



Name _____ Date _____ Period _____

EXPERIMENT WORKSHEET #1

For each of the four scenarios,

1. Identify the population of interest.
2. Identify the experimental units.
3. Identify the explanatory variable.
4. Identify the response variable and how it will be measured.
5. Decide if this study needs to be blind or double blind.
6. Describe completely the design of this study, including random assignment.

1) It is a commonly held belief that supplements can reduce the severity and length of the common cold. One such supplement is zinc. Researchers at a local university wish to test this belief. They recruit 110 volunteers to participate in a study to compare the effectiveness of zinc by exposing each to a cold virus and then giving the patient either a zinc treatment or a treatment known to have no effect on colds. After 3 days, patients' cold severity was measured on a scale of 0 to 5.

2) Many car manufacturers are recommending that tires be filled with nitrogen in order to improve (among other things) fuel efficiency. A local consumer advocacy group decides to test this claim by recruiting the owners of the same make, model and year of car. These owners will have their tires filled with nitrogen or regular air. They will receive scheduled free tire service, including checking tire pressure and refilling when necessary. Owners will get their gasoline filled at the advocacy group headquarters where gas used and miles driven will be recorded.

3) Let's assume that there are two types of pet owners—(1) those who feed their dogs on a regular schedule using the recommended serving of food and (2) those who feed their dogs when they seem hungry and fill the dog bowl with a “whatever” amount. A dog food company wants to test a new type of dog food meant to keep dogs with owners like those in the second group from becoming dangerously overweight. A large number of dog owners are willing to participate in a study to compare this new food to its standard food. There are 90 dogs available: 30 each of large, medium and small breeds. Their owners will be given one of the two types of food. After a period of 6 months, the dogs' weight will be taken and compared to a baseline weight measured at the beginning of the study.

4) It can be disconcerting, if not devastating, to open up an electronic device and find that the alkaline batteries used to power it have corroded and leaked. A battery manufacturer claims that its new batteries have been designed to reduce the chances that a battery will corrode and then leak. One reason that batteries leak is that consumers leave their devices in less-than-ideal conditions: for example, leaving a flashlight unused in the trunk of a car. (Batteries typically come with the warning to store them in cool and dry conditions.)

To test the claim of the manufacturer, a consumer group will place batteries in a flashlight and then put the flashlight in a large, closed container. The container will then be placed in either the sun or in a garage-like building and left there for a fixed amount of time. Then the flashlights will be opened and the number of corroded batteries will be counted.