Statistics Name: _____ Pd: _____
Notes on Experiments

Vocabulary

Experimental units - the individuals on which the experiment is done

Subjects - human experimental units

Explanatory variable/factor - independent variable that influences the response

Response variable - dependent variable that is the outcome of the experiment

Level - a specific value of a factor

Treatment - a specific experimental condition applied to the units; formed by finding all possible combinations of the levels

Control Group - group of units used for comparison; receives no experimental treatment (no change from status quo)

Lurking variables - extraneous variables that are not being studied but have an effect on the outcome of the experiment

Blind experiment - an experiment in which the participants do not know what treatment they receive

Double blind experiment - an experiment in which neither the participants nor the people who have contact with them know which treatment a subject received

Placebo effect - a psychological effect that occurs when a person who thinks he is receiving a treatment (but really isn't) shows a physical response to it

3 Types of Experimental Design

1. **Completely Randomized Design - all experimental units are allocated at random among all the treatments**

2. **Block Design - experimental units are grouped by a common trait before being randomly assigned a treatment; randomization is carried out separately within each block**

3. **Matched Pairs Design - special type of block design in which there are two treatments; each block consists of two closely matched units (with each receiving one treatment at random) or a single experimental unit that receives both treatments**

Statistics Name: _____ Pd: _____
Notes on Experiments

3 Principles of Experimental Design

1. **Control - limit the effects of lurking variables; typically done by comparing several treatments and/or having a control group**

2. **Randomization - the use of chance to assign units to treatments**

3. **Replication - use many experimental units to confirm the results**