Name: _____ **Date:** _____

Neon Labs: A 6th Grade Scientific Method Logic Quest

Students analyze experimental variables and evidence-based reasoning to solve real-world laboratory mysteries through critical thinking and data interpretation.

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1. A chemist observes that a specific alloy glows when exposed to UV light. Before starting an experiment, she reads journals about phosphorescence. Which stage of the scientific method is this?

A. Hypothesis formation
B. Analyzing data
C. Background research
D. Variable isolation

2. In a controlled experiment, a scientist should change multiple independent variables at the same time to see how they interact.

A. True
B. False

3. Marcus claims that 'If I add more electrolytes to the battery, then the light bulb will burn brighter.' In this statement, 'light bulb brightness' is the _____ variable.

A. Independent
B. Dependent
C. Control
D. Constant

4. A marine biologist notices that coral bleaching occurs more frequently in areas with high boat traffic. What is the most logical next step in the scientific method?

A. Publish a final report in a magazine
B. Develop a testable hypothesis
C. Discard the data as inconclusive
D. Change the water temperature in the ocean

5. When a scientist shares her data with other experts to check for errors or bias before publication, this process is known as _____.

A. Peer review
B. Data graphing
C. Hypothesis testing
D. Variable control

6. A hypothesis is only useful to a scientist if the experimental data proves it to be absolutely correct.

A. True
B. False

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7. Which of these is a qualitative observation rather than a quantitative measurement?

A. The liquid turned a deep purple color
B. The temperature increased by 15 degrees
C. The specimen weighed 4.5 grams
D. The reaction took 34 seconds to complete

8. To ensure an experiment is fair, the factors that are kept exactly the same in both the experimental and control groups are called _____.

A. Independent variables
B. Hypotheses
C. Constants
D. Outliers

9. If an experiment's results do not support the original hypothesis, what should the scientist do next?

A. Change the data to match the hypothesis
B. Stop the investigation entirely
C. Refine the hypothesis and re-test
D. Ignore the results and publish anyway

10. The 'Conclusion' step of the scientific method is where a scientist summarizes the findings and explains whether the data supports the hypothesis.

A. True
B. False