

NAME \_\_\_\_\_

## GRAPHING LEVERS

*First, discuss as a group what the problem really is. **Read the entire handout.** What are trying to find out? Make sure you understand what you are being asked to do.*

**Problem:** Design an experiment to find out how much effort is needed to lift a load in second and third class levers and make a graph to show the results.

### Hypotheses:

As a group, form a hypothesis about the effort you think is needed to lift a load in a 2<sup>nd</sup> class lever.

\_\_\_\_\_

\_\_\_\_\_

Now form a hypothesis about the effort you think is needed to lift a load in a 3<sup>rd</sup> class lever.

\_\_\_\_\_

\_\_\_\_\_

### What to do:

1. *Design an experiment to find out how much effort is needed to lift a load as it moves from the fulcrum to the effort in 5 cm increments in a Class-2 lever.*

☒ As a group, decide the best way to test your first hypothesis.

☒ What is your independent variable? What are you changing, testing? \_\_\_\_\_

☒ What is your dependent variable? What are you observing and measuring? \_\_\_\_\_

☒ What variables need to be controlled?  
\_\_\_\_\_

☒ Write your step-by-step procedure here:  
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Have your teacher check and initial your procedure before moving on to the next step.  
*Teacher Initials:*

☒ Make a list of the materials you will need to conduct this investigation:


2. Design a data table to collect and record your data. A data table *must* include:

- ☒ The general independent variable
- ☒ The specific independent variable
- ☒ The dependent variable (your data!)
- ☒ Number of trials
- ☒ Averages or other statistics

Write a title that shows the responding variable and unit of measurement

Show the data for each trial and the average of all trials.

Write your General Independent Variable in this cell.

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Average

Write your Specific Independent Variables in these cells. Put each variable in a different cell.

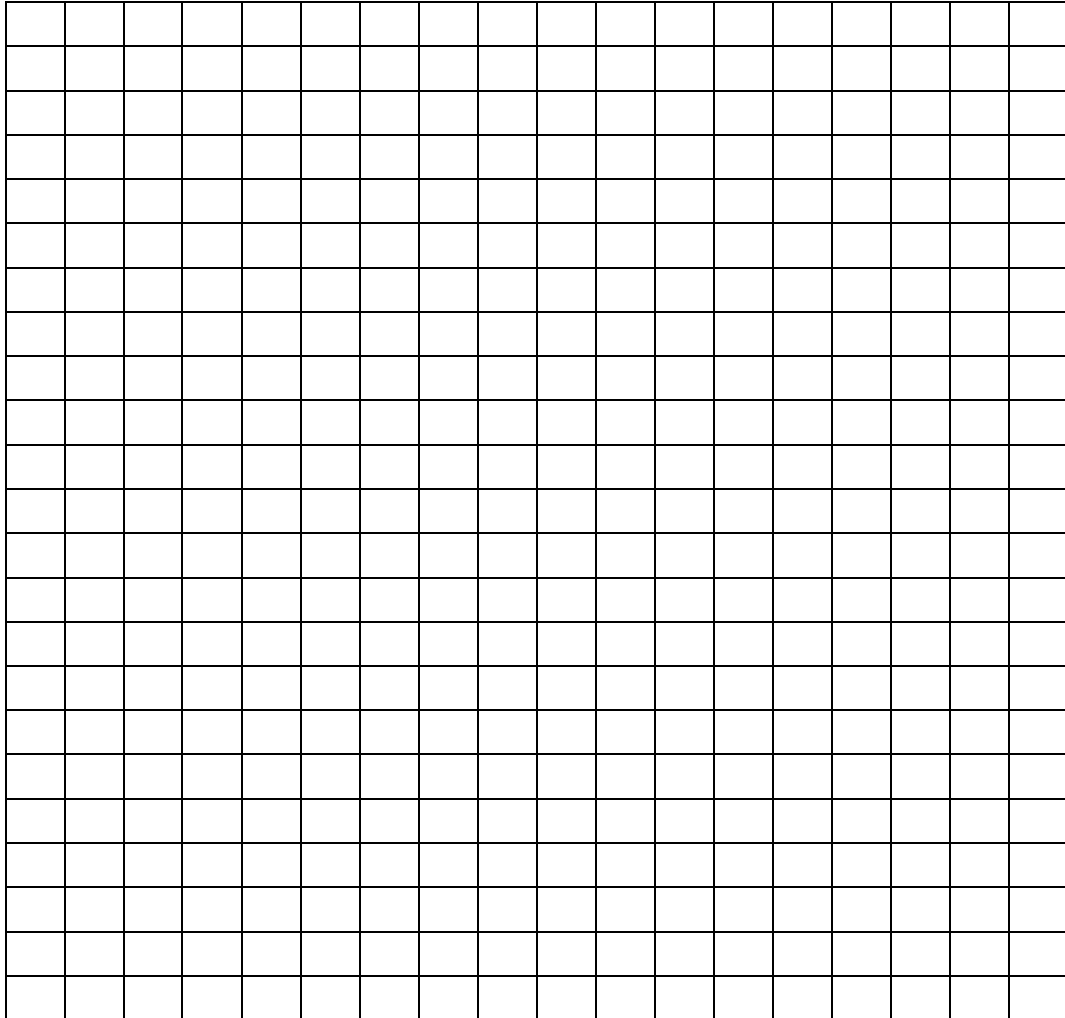
3. After your data is collected and recorded, look for patterns, trends, and relationships. Make a graph to help analyze the data. A graph makes a picture of the data and can help you visualize the patterns, trends, and relationships.

It is very important to use the right kind of graph when analyzing data. Line Graphs are used to compare two variables. Line graphs provide a good way to show independent and dependent variables that are both numbers. A line graph is used to show continuing data; how one thing is affected by another. It shows trends in data, this means that they show how one variable is affected by the other as it changes. A line graph is needed to show the effect of an independent variable on a dependent variable.

Bar graphs are used to compare data, or to show discrete data.

Create a line graph of your data on the next page.

Write a title that describes the graph:



Label showing the dependent variable and the unit of measurement



Label the general independent variable.



Label the specific independent variables

