- A. Dependent variable
- B. Controlled variable
- C. Independent variable
- D. Response variable
- E. Random variable

Question 3

What is the dependent variable?

- A. The factor deliberately changed
- B. The condition kept constant
- C. The response that is measured
- D. The control group
- E. The sample size

Question 4

Why are controlled variables important?

- A. They increase bias
- B. They allow results to be linked to the independent variable
- C. They replace replication
- D. They eliminate ethics
- E. They reduce sample size

Question 5

What is the main purpose of a control group?

- A. To receive the treatment
- B. To provide a baseline for comparison
- C. To increase sample size
- D. To change the independent variable
- E. To reduce the number of observations

Question 6

Why are replication and adequate sample sizes important?

- A. They reduce the influence of chance
- B. They eliminate biological variation
- C. They guarantee correct conclusions
- D. They remove the need for controls
- E. They prevent measurement

Question 7

Which practice helps reduce bias in an experiment?

- A. Changing several variables at once
- B. Random assignment and blinded measurements
- C. Using only one specimen
- D. Ignoring confounding factors
- E. Avoiding comparison groups

Question 8

What are confounding factors?

- A. Hidden influences that may distort results
- B. The independent variable
- C. The dependent variable
- D. The control group
- E. The sample size

Question 9

Why must biological experiments follow ethical standards?

- A. To make experiments faster
- B. To protect participants, animals, researchers, and the environment
- C. To eliminate peer review
- D. To increase bias
- E. To avoid documentation

Question 10

Why should experimental procedures be carefully documented?

- A. To reduce costs
- B. To allow other scientists to reproduce the study
- C. To prevent new discoveries
- D. To avoid collecting evidence
- E. To eliminate sample variation

Correct Answers

1. B 2. C 3. C 4. B 5. B 6. A 7. B 8. A 9. B 10. B

Did you get all the answers correct?

If not, don't worry—just watch Lesson 4 again and try the quiz one more time.