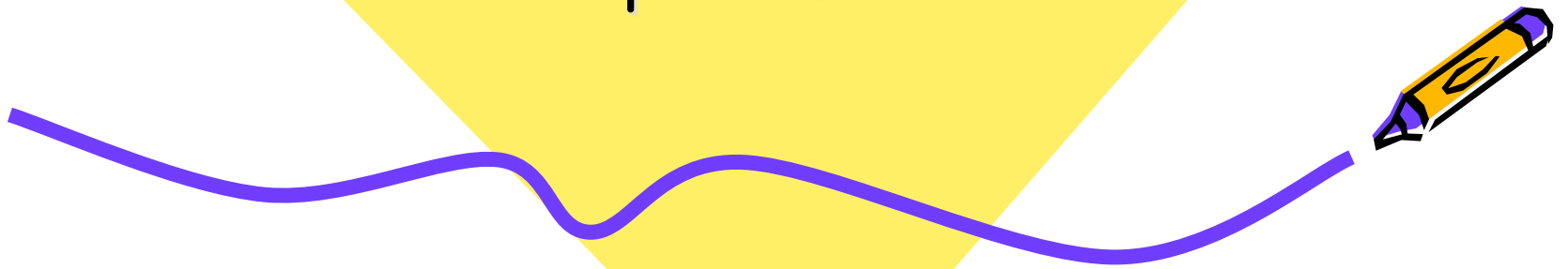




# The Scientific Method

5 Steps to Follow!



# The Scientific Method

The **Scientific Method** is a series of steps to follow to answer a question or solve a problem

- There are 5 main steps



## Objective 2: I can describe each step in the scientific method

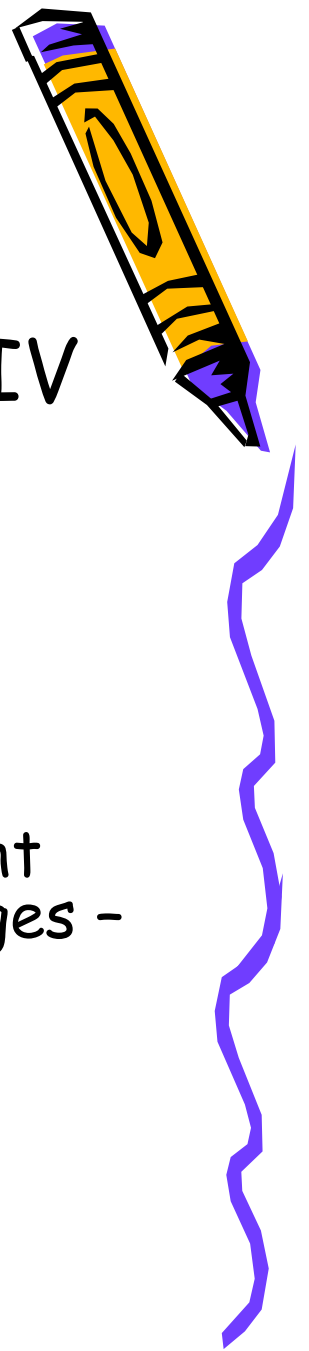
- The **Scientific Method** is a series of steps to follow to answer a question or solve a problem
- Step 1: **Ask a Question**
  - Scientists ask questions based on observations from their surroundings
- Step 2: **Form a Hypothesis**
  - Take an educated guess about what you think the answer is to your question using an "If (IV) then (DV)" statement
- Step 3: **Test your hypothesis and collect data**
  - Set up an experiment to test your question
- Step 4: **Analyze Your data**
  - Look at your data and decide what it tells you about your question
- Step 5: **Form a Conclusion**
  - Decide what the answer to your question is and ask:
    - Was my hypothesis right or wrong?
    - Do I need to do the experiment again to find out more?





# Identifying Variables

# Objective 3



- I can define the Independent and Dependent variables and find the IV and DV in an experiment.
- 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 - the variable that is being measured



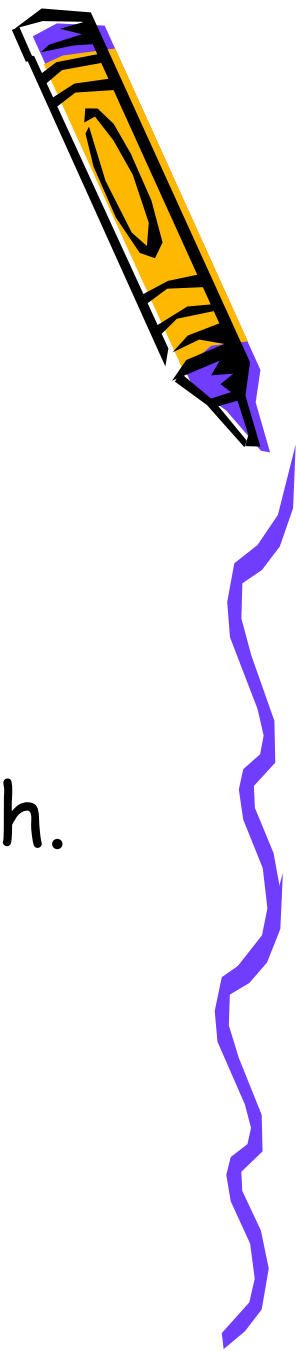
# Remember!

