Name: Date:

Experimental Design Practice

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)

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*

_____

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

Independent Variable: _____

Dependant Variable: _____

Constants: _____

Hypothesis: If _____,

then _____

3. How does temperature affect a football player's performance?

Independent Variable: _____

Dependant Variable: _____

Constants: _____

Hypothesis: If _____,

then _____

4. How does sunlight affect plant growth?

Independent Variable: _____

Dependant Variable: _____

Constants: _____

Hypothesis: If _____,

then _____

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

Independent Variable: _____

Dependant Variable: _____

Constants: _____

Hypothesis: If _____,

then _____

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 _____

2. Calliope wants to test how exercise affects how his dog sleeps. Her hypothesis was ***If my dog has more hours of exercise, then the number of hours she sleeps will increase.*** She was careful to give her dog the same amount of food on the days she collected data. Her results follow:

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

Independent Variable: _____

Dependant Variable: _____

Constants: _____

Hypothesis Supported or Refuted (provide evidence back your answer):

_____

_____

How could Calliope improve her experiment?

3. Dylan wanted to test the projectile motion of a pumpkin. His hypothesis was ***if the pumpkin had a larger mass, then the higher it could be thrown.*** 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 Supported or Refuted (provide evidence back your answer):

How could Dylan improve his experiment?