Independent and Dependent Variables

VARIABLE

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

CHANGING THE

CAUSES CHANGE IN THE

|  |  |
| --- | --- |
| INDEPENDENT VARIABLE | DEPENDENT VARIABLE |
| Number of People Eating Together at a Restaurant | The Cost of the Meal |
| The Number of People Attending a Field Trip | The Number of Buses Needed |
| The Number of Hours Spent Studying for a Test | The Level Received on the Test |
|  |  |
|  |  |

The number of Car Seats in a Van

The Number of Babies in a Family

The Number of Hours Worked

The Amount of Money Earned

The Number of People Ahead of you in Line

The Length of Time You Will Need to Wait

The Number of Hotdogs You Need to Make

The Number of People Attending a BBQ.

|  |  |
| --- | --- |
| INDEPENDENT VARIABLE | DEPENDENT VARIABLE |
|  |  |
|  |  |
|  |  |
|  |  |

CONNECTING PAPER CLIPS

In your group, choose 1 person to be

the paper clip connector. Let them practice

connecting paper clips for 1 minute.

EXPERIMENT: You will investigate how

many paperclips you can connect together

in 30 seconds, 45 seconds, 60 seconds,

75 seconds and 90 seconds.

**Before you begin the experiment**, answer the following questions.

1. What are the two variables in this experiment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Which of the variables causes the other variable to change? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What is the independent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. What is the dependent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

HYPOTHESIS: What do you think **the relationship** is between the number of paper clips connected and the amount of time? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

Begin the experiment and collect the data in the table.

|  |  |
| --- | --- |
| Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Create a **graph** based on the data in your table.

**Draw a line of best fit**, for the 5 points.

Use the line of best fit to **predict** **how many paper clips you could connect in 50 seconds.**

In 50 seconds, you could connect \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ paper clips. I made this prediction using \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 interpolation/extrapolation

Use the line of best fit to predict how many paper clips you could connect in 15 seconds.

In 15 seconds, you could connect \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ paper clips. I made this prediction using \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 interpolation/extrapolation

Describe the correlation you see in the graph above. Use words like strong, weak, perfect, positive, negative and correlation.

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

Is the relationship between the two variables strong or weak?

How can you tell?

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

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

Was your hypothesis correct about the relationship between the two variables?

YES or NO

If no, what is the relationship between the two variables?