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*



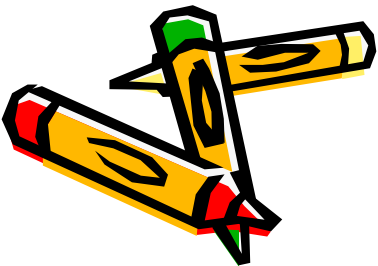
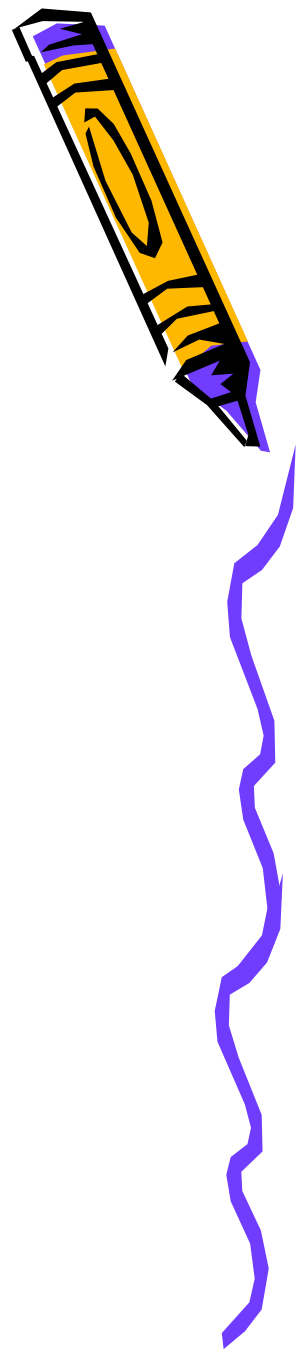
# Practice (write down in notes your answer)

*Use this hypothesis to identify the variables:*

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

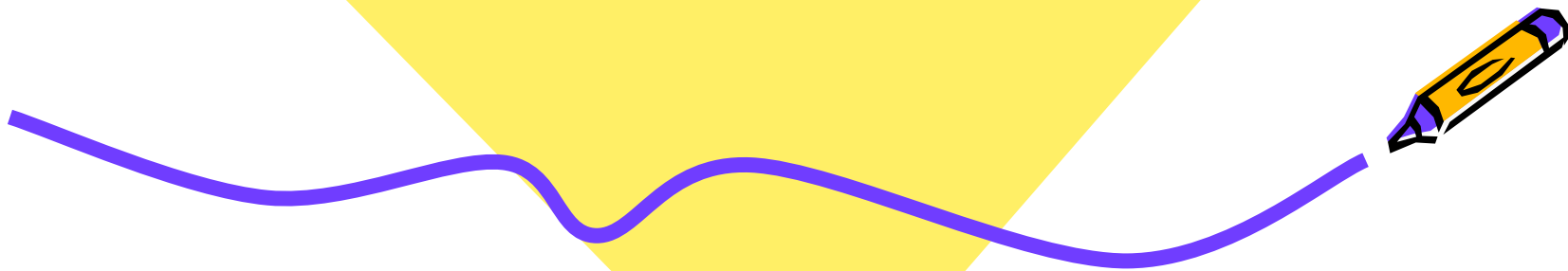
IV: \_\_\_\_\_

DV: \_\_\_\_\_





Hypothesis





Objective 4: I can write a hypothesis using an "If...Then..." statement, and use the words increase and/or decrease.



**Hypothesis:** an educated guess or prediction; an "if, then" statement that CAN BE TESTED

If \_\_\_\_\_ **independent variable** \_\_\_\_\_  
then \_\_\_\_\_ **dependent variable** \_\_\_\_\_

Example:

Independent Variable:

amount of food I give my cat

Dependent Variable

her weight

If I increase the amount of food I give my cat (IV the part you are controlling), then her weight will increase (DV the part you are measuring, the effect of feeding her a bunch of food.)





# Controls and Constants

# Objective 5: I can define and identify Constants and controls in an experiment



- **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:** The part of the experiment that the scientist doesn't change or add the variable to
  - Ex. When testing to see if miracle grow really increases plant growth, the plant that does not receive the miracle grow is the control



**Objective 6:** I can define observation and inference, and make observations and inferences about an event.



- observation
  - *Using your five senses to collect data about your surroundings*
- An **inference** is when you make an assumption or prediction about something that you observe
  - After you make an observation, you usually make an inference about what is going on

