

Graphing Linear Motion

First Thing
Quiz 1!



Quiz 1

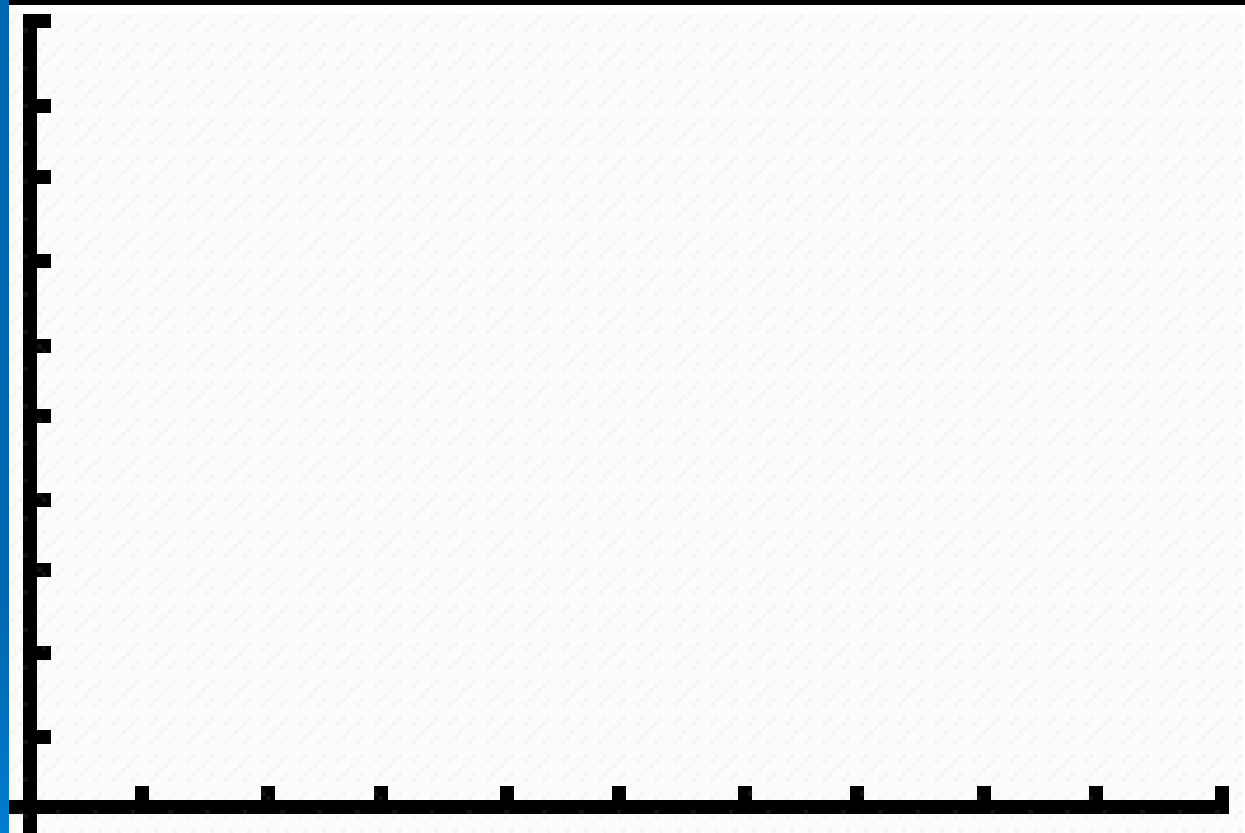
- You might have new clicker numbers.
 - Check the chart.
- Questions 1-7 will be taken with the clickers
 - 3-7 are Yes/No questions
 - a=yes
 - b=no
- Questions 8-10 are to be written on lined paper.
- Make sure you follow the directions and show your work!

