

## Exercises with Variables and Groups

*When providing the best possible answer to the following questions please apply all learned scientific techniques and procedures, do not use abbreviations, use proper scientific terminology, show work for all mathematical calculations, use all significant figure and scientific notation rules, apply S.E.E.C. writing strategies, and note that at all times spelling counts. Your ability to meet these and all established classroom expectations, including labeling of BINs, providing heading information, and your ability to follow directions may be included in computation of grade.*

**Remember - The independent variable is what is controlled in the experiment.  
The dependent variable is what is measured in the experiment.**

Identify the dependent and independent variables in the following cases.

1. Athletes who do not get enough sleep the night before will not run as fast the next day.
  - a. Independent variable: \_\_\_\_\_
  - b. Dependent variable: \_\_\_\_\_
  
2. Researchers want to know if the gas mileage of cars will increase with a new type of asphalt surface on roads.
  - a. Independent variable: \_\_\_\_\_
  - b. Dependent variable: \_\_\_\_\_
  
3. The amount of rainfall in an area lowers the incidence of wildfires.
  - a. Independent variable: \_\_\_\_\_
  - b. Dependent variable: \_\_\_\_\_
  
4. Covering a scrape with a band-aid decreases healing time
  - a. Independent variable: \_\_\_\_\_
  - b. Dependent variable: \_\_\_\_\_
  
5. People with an income greater than \$50,000 spend more money on eating out than people who make less than \$30,000.
  - a. Independent variable: \_\_\_\_\_
  - b. Dependent variable: \_\_\_\_\_

Remember - The control group does not get the factor being tested.  
The experimental group does get the factor being tested.

Identify the control and experimental groups in the following cases.

1. Athletes who do not get enough sleep the night before will not run as fast the next day.
  - a. Control Group: \_\_\_\_\_
  - b. Experimental Group: \_\_\_\_\_
  
2. Researchers want to know if the gas mileage of cars will increase with a new type of asphalt surface on roads.
  - a. Control Group: \_\_\_\_\_
  - b. Experimental Group: \_\_\_\_\_
  
3. The 3N Chemical Company has developed a new termite prevention treatment for wood. The researchers want to find out if it is more effective than the leading brand on the market.
  - a. Control Group: \_\_\_\_\_
  - b. Experimental Group: \_\_\_\_\_
  
4. Covering a scrape with a band-aid decreases healing time.
  - a. Control Group: \_\_\_\_\_
  - b. Experimental Group: \_\_\_\_\_
  
5. People with an income greater than \$50,000 spend more money on eating out than people who make less than \$30,000.
  - a. Control Group: \_\_\_\_\_
  - b. Experimental Group: \_\_\_\_\_