Writing your hypothesis and identifying variables
THE HYPOTHESIS

• **Hypothesis**: an educated guess or prediction that can be tested; an “if, then” statement

• If *(I do this)*, then *(this will happen)*

• If __Independent Variable___ then _____Dependent Variable_____. 
★ REMEMBER ★

- Try to use **INCREASE** and **DECREASE** in your hypothesis!

- **Ex.** IF I increase the amount of water I give my plant, THEN it will increase in height
PRACTICE

- Formulate a hypothesis for this statement: “Dan, don’t feed my cat too much food! It’s gonna get fat!”
- Remember to write in “If, then” form
- If the cat receives an increase in food, then there will be an increase in weight.
TYPES OF VARIABLES

There are 2 main types of variables:

**Independent Variable:** The variable that is changed by the scientist; the ‘I control’ variable

**Dependent Variable:** The variable that might change because of what the scientist changes – what is being measured
INDEPENDENT VARIABLES

• What is *tested* by the scientist
• What is *changed or controlled* by the scientist
• Also known as *manipulated variables*. 
DEPENDENT VARIABLE

- What is observed
- What is measured
- The effect caused by the independent variable.
- The data collected
- Also called responding variables
Nothing you do affects me.
I'm independent.

Some things you do affect me.
- Independent Variable = X Axis
- Dependent Variable = Y Axis

**Dependent variable**
The amount of money raised **depends** on the number of cars washed.
REMEmBER!

Your hypothesis can TELL you what your variables are!

Ex. If I drink Mountain Dew before bed, then I will not sleep very much.

**IV:** Drinking Mountain Dew  
**DV:** the amount of sleep
PRACTICE

Use this hypothesis to identify the variables:

If I leave all the lights on all day, then my electric bill will be expensive

IV: ______________________
DV: ______________________
If I brush my cat more, then there will be less fur on my furniture

IV: ______________________
DV: ______________________
Now read the following experiment and identify the independent and dependent variables

Elizabeth wanted to test if temperature affected how fast milk goes bad and curdles. She left milk in a room temperature closet, a fridge, and a oven that was turned on low heat. She then measured how rotten the milk was after 10 days.

IV: ____________________________________

DV: ____________________________________
CONTROLS AND CONSTANTS
CONTROL VARIABLE

Constant: something that scientist makes sure is the same throughout the experiment

Ex. Watering the plants the same amount of water or making sure you are testing the same person every time
Control Experiment/Group

Controlled Experiment: The part of the experiment that the scientist doesn’t change or add the variable to.

Ex: The plant under lamp light, A Clean Penny

Control Group: The group that does not receive the variable/treatment
PRACTICE

• Homer notices that his shower is covered in a strange green slime. His friend Barney tells him that coconut juice will get rid of the green slime. Homer decides to check this out by spraying half of the shower with coconut juice. He sprays the other half of the shower with water. After 3 days of "treatment" there is no change in the appearance of the green slime on either side of the shower.

• Control Group: Spraying half with water
• IV: Spraying with Coconut Juice
• DV: Presence of Slime
• What should his conclusion be? Coconut juice doesn’t work!
DEVELOPING YOUR OWN EXPERIMENT STORY

• Create a character
• Have the character ask a question (Timmy wants to know if __________ will__________.
• What do they want to do, what do they think will happen?
• Have a control group/experiment for the story
• Add control variables if you can
• Make sure you include information so people can identify the independent variable (what they will do/change) and the dependent variable (what they will observe/measure)