Graphs and Data

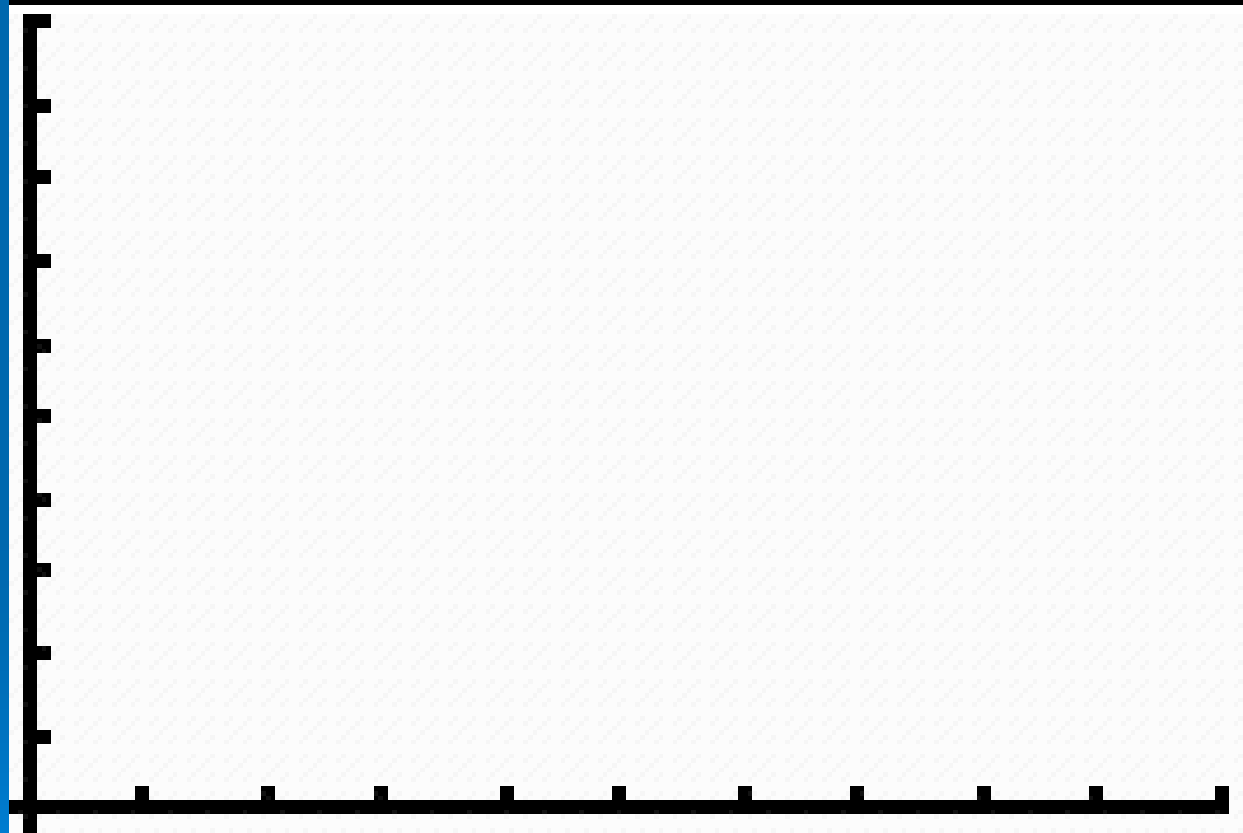
- We use graphs and symbols as visual representations of data that we collect



