

Graphing

Graph → A visual display of information or data

Types:

1. Line
2. Bar
3. Circle/Pie

General guidelines for ALL types of graphs:

- Must have a title [Graph 1: _____]
- Use a ruler for ALL straight lines
- Label ALL parts
- Use only **pencil**

Line Graphs

- used to show trends or continuous change
 - 2 variables are changing (measured for possible change)
 - both variables have units
- X-axis (horizontal) → plots the independent variable
- Y-axis (vertical) → plots the dependent variable
- label axes with what is measured **and** units (i.e. Mass (kg))
- place increasing increments evenly spaced on axes by hatch marks
 - each listed value must increase by the same amount
- plot data points from data table (x,y)
 - X-axis values are listed in the first column on the table
 - Y-axis values are listed in second column on table
- draw best fit line (1 straight line w/ ruler or a smooth curved line)
- only use color when there is more than one line
 - use colored pencils
 - label at the line or add a key
- **Extrapolation** – method used to approximate values that are beyond that data points on the graph
- **Interpolation** – method used to approximate values between data points on the graph

Bar Graphs:

- used to show comparisons in data
- label axes
 - X-axis with group heading and each item below the column
 - Y-axis with what is measured and units (i.e. Mass (g))
- columns are the same width with the same amount of space between each
- Y-axis has increasing increments evenly spaced on axis by hatch marks
 - each listed value must increase by the same amount
- leave at least one space after Y-axis
- color bars with colored pencils (all the same or each different unless otherwise necessary)
- options:
 - label amount above each column

Circle Graphs:

- used to show a fixed quantity broken down into parts
 - circle – represents the total
 - sections – represents that parts in percent
- calculate:
 - $\% \text{ of section} = \frac{\text{part of value of item}}{\text{total of values}} \times 100$
 - $\text{degrees } (^{\circ}) \text{ of section} = \% \text{ of section} \times 360^{\circ}$
- use protractor to measure angles for sections
- label each section with the item and percent
 - place outside circle
 - write horizontally
- color each slice a different color
- options:
 - use color key to replace labels