

Experimental Design Test Review

1. Write the steps of the scientific method in order below.

2. Jamie and JOsie bought a new video game and decided to keep track of their scores. Create a graph of Jamie and Josie's progress.

Jamie

Try 1- 150 pts

Try 2 - 190 pts

Try 3 - 500 pts

Try 4 - 900 pts

Try 5 - 1100 pts

Try 6 - 1500 pts

Josie

Try 1 - 100 pts

Try 2 - 500 pts

Try 3 - 900 pts

Try 4 - 1100 pts

Try 5- 1400 pts

Try 6 - 1500 pts

Based on your graph, who is a better player?

How many points would you predict for Jamie on try 7? _____ For Josie _____

3. A shopping mall wanted to determine whether the more expensive "Tough Stuff" floor wax was better than the cheaper "Steel Seal" floor wax at protecting its floor tiles against scratches. One liter of each brand of floor wax was applied to each of 5 test sections of the main hall of the mall. The test sections were all the same size and were covered with the same kind of tiles. Five (5) other test sections received no wax. After 3 weeks, the number of scratches in each of the test sections was counted. The "Tough Stuff" floor had 45 scratches while the "Steel Seal" floor had 18. The section with no treatment had 72 scratches.

- Write a hypothesis for this experiment.
- What is the independent variable? The dependent variable?
- List three controlled variables.
- Write an appropriate conclusion for this study.

4. What is the difference between scientific theory and scientific law? Provide examples.

5. What are the three types of graphs? When do you use each?
6. What is the difference between accuracy and precision. Provide examples.
7. What is a hypothesis? What is the form we write hypotheses in?
8. What is slope? What is the equation for slope?
9. Calculate the slope of the line that goes through the points (3, 2) and (8, 11).
10. What is the difference between quantitative and qualitative observations. Give examples of both.
11. What is bias? How does bias affect science? How can we reduce science?
12. What is the purpose of peer review?
13. Compare and contrast the Independent and dependent variables and how they are graphed.

Directions: Choose the term from the word list that best completes each statement. Write the term in the blank at the left of each statement.

graph
independent

y-axis

percentages

vertical

line

- _____
- _____
- _____
- _____
- _____
1. A visual display of data or information is a _____.
 2. In a line graph, the _____ axis is called the y-axis.
 3. In a line graph, the dependent variable is plotted on the _____.
 4. The type of graph that is useful for showing trends or continuous change is a _____.
 5. Information in a circle graph is often shown as _____.
 6. A variable that changes and affects the measure of another variable is called the _____.