PreIB Science – Spindlove + Kovacevic

**GRAPHING**

\*Refer to *Types of Graphs* reference sheet

**Bar Graphs**

* Used to represent **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** data that is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Does **\_\_\_\_\_\_\_\_\_\_** represent relationship between 2 variables
* Can be used *for* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** *data (why we chose the experimental set-up we did)*



***The big idea is that bar graphs are used in Science as a starting point to drive further experimentation. It’s not usually an end product for us!***

**Scatter Graphs**

* Used to represent **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** data (i.e. **NOT** categorical)
* Represents **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** between 2 variables
	+ *What effect does* ***\_\_\_\_\_\_*** *have on* ***\_\_\_\_\_\_?***



**Graphing Guidelines:**

* Need a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.** “Comparison of….” or “Relationship between…” are good ways to start. Mention both quantities **(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)** you are comparing.
* *Label the* ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_***with the quantity involved for each variable.
* Look at **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (for each variable) and determine **\_\_\_\_\_\_\_\_\_\_\_\_** for the x- and y- axis. Graph should fill **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)** of the page.

 Scale must increase by regular **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** for the entire axis.

Your scale need not start at zero if it is not **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** for your data.

* Plot points *in pencil*. Draw dot for each point and then **\_\_\_\_\_\_\_\_\_\_\_** (like *bullseye*). If plotting >1 set of data on one graph, use different **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
* *Draw a smooth line through all the points*, called a **“\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”.** (Should be as close to each point as possible, but can disregard extreme outliers.)





* Calculate the *RATE of* ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** *in your line of best fit* (aka *SLOPE* !)

Choose *two easily read* ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** *on your graph* (x1, y1) and (x2, y2), which are NOT part of your data set.

**Rate/Slope** = $\frac{change in dependent \left(y\right)variable}{change in independent \left(x\right)variable }$ = $\frac{y\_{2}-y\_{1}}{x\_{2}-x\_{1}}$ = answer *(+ units)*

Ex:

We can use the line of best fit to ***estimate*** by **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (estimating within

data set), or **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (estimating outside of data set)



*EX: estimate sales at a temperature of 21ºC?*

*EX: estimate temperature at sales of $150?*

**Sometimes our trendline isn’t linear. Consider this graph:**