Measures of Dispersion

Measures of dispersion indicate how tightly or loosely grouped sets of data are around the center.

The Range is the difference between the highest value and the lowest value. Remember, though, that it may not be very useful to describe the data set if there are extremely high or extremely low values. The range is required in designing charts and graphs.

The Standard Deviation is the most commonly used measure of dispersion. It tells how far the data is dispersed from the mean.

Using the example of the salaries of the AMSC Softball Team, the following is true:

Pitcher	$5 million	Shortstop	$950,000
1st Base	$2.5 million	Right Field	$650,000
2nd Base	$500,000	Center Field	$800,000
3rd Base	$1.2 million	Left Field	$1.4 million
Catcher	$900,000		

The average (mean salary) is $1,544,444.44.
The median is $950,000
There is no mode.

If you were interested in the salary that is most representative of all the salaries of the team members, you would probably use the median. The average salary of $1.5 million may lead you to believe that all players make a little above that or a little below that, which is not the case. One player makes significantly more than the other players do, and his/her salary pulls up the average. So, if there is one value that is much higher or much lower than all the others, you consider the type of data to determine which measure would be the most appropriate in giving the viewer a sense of what the situation looks like.