**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ #\_\_\_\_\_**

**Goal: To correctly identifying Independent, Dependent Variables, constants and write an appropriate Hypothesis for an Investigation**

Recall the following definitions

|  |  |
| --- | --- |
| **Independent** (Manipulated) **variable (IV)** | the factor being changed or manipulated by the experimenter. |
| **Dependent** (Responding) **variable (DV)** | the change or result that occurs because of what the experimenter does. This variable is changed by the independent variable. It is usually measured. |
| **Constants (C)** Can be several | Factors kept the same for all trials in an experiment i.e. temperature, type of plant used |
| **Hypothesis** | a testable idea  an educated guess that answers your question… i.e. If you listen to Jazz while writing a science test then you will get a higher grade. Or  Listening to Jazz music will increase science test grades |

***Identify the required information for each investigation. Refer to definitions.***

1. A study was done to find out if different tire treads affect the braking distance of a car.

IV: THE DIFFERENT TYPES OF TIRE TREADS DV: BRAKING DISTANCE   
C: CAR USED, TERRAIN, WEATHER CONDITIONS, DRIVER, SPEED OF CAR

1. The time it takes to run a mile depends on the person’s running speed.

IV: PERSON’S RUNNING SPEED DV: TIME IT TAKES TO RUN THE MILE   
C: SAME ROUTE, WEATHER, PERSON RUNNING ROUTE, TIME OF DAY

1. The higher the temperature of the air in the oven, the faster a cake will bake.

IV: OVEN TEMPERATURE DV: TIME CAKE TAKES TO BAKE

C: TYPE OF CAKE/SIZE OF CAKE/SAME OVEN/VOLUME OF MIX

1. The amount of pollution produced by cars was measured for cars using gasoline containing different amounts of lead.

IV: TYPES OF GASOLINE (87 / 89/ 91 /94 OCTANCE) DV: AMOUNT OF CARBON DIOXIDE PRODUCED C: THE CAR USED, MEASURING DEVICE AND TIME MEASUREMENT IS MADE FOR

1. Salt will dissolve the fastest in water at a temperature of 100°C.

IV: WATER TEMPERATURE DV: TIME FOR THE SALT TO DISSOLVE FULLY

C: AMOUNT OF WATER/SALT USED AND TYPE OF SALT!/ THERMOMETER

1. Does the height of bean plants depend on the amount of water they receive?

IV: AMOUNT OF WATER GIVEN/DAY DV: HEIGHT OF BEAN PLANTS AFTER A SPECIFIED AMOUNT OF TIME

C: SOIL TYPE, AMOUNT OF FERTILIZER, TYPE OF BEAN, SEED TO START, # OF TRIALS PER TEST

**State Hypothesis: IF beans are given 2 tbsp of water per day THEN they will grow more in height than if given less or more water.**

1. Which type of laundry detergent removes stains more effectively? Tide Clean, Kirkland Clean or Arm and Hammer Clean varieties were tested.

IV: TYPE OF LAUNDRY DETERGENT DV: AMOUNT OF STAIN REMAINING AFTER WASHING

C: TEMPERATURE OF WATER; CYCLE USED ON WASHING MASCHINE; SAME MACHINE; AMOUNT OF DETERGENT; SUBSTANCE AND AMOUNT OF SUBSTANCE USED TO CREATE STAIN ETC.  
**State Hypothesis: IF tide is used as the detergent THEN the stain will be removed the best**

**Or If Tide is used, it will remove stains the best.**

1. Does the type of oil affect the size of popcorn? During the test olive oil, canola oil or sunflower oil was used.

IV:TYPE OF OIL DV: CIRCUMFERENCE OF POPPED KERNAL OR HEIGHT AND WIDTH OF POPPED KERNAL C: SAME POPPING DEVICE; SAME AMOUNT OF OIL; SAME AMOUNT OF POPCORN; SAME TEMPERATURE; SAME TYPE OF POPCORN

**State Hypothesis: IF sunflower oil is used THEN the kernels will have the largest circumference**

**Reflection:**

Explain how you know which variable (factor) in an experiment is the independent variable.

* The “thing” you are changing.
* The purpose of the experiment… the If you do \_\_\_\_\_\_\_\_\_\_

What question(s) can you ask yourself to help you identify the dependent variable?

What are you measuring? What do you hope to observe, see and/or measure as a result of the changes made?