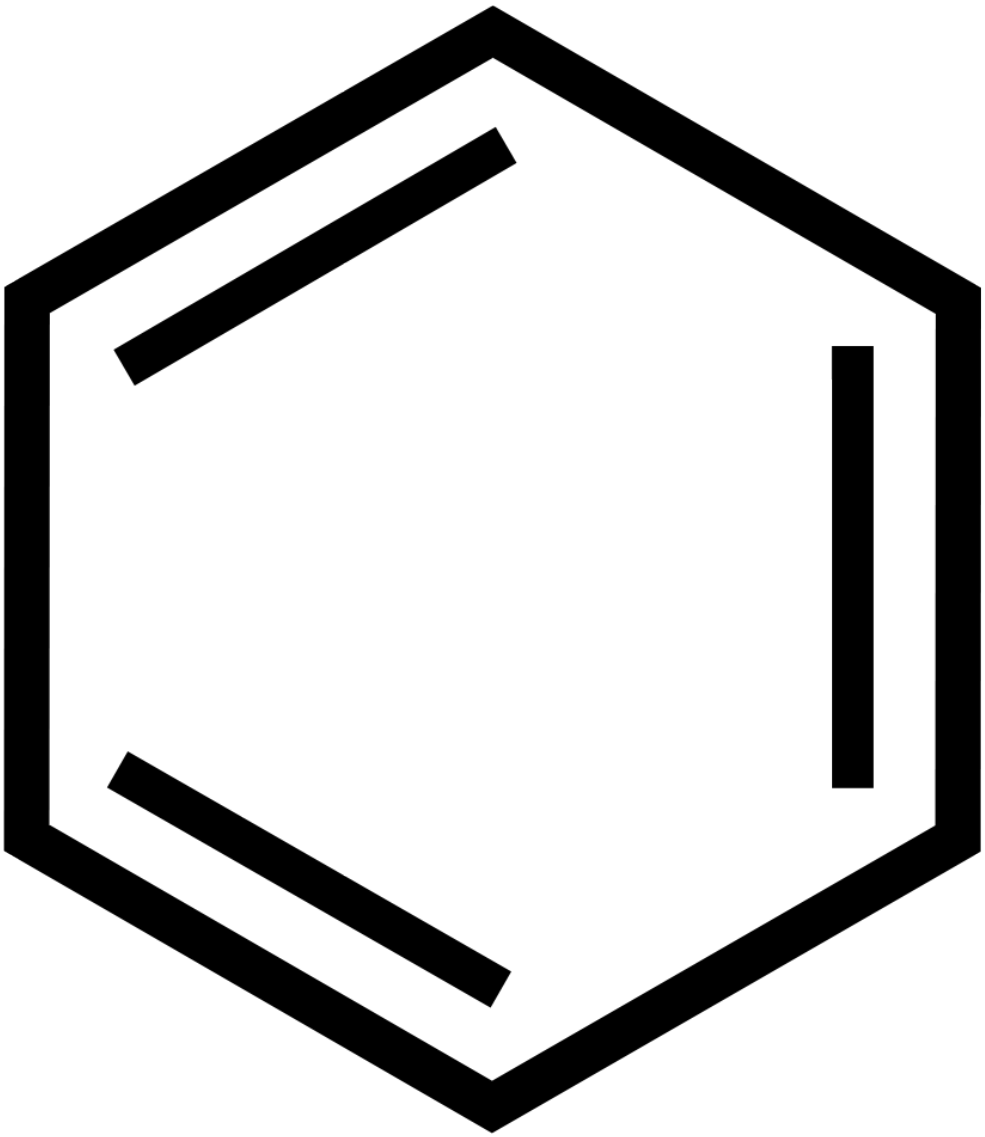

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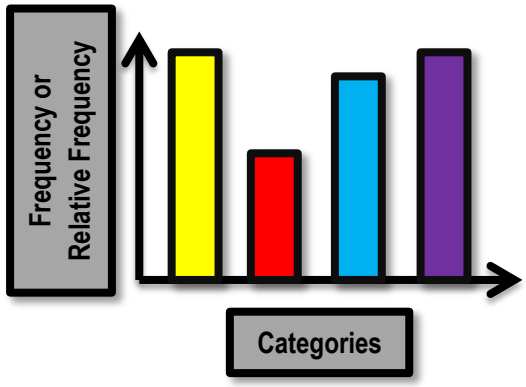
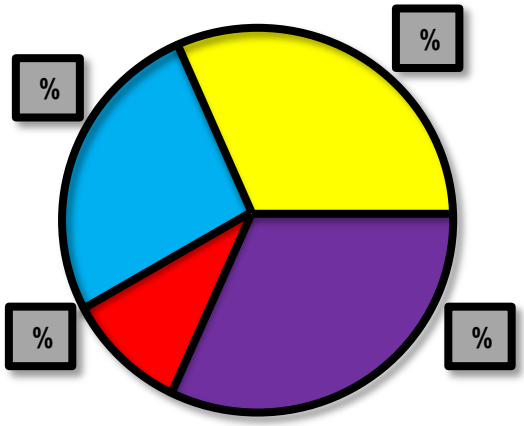
GRAPHING QUALITATIVE DATA

