




Central Tendency







A single score that defines
the center of a distribution
(i.e., the most representative score)




_____ of Central
Tendency



- The most frequent score
 - Note: Can be more than one mode
 - Ex. 1 2 2 2 3 4 5 5 5 6 7 8
 - Mode = 2 and 5
- Pro: uses a real number, and picks up on existence of multiple groups
- Con: may not really be in the middle



- The middle score
 - 50% of scores are above it, 50% of scores are below it
- Pro: outliers not a big problem
- Con: if a big cluster of scores exists, not an accurate "middle point"
 - Ex. 1 2 3 3 4 4 4 **5** 5 5 5 5 5 6



Some Notes on the

- Requires ordering the scores from the lowest to the highest value
- If an odd number of scores, find the score that is exactly in the middle
- If an even number of scores, find the midpoint between the two middle scores

- The average score
 - $\frac{\sum X_i}{n}$
 - n = number of scores
- Pro: Accounts for clusters of scores
- Con: Affected by outliers

Getting the _____

Start with a series of numbers:
 10 3 5 4 6 3 4 2 6 7 10 9 1 8 6 7 8 8 5 6

Create a frequency distribution table
 Find the largest value(s) in the *f* column

<i>X</i> (possible score)	<i>f</i> (frequency)
1	1
2	1
3	2
4	2
5	2
6	4
7	2
8	3
9	1
10	2

Getting the _____

Start with a series of numbers
 Create a frequency distribution table
 Determine *N*, *cf* and *c%*
 Find the score that contains 50 as the *c%*

<i>X</i> (possible score)	<i>f</i> (frequency)	<i>cf</i>	<i>c%</i>
1	3		
2	1		
3	1		
4	2		
5	5		
6	3		
7	2		
8	3		
9	1		
10	2		

} $\Sigma f = N$

Special Note:

If a score has a c% exactly at 50%, that means that the median lies halfway between that score and the next highest score

X (possible score)	f (frequency)	cf	c%
1	0	0	0%
2	2	2	10%
3	2	4	20%
4	3	7	35%
5	2	9	45%
6	1	10	50%
7	2	12	60%
8	5	17	85%
9	2	19	95%
10	1	20	100%

↑ Half of the scores are above the line
↓ Half of the scores are below the line

= **Median**

Getting the _____

Start with a series of numbers
 Create a frequency distribution table
 Obtain $f \cdot X$, and add up $f \cdot X$
 Determine N , and divide $\sum f \cdot X$ by N (see below)

X (possible score)	f (frequency)	$f \cdot X$	$\sum f \cdot X$
1	0		
2	0		
3	1		
4	2		
5	2		
6	3		
7	214		
8	3		
9	1		
10	2		

$\left. \begin{array}{l} \text{ } \\ \text{ } \\ \text{ } \\ \text{ } \\ \text{ } \\ \text{ } \\ \text{ } \end{array} \right\} \Sigma f = N$

- Def: The overall average between two or more groups
- "Weighted" because overall mean will lean towards mean of larger group
- Formula:

$\frac{\sum X}{n}$ (overall sum of scores for combined group)
 n (total number in combined group)

Or...
$$\frac{\sum X_1 + \sum X_2}{n_1 + n_2}$$