Denisty

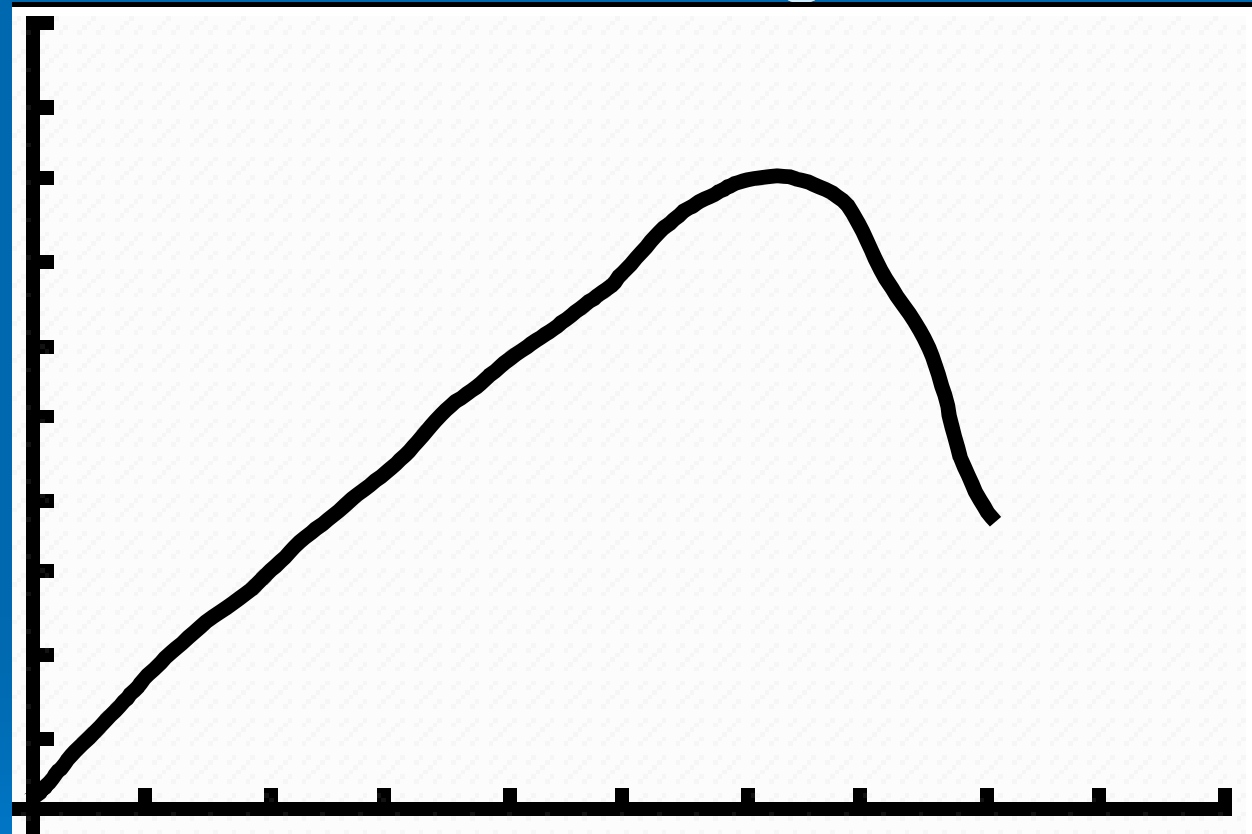


Speed



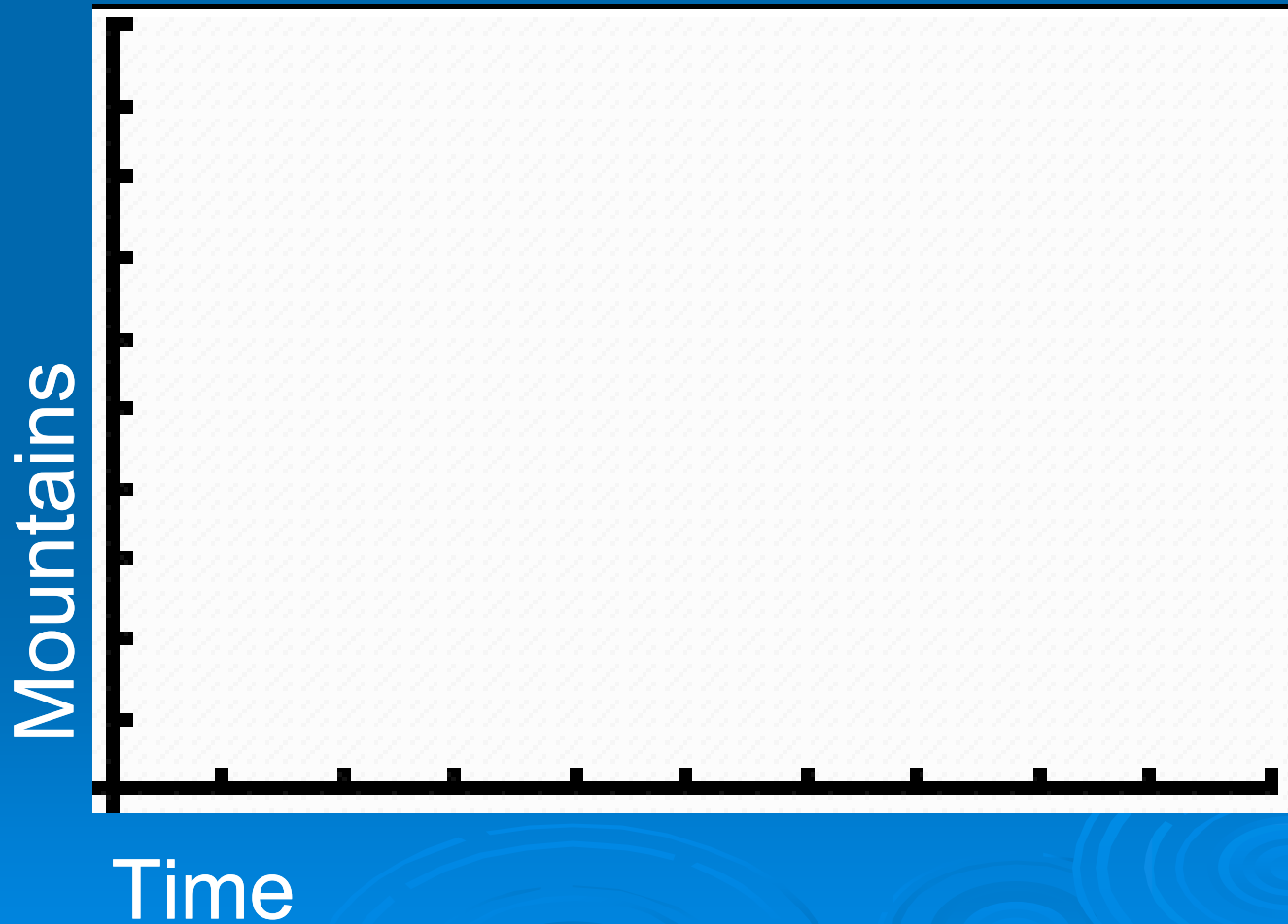
Graph of My Hatred of Bella from Twilight

