Vocabulary: Experimental Investigations

- Control group – a group of subjects in a *controlled experiment* that does not include the variable that is being tested.
- Controlled experiment – a test in which only one variable is changed.
  - A controlled experiment is also referred to as a "fair test."
  - In a controlled experiment, all variables should be the same except for the one variable that is being investigated.
  - For example, in a controlled experiment of the effect of fertilizer on plant growth, the only variable that should be changed is the presence and amount of fertilizer.
- Experimental group – a group of subjects in a controlled experiment that includes the variable that is being tested.
- Experimental investigation – an investigation that uses controlled experiments to determine a causal relationship between two variables.
- Manipulated variable – a variable that is changed by the investigator.
  - A manipulated variable is also called an "independent variable."
  - For example, in an investigation of the effect of fertilizer on plant growth, the manipulated variable is the amount of fertilizer.
- Mean – a number that represents the center of a set of numbers.
  - The mean of a data set is found by dividing the sum of the data by the number of pieces of data.
  - For example, the mean of the data 4, 4, 5, 7, 10 is $\frac{4+4+5+7+10}{5} = \frac{30}{5} = 6$.
- Sample size – the number of observations in an experiment.
  - Sample size can be increased by increasing the number of subjects in an experiment or by increasing the number of trials.
- Trial – a single iteration of an experiment or test.
  - For example, in an investigation of the effect of fertilizer on plant growth, each individual plant counts as a trial.
  - Good experimental investigations usually involve many trials.