2.1: Organizing Data

A **frequency distribution** lists each category of data and the number of occurrences for each category of data.

- Let use an example and build a Frequency Table from the data we collected in class.

Color	Tally	Frequency	Relative Frequency
Brown			
Yellow			
Red			
Orange			
Blue			
Green			

The **relative frequency** is the proportion (or percent) of observations within a category and is found using the formula:

- A **relative frequency distribution** lists the relative frequency of each category of data.
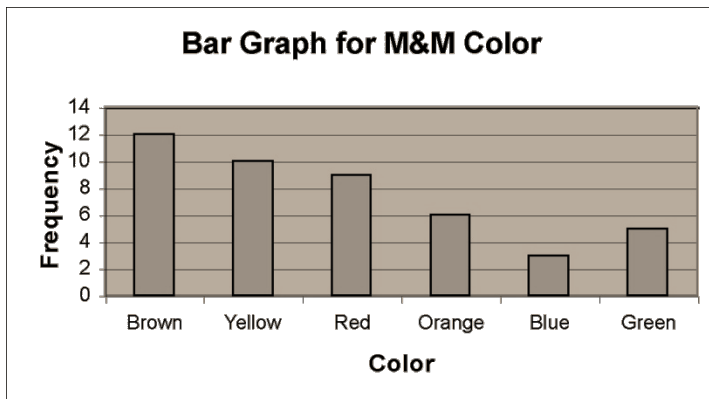
Bar Graphs

- A **bar graph** is constructed by labeling each category of data on either the horizontal or vertical axis and the frequency or relative frequency of the category on the other axis
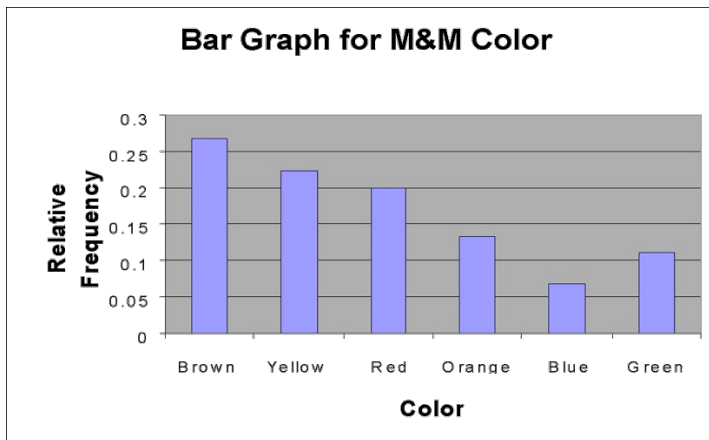

Brown   Yellow   Red   Orange   Blue   Green
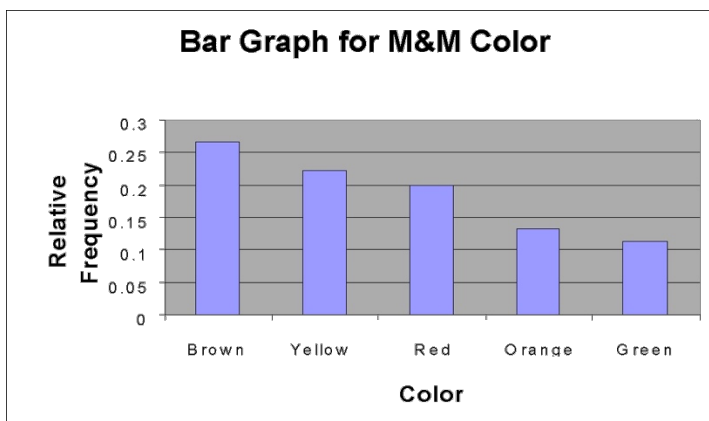
■ Series 1
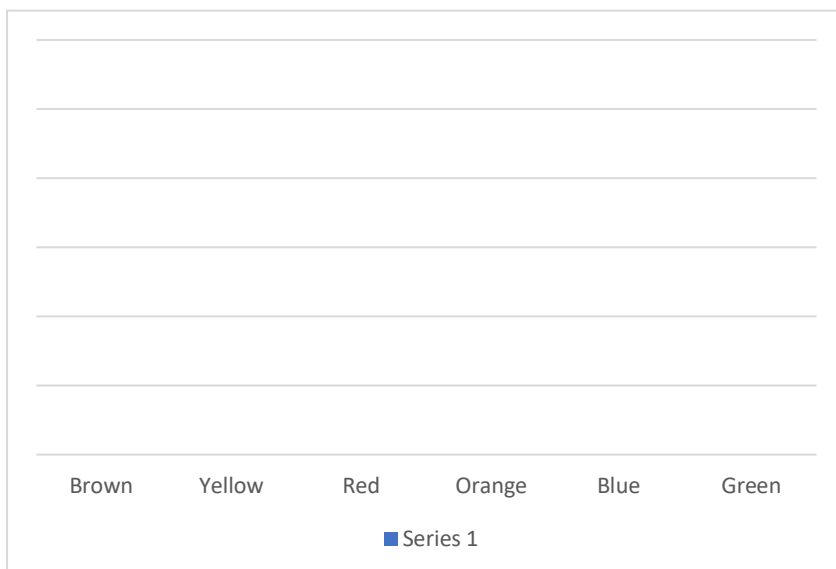
Some Graph/Chart Examples