y-Emo-ness
of Edward



x-Hottness of Jacob

My graph of Mountains over Time



HOW TO OPEN ONE OF THESE



STEP 1: PULL ON TAB



STEP 2: ACCIDENTALLY RIP
TAB OFF WITHOUT BREAKING
THE SEAL

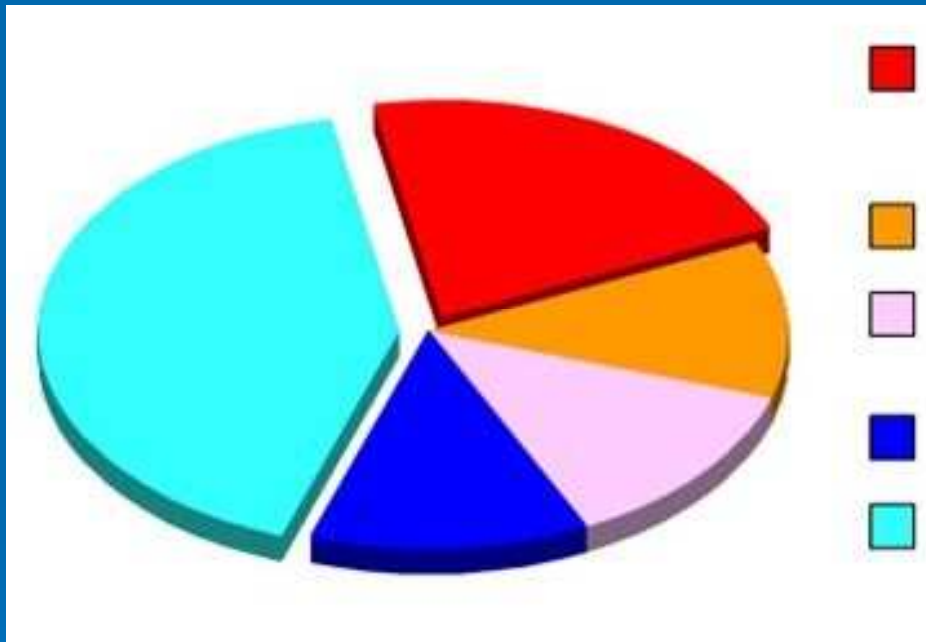


STEP 3: PLUNGE YOUR FINGER
IN SEAL WITH RAGE.



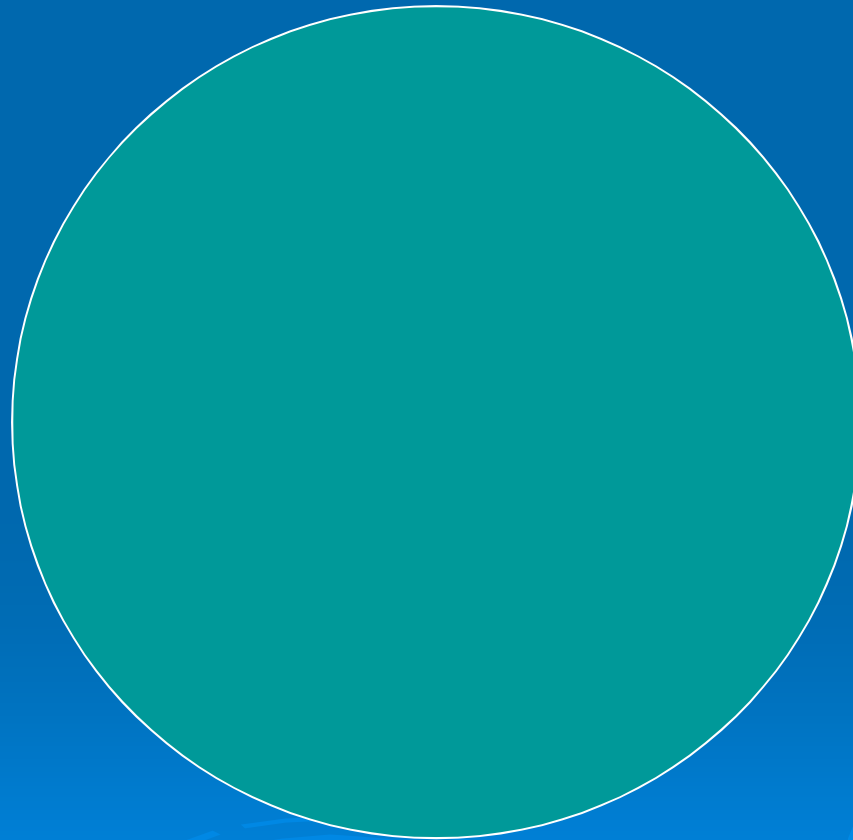
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The things that you do not want to hear your science teacher say to you on the first day of school



