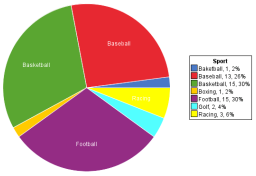
Notes - MMMR, Types of Data, Shapes of Distribution

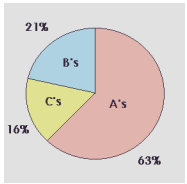
- Types of Data
- Mean, Median, Mode, and Range (MMMR)
- Shapes of Distribution

- **Categorical** - Non-numerical data
  - Ex. eye color, favorite movie
- **Quantitative** - Numerical data
  - Ex. height, weight, age

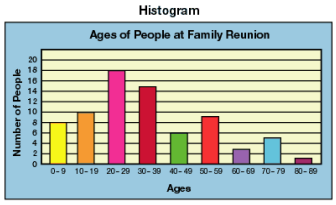
Favorite Sport



Scores on a Test



Categorical or Quantitative?



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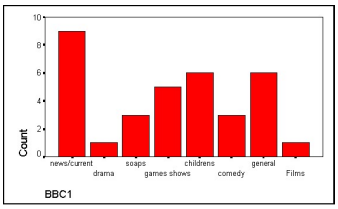

_____

Quantitative Data

- How much candy do we eat each week?
- How many hours a week do we spend watching TV?
- What is our favorite sport?
- What kind of music do we like best?
- How many hours a week do we talk on the phone?
- What kinds of snacks do we like?
- How much do our backpacks weigh?
- How many pets do students in our class have?

Categorical Data

Mean (Average)

numbers add divide

To find the mean, you _____ up all the numbers and then _____ by how many _____ you had.

Ex: Find the mean of the set of numbers.

14, 26, 39, 30

Median (Middle)

middle order average

To find the median, first write the numbers in _____. Then find the _____ number or the _____ of the two middle numbers.

Ex: Find the median of the set of numbers.

36, 51, 37, 41, 35, 32, 41, 53

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Mode

numbers more often no

To find the mode, put the _____ in order. Then find the number or numbers that appear most _____.

You can have _____ than one mode or _____ mode depending on the set of numbers.

Ex: Find the mode of the set of numbers.

34, 34, 37, 35, 34, 36, 33, 34, 33, 31, 33

Range

largest smallest subtract

To find the range of a set of numbers, first put the numbers in order. Then _____ the _____ number from the _____ number.

Ex: Find the range of the set of numbers.

36, 37, 51, 49, 41, 32

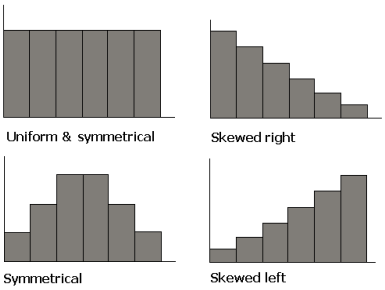
Finding Mean, Median, and Mode on a Calculator

1. Clear your calculator (2nd, 0, 7, 1, 2)
2. Press List and enter your data into L1. Press enter after each number
3. Press 2nd, Mode
4. Press 2nd, List
5. Press the right arrow twice to move to MATH
6. Choose which measure you want to find and press enter.
7. Press 2nd, List
8. Choose L1 and press enter twice.

Use this data to try it!
5 7 8 4 3 2 9 5 4

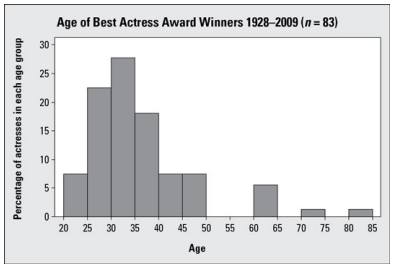
Shapes of Distribution

They describe the distribution of the data on a graph.



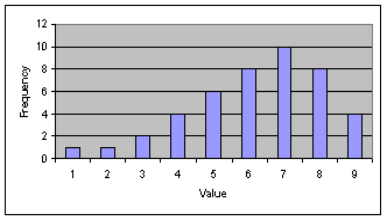
Skewed Right

A histogram that is skewed right indicates that the majority of the data has values towards the lower end of its range.



Skewed Left

A histogram that is skewed to the left indicates that the majority of the data has values towards the upper end of its range.



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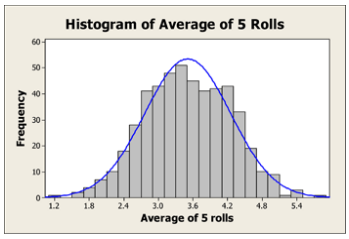
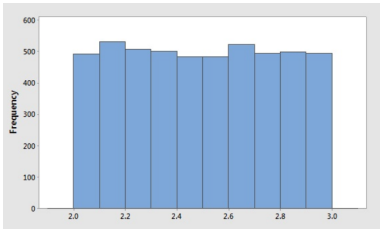
Bell-Curve

A common pattern is the bell-shaped curve known as the "normal or symmetrical distribution." In a bell curve, points are as likely to occur on one side of the average as on the other.



Uniform

A histogram that is uniform indicates that data is spread out equally within the range.



Unusual Features in Data

Gaps - Gaps refer to areas of a distribution where there is no data.

Outliers - Sometimes distributions are characterized by extreme values that differ greatly from other observations. These extreme values are called outliers. The figure below illustrates a distribution with an outlier and a gap.