The Graph Choice Chart.

What question would you like to explore? Write your question as a complete sentence.

Does your question ask about the **variability** of a group of data points?

(i.e. the range of the data, the shape of the distribution, or what the center of the data is)

— YES —

Examples:
1. Do all high tides rise to the same height?
2. How variable are windspeeds here?
3. What is the range and distribution of incomes in the United States?

— make a → FREQUENCY PLOT

For each group make a ↗

FREQUENCY PLOT — either — DOT PLOT

HISTOGRAM

BOX PLOT

Does your question **compare two or more groups** to decide if the groups are the same or different?

— YES —

Do you want to compare the **variability of all data points** in each group to decide if any difference between the groups is *meaningful?*

Examples:
1. Which of the two car designs is most consistently the fastest?
2. Is there a meaningful difference in the heights of fertilized and unfertilized bean plants?

Are you comparing **single numbers** that summarize a group? (such as mean, median, or total...)

Examples:
1. Was the total snowfall greater this winter than last winter?
2. Do cats and dogs have the same average body temperature ?
3. How do the median incomes for the U.S. and Sweden compare?

— make a → BAR GRAPH

Does it ask if **two numeric factors are correlated** ?

Examples:
Is the temperature inside the house correlated with the temperature outside?

How did electricity used by the kitchen circuit fluctuate during the past week?

— YES —

Does it ask about how something changes through **linear TIME?**

— NO —

Examples:
1. Is the fuel efficiency of a car related to its weight?
2. Are smoking rates correlated with median income?
3. Given a fixed volume, how are temperature and pressure related?

— make a → SCATTER PLOT

— YES —

Examples:
1. Have summer lake water temperatures warmed over the last ten years?
2. How did my weight change over the last 3 months?

— make a → LINE GRAPH

Does your question ask how a **total** is **proportioned** into sub-groups? (Or what proportion a sub-group is of a total?)

— YES —

Examples:
1. Which circuit accounts for the largest proportion of the electricity use by our household?
2. What proportion of U.S. energy comes from wind?
3. What proportion of U.S. residents take public transportation to work?

— make either → PIE CHART

STACKED BAR CHART