- My name is Mr. Neddo, but if the Feds ask, I'm Mr. Johnson
- I'll learn your names after I sober up
- Today you'll be dissecting the person next to you
- Science, scientology, what's the difference
- I'm gonna learn ya all kinds of smart things

Pie Chart on Procrastination



R

V

THE LINE OF NINE DAV



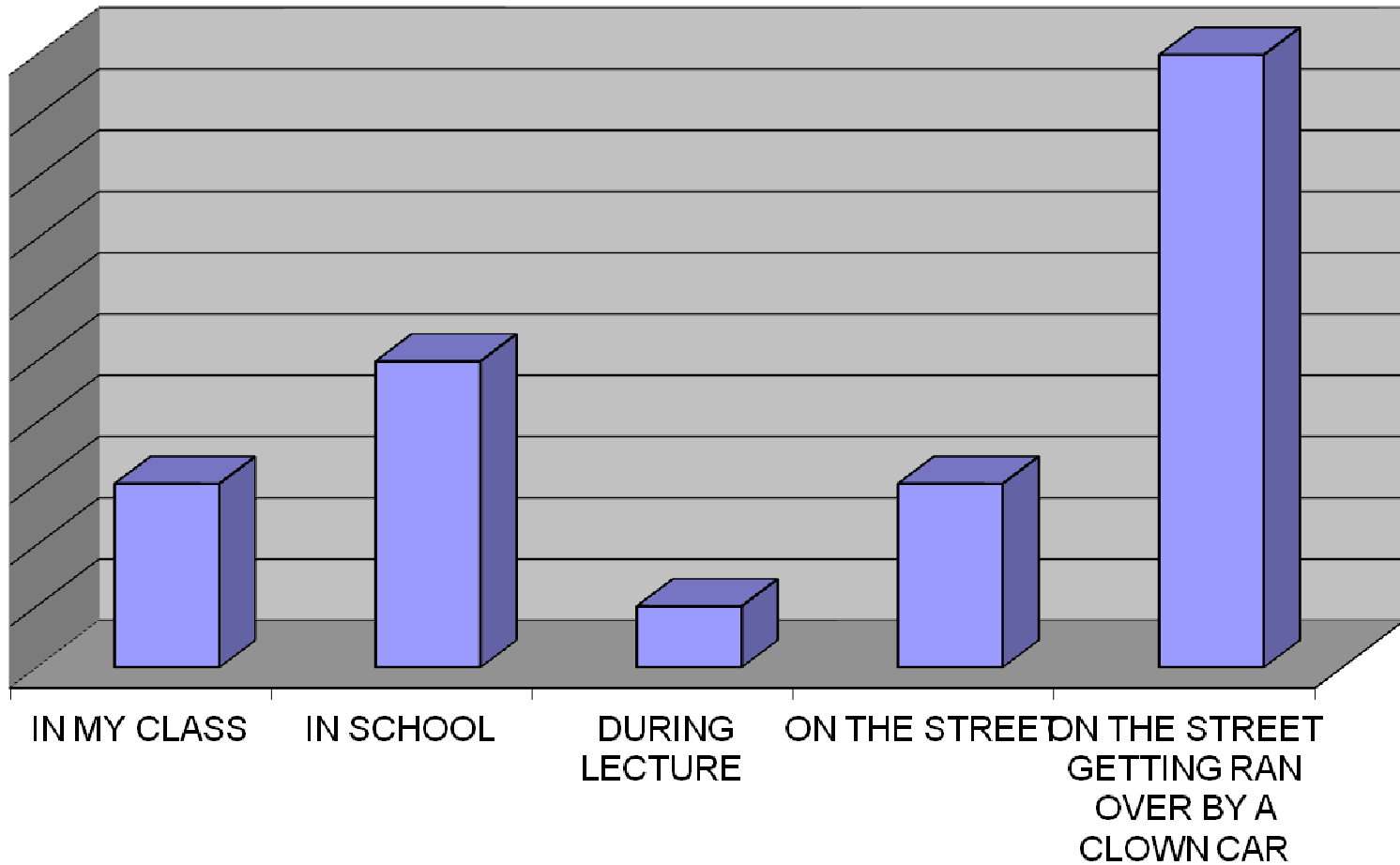
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How Much I Love Headphones



What Makes Data Good?

