

# **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.



Independent  
variable

Some things  
you do  
affect me.

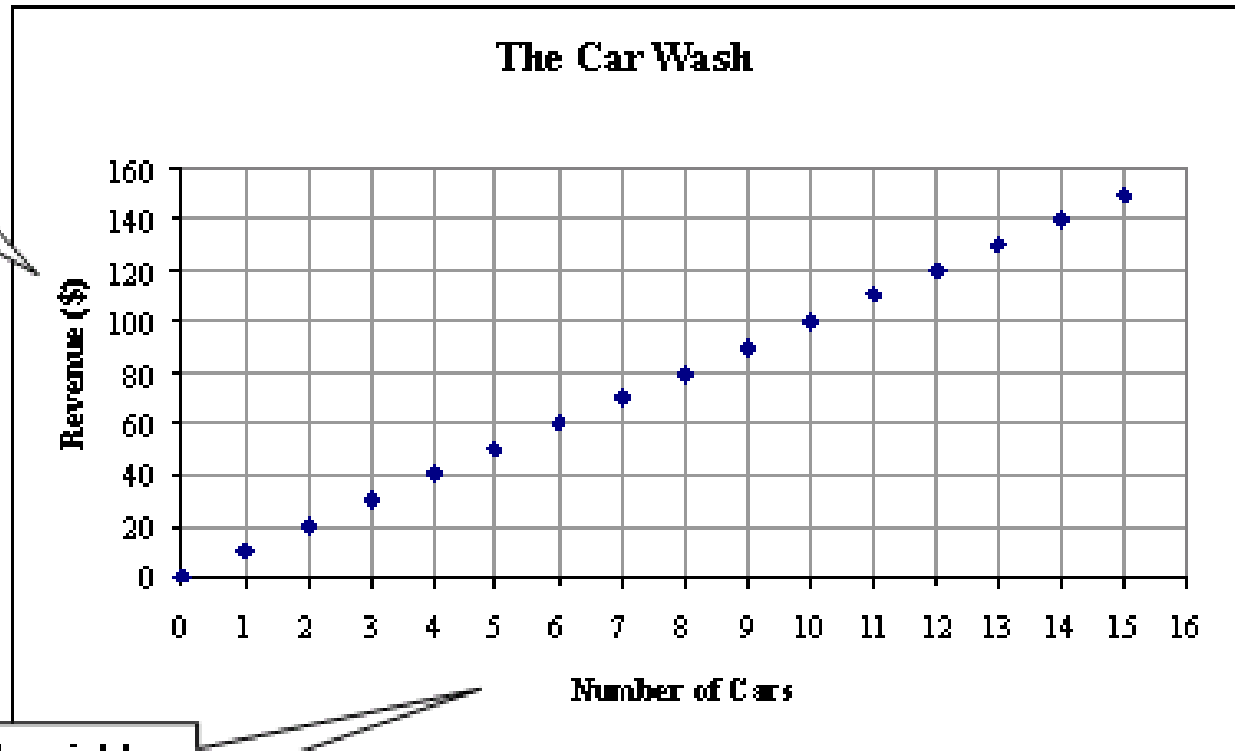


Dependent  
variable





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



**Independent variable**  
- the number of cars washed

- Independent Variable = X Axis
- Dependent Variable = Y Axis



# 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 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)

