Graphing Inequalities

- Graphing inequalities is very Similar to graphing linear equations.
- There is a subtle difference that comes from the inequality sign, just like when we were Solving inequalities earlier in the year

- Recall from before that their are 4 inequality signs:
  - $<$ - Less than.
  - $>$ - Greater than.
  - $\leq$ - Less than or equal to.
  - $\geqslant$ - Greater than or equal to.
- When Graphing these inequalities you will use the following Steps.

Steps to graphing inequalities.

① Graph the line how you would if there was an = sign.

- Replace the inequality sign w/ an equal sign & Graph.

Ex $y > 2x - 4 \Rightarrow y = 2x - 4$

Then graph using the y-int & Slope

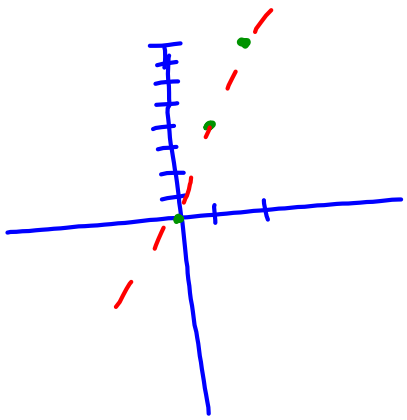
② Once you have the line graphed, you account for the changes that occur because of the inequality.

- If the inequality is a
  ≤ Less than or equal to or
  ≥ Greater than or equal to the the line will be Solid, or Not Dotted (- - - - - -)

- If the inequality is a (<) less than or Greater than (>) the line that you graphed will be dashed.

Ex $y < 4x$

* Notice how its a dashed line & not a Solid.



(3) Once you have the line graphed w/ it either being Solid, or a dashed line, theres just 1 more Subtle Change you must make.

- Because our inequalities are less than OR Greater than, they have multiple Solutions.
- To account for these Solutions we will "Shade" above OR below the line.
- For inequalities $\leq$ OR $<$ you will Shade Below the line on the graph.
- For inequalities $\geq$ or $>$ you will Shade above the line on the graph to account for all the possible Solutions.
- We will go over examples tomorrow.