Qualitative vs. Quantitative

- Deals with descriptions.
- Data can be observed but not measured.
- Colors, textures, smells, tastes, appearance, beauty, etc.
- **Qualitative** → **Quality**

- Deals with numbers.
- Data which can be measured.
- Length, height, area, volume, weight, speed, time, temperature, humidity, sound levels, cost, members, ages, etc.
- **Quantitative** → **Quantity**



Oil Painting



Qualitative data:

- blue/green color, gold frame
- smells old and musty
- texture shows brush strokes of oil paint
- peaceful scene of the country
- masterful brush strokes

Quantitative data:

- picture is 10" by 14"
- with frame 14" by 18"
- weighs 8.5 pounds
- surface area of painting is 140 sq. in.
- cost \$300

Freshman Class



Qualitative data:

- friendly demeanors
- civic minded
- environmentalists
- positive school spirit

Quantitative data:

- 672 students
- 394 girls, 278 boys
- 68% on honor roll
- 150 students accelerated in mathematics

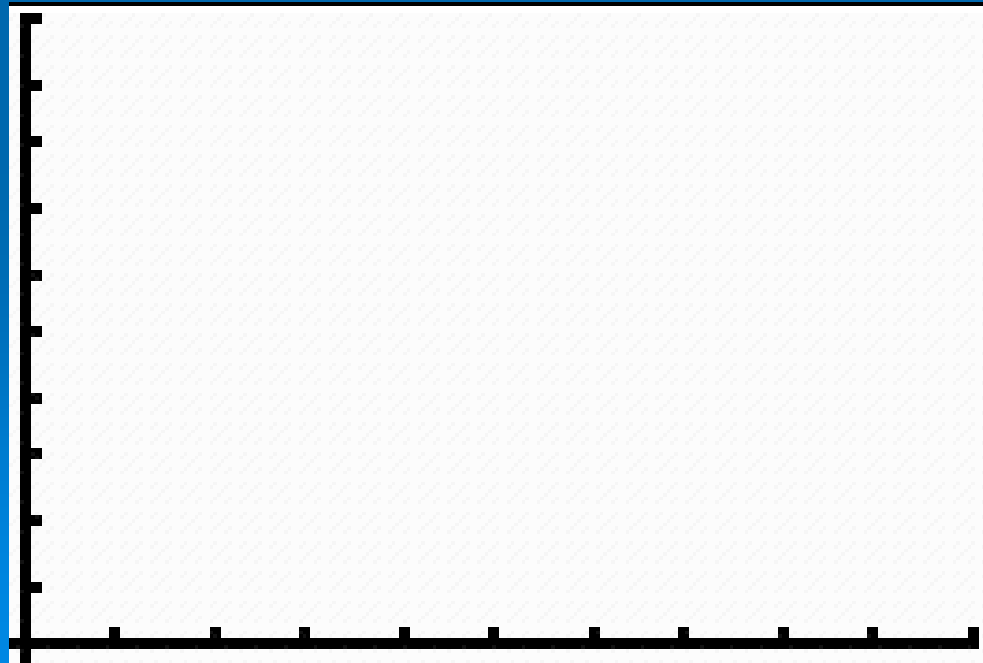
Graphing Variables

- Scientists have rules for choosing which variable is graphed on which axis
- This allow scientists to understand how an experiment was conducted just by reading the graph



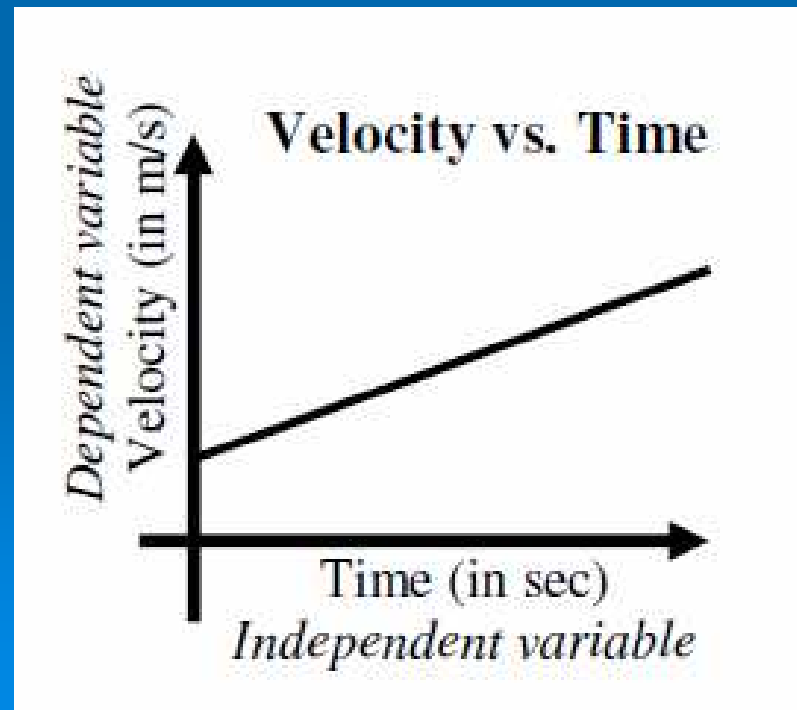
Conventions

- X-axis (horizontal)
 - Independent or manipulated variable
- Y-axis (vertical)
 - Dependant or responsive variable



