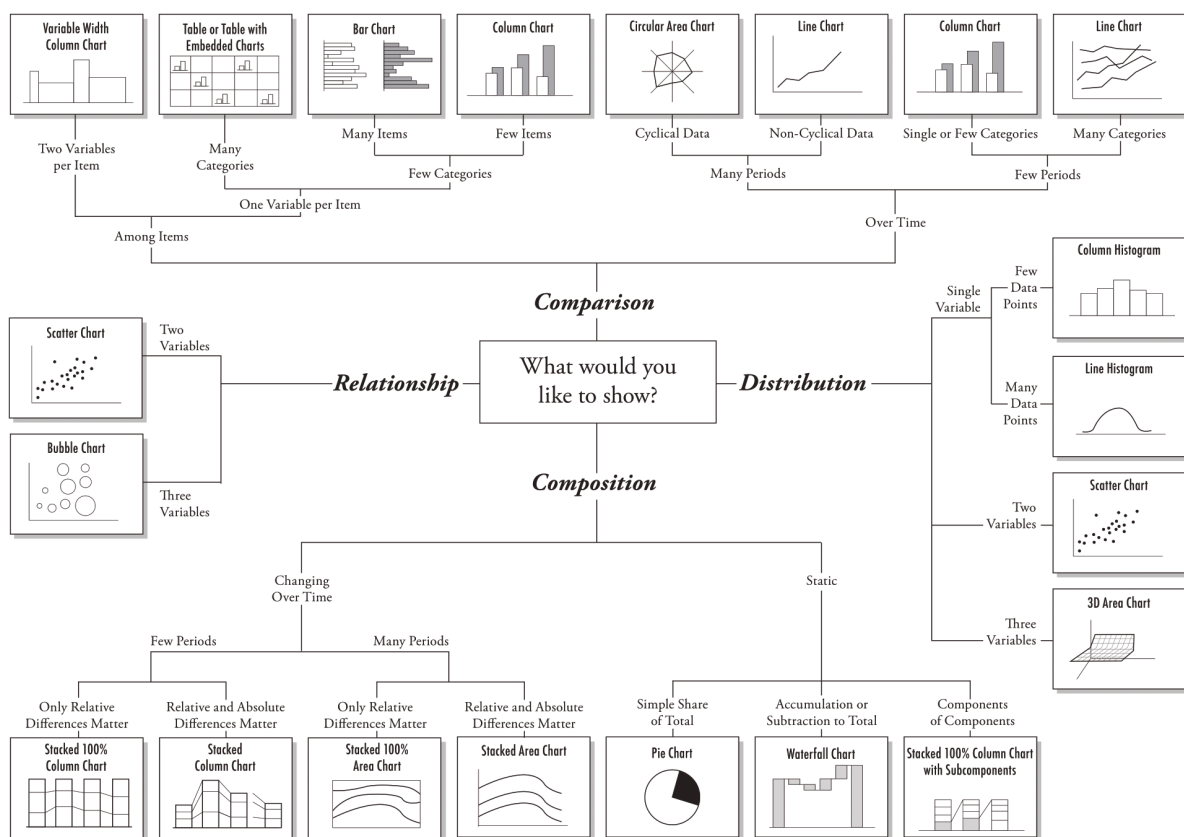# Data Visualization

You will spend a considerable amount of time during your project with generating data. However producing the most interesting and well researched data is meaningless if you cannot communicate your findings with clear and well structured visualizations.

Before your start your quest for the perfect plot, you should ask yourself:

- What data type do you want to show and what is the right plot for your data? (Figure 1)
- What is the message of your plot?
- Who is your audience?



Figure 1: **Choosing the right plot for your data.**

If you want to get a short primer on data visualization, check out these slides:

- Data visualization slides by R. Burke Squires (NIH)
- EU DataViz Conference - Effective, non-standard data visualisation

## Programming free Data Visualization

- [Raw Graphs](#)

Simple web-interface for data exploration and the creation of various graph types directly from a spreadsheet.

# Data visualization with python

There are many different libraries with powerful functions for data visualization. All packages have their own strength and weaknesses and you will find a short description of some of them below. If you would like to pick your package depending on the kind of graph you need right now, check out the Python Graph Gallery by Yan Holtz for some inspiration and more information.

**Matplotlib**

One of the most popular choices when it comes to creating plots with python, Matplotlib is an extensive library full of different tools for data visualization.

**Seaborn**

Seaborn is a powerful extension of Matplotlib with which you can create publication-ready figures in as little as one line of code. Structure your data with Pandas dataframes to get the most out of Seaborn.

**Plotly**

Best known for creating interactive web-appliations, you can also use plotly to create offline figures.

# Creating custom color palettes

Packages like seaborn come with a variety of color palettes for all kinds of data (continues, categorical, divergent etc.). Sometimes you might want to create your own color scheme. In this case you can use the webtool Coloors to quickly generate your own set of colorations.

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- Back to PBioC course
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