

Name: \_\_\_\_\_

## Experimental Design Review

Explain the following terms *in your own words*:

Independent Variable (IV) \_\_\_\_\_

Dependent Variable (DV) \_\_\_\_\_

Control or Constant Variables \_\_\_\_\_

For each of the following problem statements, identify the **IV**, **DV**, and **constants**. Then write a hypothesis. Remember the following format:

If...(IV goes here), Then...(DV goes here), Because...

1. How does studying with music affect student test scores?

Independent Variable: \_\_\_\_\_

Dependant Variable: \_\_\_\_\_

Constants: \_\_\_\_\_

Hypothesis: *If a student studies while listening to music, then their test scores will*

\_\_\_\_\_ *because* \_\_\_\_\_

2. How does use of an organized binder the amount of homework a student turns in?

Independent Variable: \_\_\_\_\_

Dependant Variable: \_\_\_\_\_

Constants: \_\_\_\_\_

Hypothesis: If \_\_\_\_\_,

then \_\_\_\_\_

because \_\_\_\_\_

\_\_\_\_\_.

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3. How does temperature affect a football players performance?

Independent Variable: \_\_\_\_\_

Dependant Variable: \_\_\_\_\_

Constants: \_\_\_\_\_

Hypothesis: If \_\_\_\_\_,

then \_\_\_\_\_

because \_\_\_\_\_

\_\_\_\_\_.

4. How does sunlight affect plant growth?

Independent Variable: \_\_\_\_\_

Dependant Variable: \_\_\_\_\_

Constants: \_\_\_\_\_

Hypothesis: If \_\_\_\_\_,

then \_\_\_\_\_

because \_\_\_\_\_

\_\_\_\_\_.

5. How does drinking juice before bed affect how many hours you sleep?

Independent Variable: \_\_\_\_\_

Dependant Variable: \_\_\_\_\_

Constants: \_\_\_\_\_

Hypothesis: If \_\_\_\_\_,

then \_\_\_\_\_

because \_\_\_\_\_

\_\_\_\_\_.

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**Read the paragraphs describing an experiment. Then, answer the questions that follow.**

1. Ms. Wagner loves to eat tomatoes. She wants to plant a garden and is trying to figure out how to grow plants with more tomatoes. She plants three different pots of tomato plants and gives them different amounts of fertilizer. She keeps everything else the same (the amount of water, the amount of soil, amount of sun the plants get). For one month, she records how many tomatoes each plant produces.

Independent Variable: \_\_\_\_\_

Dependant Variable: \_\_\_\_\_

Constants: \_\_\_\_\_

Hypothesis: If \_\_\_\_\_,  
then \_\_\_\_\_  
because \_\_\_\_\_.

2. A dog owner wants to test how exercise affects how his dog sleeps. His hypothesis was ***If my dog has more hours of exercise, then the number of hours he sleeps will increase because he used more energy exercising.*** He was careful to give his dog the same amount of food on the days he did the experiment. His results are in the table.

Amount of Exercise	Amount of Sleep
2 hours	4 hours
4 hours	5 hours
6 hours	6 hours

Independent Variable: \_\_\_\_\_

Dependant Variable: \_\_\_\_\_

Constants: \_\_\_\_\_

Hypothesis: If \_\_\_\_\_,  
then \_\_\_\_\_  
because \_\_\_\_\_.

3. Jacobie wanted to test the projectile motion of a pumpkin. His hypothesis was ***if the pumpkin had a larger mass, then the higher he could throw it, because the larger pumpkins would have more force.*** He bought three orange pumpkins and tested them all on the same day. His results are shown below:

Mass of Pumpkin	Height
5 kg	10 meters
10 kg	5 meters
15 kg	1 meter

Independent Variable: \_\_\_\_\_

Dependant Variable: \_\_\_\_\_

Constants: \_\_\_\_\_

Hypothesis: If \_\_\_\_\_,  
then \_\_\_\_\_  
because \_\_\_\_\_.