Designing Fair Tests Review

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Understanding Scientific Investigations

Name: _____ Date: _____

Answer the following questions based on what you learned about fair scientific tests.

1. What is the main purpose of conducting a fair scientific test?

- **A.** To prove a theory
- **B.** To control all variables except one
- **C.** To make it fun

2. Why is it important to control variables in a scientific investigation?

3. Only one variable should be changed in a fair test to understand the results accurately.

◯ True ◯ False

4. A fair test in science requires controlling all variables except the one being ___.

5. What can happen if too many variables are changed at once in an experiment?

- **A.** The results will be clear
- **B.** It can lead to confusion about what caused the outcome
- **C.** The experiment will be more fun

6. How might changing only one thing help us understand what's really happening in an experiment?

7. Scientists should design tests without considering how they will control variables.

◯ True ◯ False

8. Proverbs 18:15 teaches us that the heart of the discerning gets ___.

9. What did we learn about controlling variables during our dissolving substances test?

- **A.** It doesn't matter
- **B.** It helps us get clearer results
- **C.** We shouldn't control any variables

10. In your own words, explain why careful design matters in scientific investigation.

Answer Key

1. To control all variables except one 2. Controlling variables helps ensure that the results are reliable and that we know what causes any changes we observe. 3. True 4. investigated 5. It can lead to confusion about what caused the outcome 6. Changing only one thing allows us to see the direct effect of that variable on the outcome, making it easier to draw conclusions. 7. False 8. knowledge 9. It helps us get clearer results 10. Careful design helps ensure that we can trust our results and understand the effects of the variable we're testing. It allows for accurate conclusions about our experiments.