Name _____

Scientific Method Unit

Step 5: Variables

Variables are conditions that could affect the outcome of an experiment. For instance, think about all of the different things that might affect how well a student does on a test. Their amount of sleep, how long they studied, how well they paid attention in class, if they're feeling well, the behavior of the students around them, if they're having trouble at home or they don't like the teacher…all of these things, and more, could affect how well that student performs.

Develop at least 3 variables for each of the following situations.

A) What variables can affect the number of fish in a lake?

B) What variables can affect the speed of a runner in a 100-yd dash?

C) What variables can affect attendance at a baseball game?

D) What variables can affect the taste of soda?

E) What variables can affect the amount of fruit an apple tree produces?

F) What variables can affect student performance on a social studies quiz?

Name _____

Scientific Method Unit

Step 5 continued: Identifying the variables

It is important to identify the variables in any experiment. You want to have as few variables as possible when conducting your experiment, but you will always have three types of variables, independent, dependent, and constant (also called control).

The <u>independent variable</u> is WHAT YOU CHANGE ON PURPOSE IN AN EXPERIMENT.

The <u>dependent variable</u> is WHAT YOU MEASURE IN AN EXPERIMENT

What variables could affect the sprouting of a bean seed?

These could all be independent variables. What would be the dependent variable in the sprouting of a bean seed?

In addition to the independent and dependent variables, there is also a variable called the constant or control variable. It is the condition or conditions that remain the same in an investigation. You have to have controlled variables so that you can determine if the independent variable actually caused the result, or if it was something else. In a perfect world, all of the variables would be controlled except for the independent and dependent variables, but that doesn't happen very often.