Name:_____ Date:_____ Class: _____

SCIENCE 4th GRADE
TYPES OF VARIABLES WORKSHOP

WHAT'S A VARIABLE?
A variable is ANYTHING you are trying to measure in an experiment. There are two types of variables- independent and dependent.

INDEPENDENT VARIABLES
An independent variable is a variable that stands alone and isn't changed by the other variables you are trying to measure. You can easily predict how an independent variable change because you can manipulate them in order to test the hypothesis/ prediction.

EXAMPLE:
Someone's age might be an independent variable. Other factors (such as what they eat, how much they go to school, how much television they watch) are NOT going to change a person's age.

DEPENDENT VARIABLES
A dependents variable its something that changes in response to the change on the independent variable.

EXAMPLE:
A test score could be a dependent variable because it could change depending on several factors such as how much you studied, how much sleep you got the night before you took the test, or even how hungry you were when you took it.

"An easy way to remember is to insert the names of the two variables you are using in this sentence in they way that makes the most sense. Then you can figure out which is the independent variable and which is the dependent variable:"

(Independent variable) causes a change in (Dependent Variable)
It is not possible that (Dependent Variable) could cause a change in (Independent Variable).

(Time Spent Studying) causes a change in (Test Score).
It is not possible that (Test Score) could cause a change in (Time Spent Studying).

We see that "Time Spent Studying" must be the independent variable and "Test Score" must be the dependent variable because the sentence doesn't make sense the other way around.

A dependents variable its something that depends on other factors.

EXAMPLE:

A test score could be a dependent variable because it could change depending on several factors such as how much you studied, how much sleep you got the night before you took the test, or even how hungry you were when you took it.

HYPOTHESIS OR PREDICTION

It is a tentative explanation for an observation, phenomenon, or scientific problem that can be tested by further investigation.

1. Read the following research questions and try to identify the independent and dependent variables.

   a. How does the amount of light affect the growth of a plant?

   Independent variable: _____

   Dependent variable: _____

   Prediction: _____

   b. How does the temperature affect the volume of liquid water in a pot?

   Independent variable: _____

   Dependent variable: _____

   Prediction: _____

   c. Can the altitude of a city affect the temperature for boiling water?

   Independent variable: _____

   Dependent variable: _____

   Prediction: _____

   d. How will the amount of baking powder affect the size of the cookies we are making?

   Independent variable: _____

   Dependent variable: _____

   Prediction: _____

   e. How does the amount of molecules of an object affect the weight of the object?

   Independent variable: _____

   Dependent variable: _____

Prediction: _____

2. Now it´s your turn to write your own research question and complete the information below:

a._____**?**

Independent variable: _____

Dependent variable: _____

Prediction: _____