**Process of Creating a Model**

Read the scenario and familiarize yourself with the given information and data. Then,

1. Think about, and describe for yourself, the two quantities that are in the scenario.
2. Identify which quantity is the input (independent) variable and which quantity is the output (dependent) variable.
3. Define the variables. Choose a letter and assign it to the quantity that is the input (independent) variable and assign a letter to (or use function notation for) the quantity that is the output (dependent) variable. Write the two definitions on paper, be descriptive, and *use units*.
4. Write an equation which shows the relationship between the two quantities.
   * Make sure to use the *same letters* you chose in step 3. (You may be able to write down the equation “directly” from the given information or you may need to enter a set of data into the calculator and use a regression process to arrive at the equation.)
   * Usually the output variable (or function notation) will be on the left hand side of the equals sign and an expression involving the input variable will be on the right hand side.

**When you are done, your model should include three parts:**

* 1. a definition of the independent variable (with units);
  2. a definition of the dependent variable (with units); and
  3. an equation showing the relationship between the independent and dependent variables.

*Example*

The Natural Wood Manufacturing Company produces computer desks. Each month the fixed cost (overhead cost) is $2,900. The cost to produce each computer desk is $53. We wish to create a model showing total cost as a function of the number of computer desks manufactured.

*Answer:*

x = number of computer desks manufactured

C(x) = total cost, in dollars, of producing the computer desks

C(x) = 53x + 2900