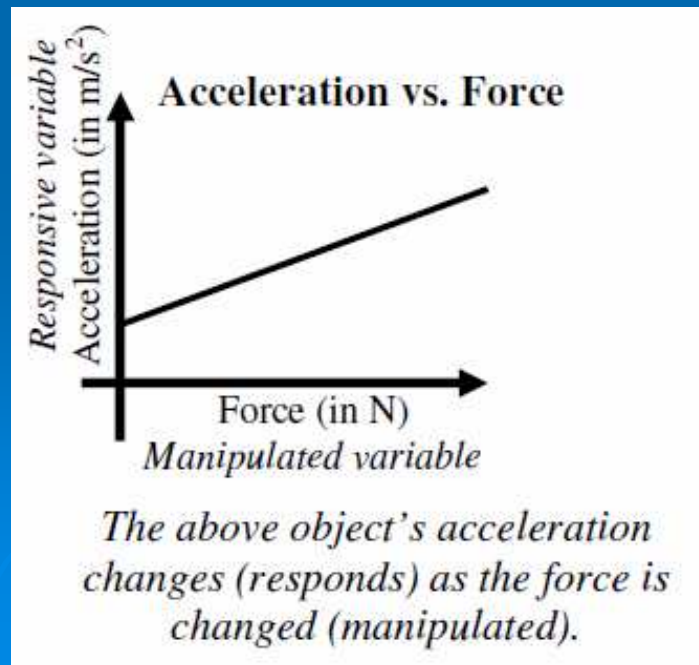
Independent vs. Dependent

- The independent variable is not affected by the changing dependent variable
- The dependent variable changes as the independent variable changes



Manipulated vs. Responsive

- Sometimes it is hard to determine which the independent variable
- In these cases, the variable that you are manipulating (varying) will be graphed on the x-axis



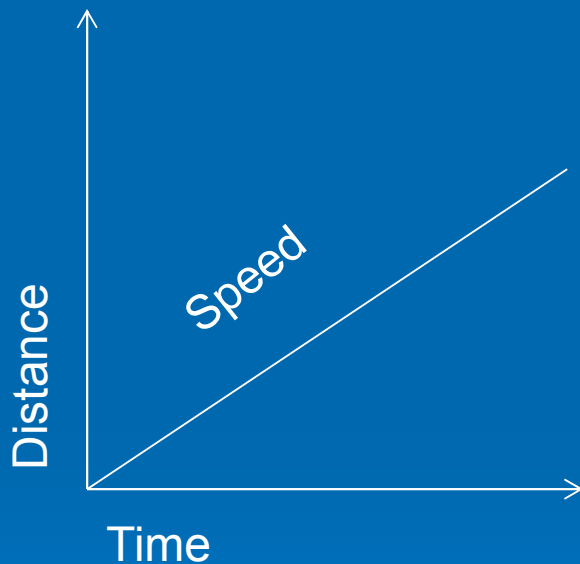
Meaning of Slope

- To figure out what the slope of a graph means:
 - Divide the y-axis units by the x-units to find the units for the slope

$$\begin{aligned} \text{Meaning of Slope} &= \frac{\textit{rise}}{\textit{run}} \\ &= \frac{\text{units of y-axis}}{\text{units of x-axis}} \end{aligned}$$