Frequency Graph
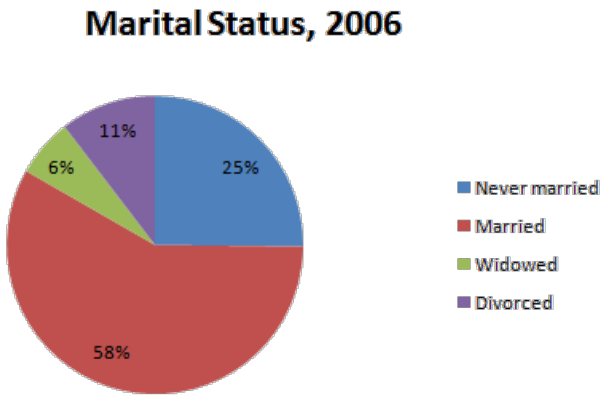

Relative Frequency Graph

A **Pareto chart** is a bar graph where the bars are drawn in decreasing order of frequency or relative frequency.

Pie Chart:

The following data represent the marital status (in millions) of U.S. residents 18 years of age or older in 2006.

Marital Status	Frequency
Never married	55.3
Married	127.7
Widowed	13.9
Divorced	22.8

Marital Status, 2006

- Never married — 25%
- Married — 58%
- Widowed — 6%
- Divorced — 11%

Double Bar Graph

Marital Status in 1990 vs. 2006

Relative Frequency vs. Marital Status (Never married, Married, Widowed, Divorced), comparing 1990 and 2006.
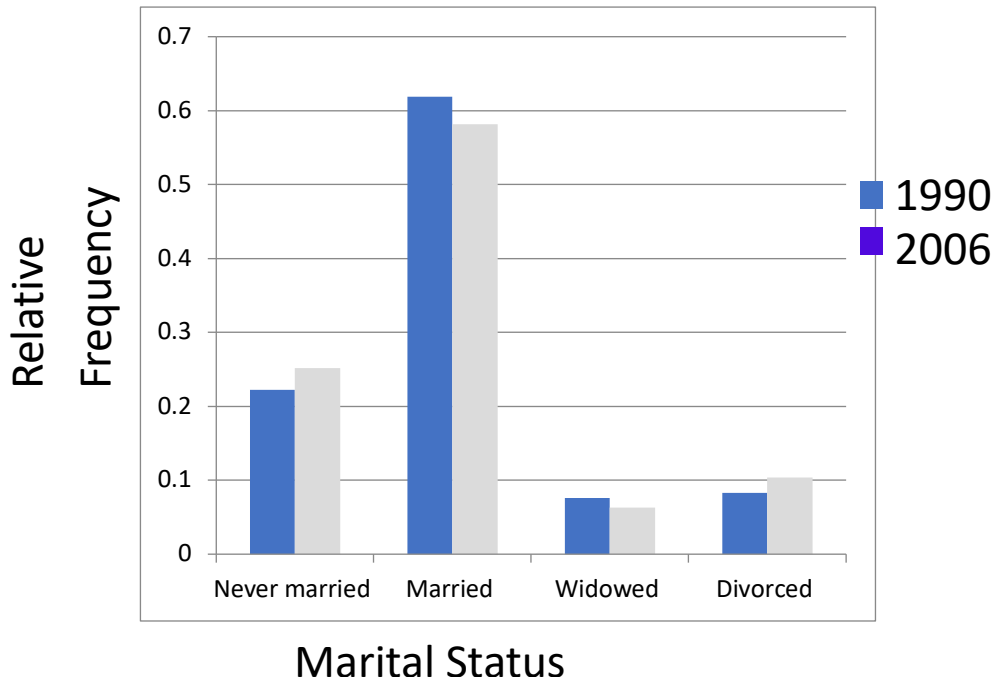
Quantitative Data

The following data represent the number of available cars in a household based on a random sample of 50 households. Construct a frequency and relative frequency distribution.

3	0	1	2	1	1	1	2	0	2
4	2	2	2	1	2	2	0	2	4
1	1	3	2	4	1	2	1	2	2
3	3	2	1	2	2	0	3	2	2
2	3	2	1	2	2	1	1	3	5

# of Cars	Tally	Frequency	Relative Frequency
0			
1			
2			
3			
4			
5			

Number of Cars	Tally	Frequency	Relative Frequency
0	‖‖	4	4/50 = 0.08
1	‖‖‖‖‖ ‖	13	13/50 = 0.26
2	‖‖‖‖ ‖‖‖ ‖‖‖ ‖	22	0.44
3	‖‖‖ ‖	7	0.14
4	‖	3	0.06
5			1	0.02