Scientific Investigation Review

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Understanding Variables and Controls

Name: _____ Date: _____

Answer the following questions based on our lesson about scientific investigations and variables.

1. What is the independent variable in our color diffusion experiment?

- **A.** Water temperature
- **B.** Amount of food coloring
- **C.** Type of food coloring

2. What is a controlled variable? Give an example from our experiment.

3. The dependent variable is what we ___ in an experiment.

4. Changing multiple variables at once can make results clearer.

◯ True ◯ False

5. Why is it important to change only one thing at a time in an experiment?

- **A.** To keep the experiment simple
- **B.** To see which change caused the effect
- **C.** To make the experiment longer

6. How does systematic thinking in scientific investigations reflect God's creation?

7. In our experiment, we measured the spread of food coloring as the ___ variable.

8. Controlled variables are factors that we change in an experiment.

◯ True ◯ False

9. What was one of the controlled variables in the color diffusion experiment?

- **A.** The type of food coloring used
- **B.** The temperature of the water
- **C.** The amount of water used

10. Why might changing multiple variables make results confusing in an experiment?

Answer Key

1. 0 2. A controlled variable is something that remains constant during an experiment. In our color diffusion experiment, the amount of water used was a controlled variable. 3. measure 4. False 5. To see which change caused the effect 6. Systematic thinking shows that we respect the order and precision that God used in creation. It helps us understand the world better and appreciate His design. 7. dependent 8. False 9. The amount of water used 10. Changing multiple variables can lead to unclear results because we won't know which change caused the effect. It makes it hard to understand what really happened in the experiment.