Identifying Variables Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A science experiment has three kinds of variables.

* Independent variable (IV): Factor the scientist changes in an experiment on purpose.
* Dependent variable (DV): What is being measured in an experiment. (changes because of Independent variable)
* Controlled variable (CV): Factor that remains constant in an experiment (what you keep the same, often there are many of these in each experiment)

DIRECTIONS: Identify the three variables in the following scenarios.

1. Two groups of 5th graders were tested to compare their speed solving long division problems. One group had calculators, the other didn’t.
2. The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. The controlled variable(s) is/are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Think about it….How could they change this experiment for next time?
6. Students of different grades were given the same jigsaw puzzle to assemble. The time they took to assemble it was measured.
7. The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. The controlled variable(s) is/are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Think about it….How could they change this experiment for next time?

1. What is something YOU could test? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. The controlled variable(s) is/are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Data Tables Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Background Information: A group of scientists wanted to see how the amount of fertilizer affected the height of the plant. These scientists understand the importance of multiple trials to get the best results. Fill in the missing information and the data on the table. Then average the trials.

* 2 grams of fertilizer 🡪 plant height: 8cm, 9cm, 9cm
* 4 grams of fertilizer 🡪 plant height: 12cm, 10cm, 11cm
* 6 grams of fertilizer 🡪 planet height: 17cm, 16cm, 15cm

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Trial 1 | Trial 2 | Trial 3 | Average |
| 2 |  |  |  |  |
| 4 |  |  |  |  |
| 6 |  |  |  |  |

Answer the following questions:

1. The independent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. The dependent variable is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What happened to the average plant height as scientists increased the amount of fertilizer? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Raw Data = the measurements you record. Processed data = “messed with by math” Draw a circle around the raw data (there are several!) and draw a box around the processed data.
5. Once we have processed our data, we make a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to show other people.
6. Can you make your own data table below?

Graphs Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Background Information: A group of scientists wanted to see how the amount of fertilizer affected the height of the plant. These scientists understand the importance of multiple trials to get the best results. The table of their data is below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Plant Height (cm) | | | |
| Amount of fertilizer (g) | Trial 1 | Trial 2 | Trial 3 | Average |
| 2 | 8 | 9 | 7 | 8 |
| 4 | 12 | 10 | 11 | 11 |
| 6 | 17 | 16 | 15 | 16 |

GRAPHING NOTES

**Axis Labels**: The label on the x-axis (horizontal or side-to-side) is the name of the independent variable. The label on the y-axis (vertical or up and down) is the name of the dependent variable. The dependent variable is graphed on the y-axis, because it “stands on” or “depends on” the independent variable.

**Title:** The format for the title of a graph is: “Dependent variable name vs. Independent variable name.”

**Best fit line:** This is a line that best represents the relationship between the variables. The line may pass through some of the points, none of the points, or all of the points.

**Directions:** Make a graph using the table above.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Practice Lab Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. QUESTION: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
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2. Independent Variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Dependent Variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Controlled Variables \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
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5. RESEARCH:

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1. HYPOTHESIS:

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1. TEST YOUR HYPOTHESIS:
2. MATERIALS:

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1. METHODS:

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1. DATA TABLE: (CREATE AND ATTACH)

1. ANALYZE DATA:
2. PROCESS RAW DATA (SHOW WORK BELOW)
3. CREATE GRAPH (CREATE AND ATTACH)
4. BASED ON YOUR GRAPH, WHAT IS THE RELATIONSHIP BETWEEN THE VARIABLES?  
   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
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5. REPORT YOUR RESULTS:
6. DESCRIBE WHAT YOUR DATA SHOWED AS YOU ANSWER YOUR QUESTION.  
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1. WHAT CHALLENGES DID YOU FACE IN THE LAB?  
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1. HOW CAN YOU IMPROVE YOUR LAB?   
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1. HOW COULD YOU FURTHER YOUR INVESTIGATION?

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