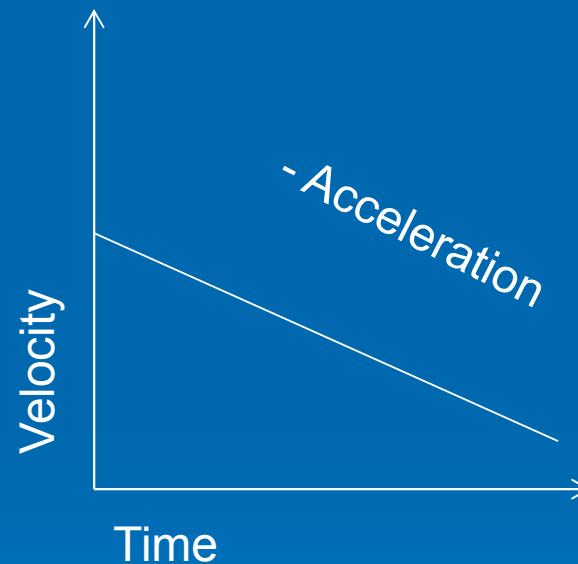
The Slopes of What we have

➤ Position vs. Time

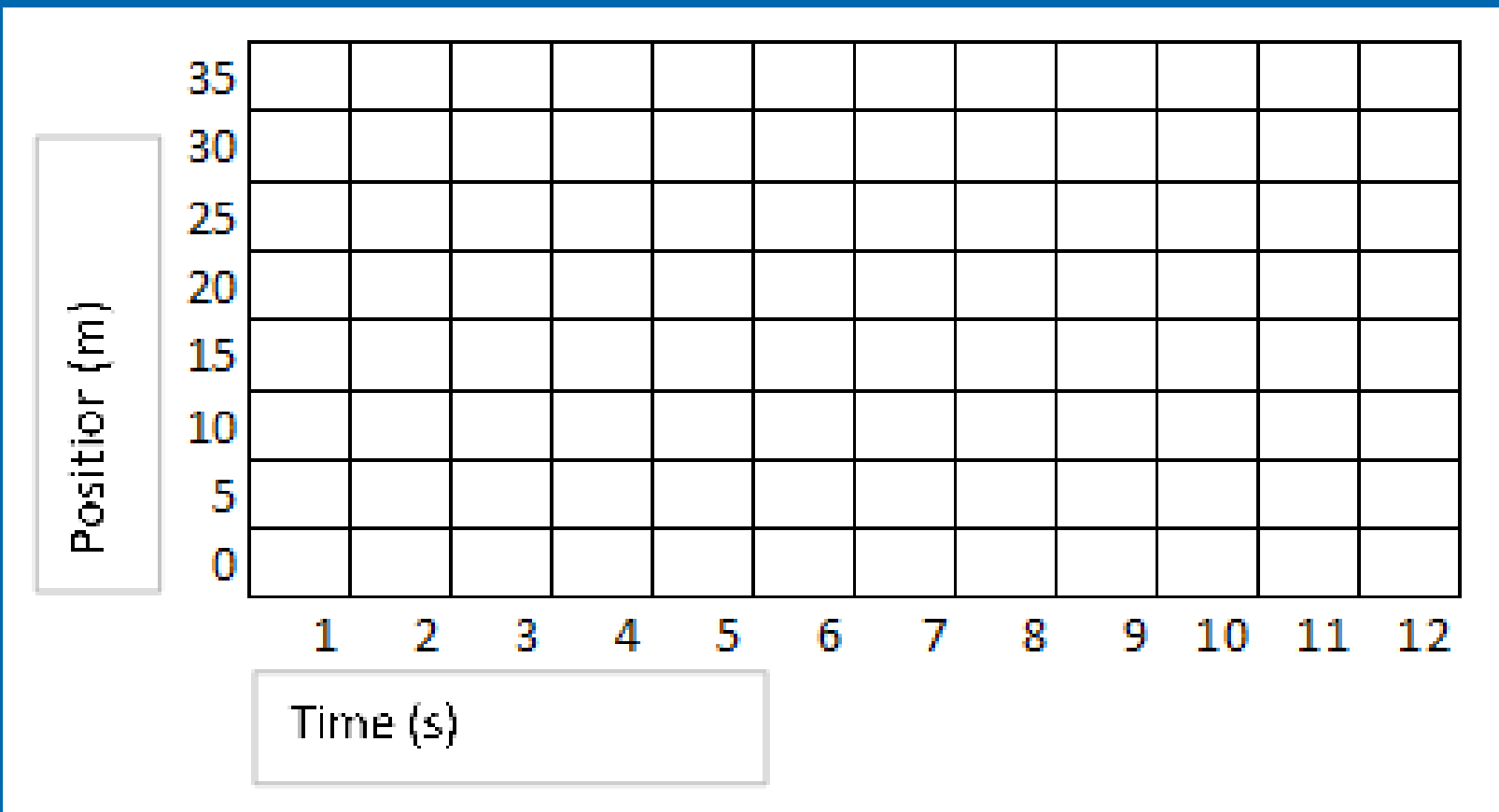


$$\frac{m}{s} = \frac{d}{t} = s$$

➤ Velocity vs. Time



$$\frac{m}{s} / \frac{s}{s} = \frac{\Delta v}{t} = a$$



Object A

Object B

Object C

Object D

Worksheet

➤ Graphing Linear Motion

➤ Next Class-

- Quiz 2
- Momentum

