**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Due: \_\_\_\_\_\_\_\_ Period\_\_\_\_**

**Scientific Method Video Notes – Objectives 2-6**

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

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: is a series of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to follow to answer a question or solve a problem

**Step 1:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Scientists ask questions based on observations from their surroundings.

**Step 2:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Take an educated guess about what you think the answer is to your question using an “**If (IV), then (DV)”** statement.

**Step 3:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Set up an experiment to test your question.

**Step 4:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Look at your data and decide what it tells you about your question.

**Step 5:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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?

**Objective 3: I can define the Independent (IV) and Dependent (DV) variables, and find the IV and DV in an experiment.**

There are 2 main types of variables: **Independent Variable**: The variable that is changed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; the ‘I control’ variable.

**Dependent Variable**: The variable that might change because of what the scientist changes – the variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**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 (Independent Variable):*** *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

***DV (Dependent Variable)****: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

**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: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**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 **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

If **independent variable** then **dependent variable.**

Example: Write the IV and DV from the example in the video.

* Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**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.)

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

**Constant:** something that scientist makes sure is the\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to collect data about your surroundings.*

**Inference** is when you make an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ about something that you observe.

After you make an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, you usually make an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_about what is going on.