- Qualitative data is data which includes observations that are _____
  - → Examples: colors, car makes, gender, grade level
- There are two pieces of information that are associated with qualitative variables
  - → frequency = the number of observations within each _____
  - → relative frequency = _____ of observations within each category = $\frac{\text{frequency}}{\text{total sample}} \times 100\%$
- Two types of graphs can help you display this qualitative data: (**1**) bar graphs and (**2**) pie charts
  - → Pie charts are only used to see how large of a _____ one group is from the whole _____

Bar Graph



Pie Chart



Step 1: Create a table with the categories and frequencies

Step 2: Calculate relative frequencies

Step 3: Draw bars or sections whose size are relative to the values

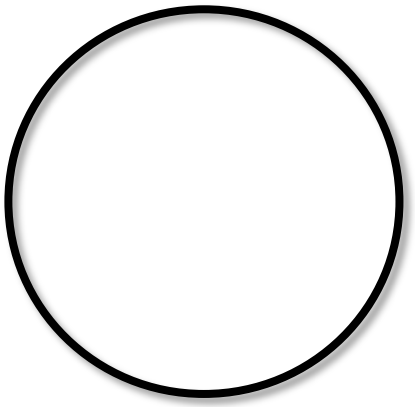
EXAMPLE 1: Draw a frequency bar graph and a pie chart for the following data:

Car Make	Number of Owners
Toyota	10
Nissan	20
Honda	5
Ford	15

PRACTICE 1: Below are the ethnicities of the students in a particular Statistics class. Determine the relative frequency of each of the ethnicities.

Ethnicity			
Asian	White	Black	White
Pacific Islander	White	Asian	Hispanic
White	Hispanic	Hispanic	Black
White	Hispanic	White	Black
Asian	Asian	Black	White
Hispanic	Black	White	Asian

PRACTICE 2**:** Construct a pie chart to represent the data in Practice 1.



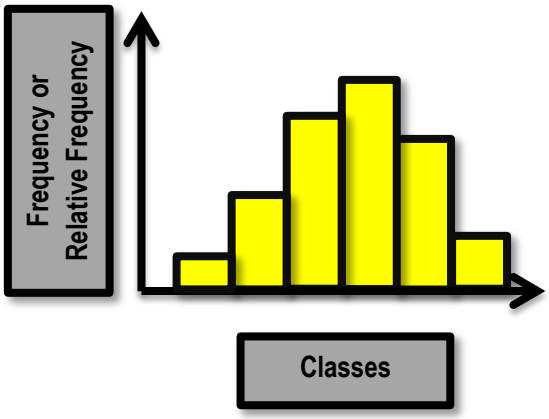
PRACTICE 3**:** Construct a bar graph for the following data set**:**

Favorite Summer Olympic Category	
Swimming	25
Gymnastics	30
Track & Field	10
Diving	5
Other	20

GRAPHING QUANTITATIVE DATA

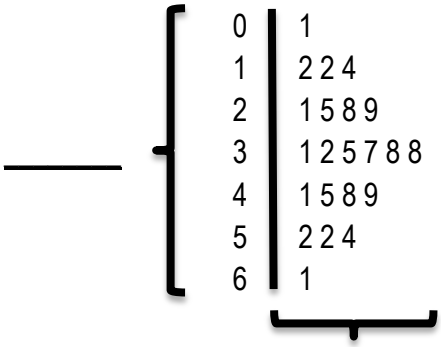
- Quantitative data is data which includes observations that are _____
  - → Example**:** money, time, size, length, etc.
- The graph that is capable of drawing a picture of this type of data is the _____
  - → Stemplots are another way of displaying _____ data

Histogram



Step 1: Break the data into given number of classes (class width **=** range/classes)
Step 2: Count and record the frequency of observations in each class
Step 3: Graph which each bar representing the frequency of each class

Stemplot



_____

Step 1: Separate each observation into stems and leaves (152**:** stem **=** 15, leaf **=** 2)
Step 2: The left column is the stem (low to high)
Step 3: The right column are the leaves corresponding to each stem starting with the lowest and moving away from the stem

EXAMPLE 1**:** Using the following data, create a histogram using 4 classes and a stemplot.

Book Costs/Semester

100	132
105	133
110	134
112	134
113	135
115	136
127	138
128	138

PRACTICE 1**:** Construct a stemplot of the following data from a business class**:**

GPA			
2.76	3.26	2.82	2.90
2.92	2.99	2.71	2.82
2.79	2.85	3.37	3.17
2.92	3.29	3.32	3.18

PRACTICE 2**:** Construct a histogram from the data in Practice 1. Use the following classes**:** 2.70 – 2.79, 2.80 – 2.89, etc.

PRACTICE 3**:** There are similarities and differences between the graphs in Practice 1 and Practice 2.

PRACTICE 4**:** The following data is from a retail store. Using 5 classes, determine the class widths of the data, and then construct a histogram for the data.

Phone Sales				
117	120	153	192	104
104	111	102	127	168
164	179	144	161	179
185	129	154	102	105
171	172	165	168	200