

Algebra 2

Univariate Data Analysis

Goals:

1. Find mean and median for a given data set.
2. Create a line plot for given data.
3. Create a stem and leaf plot for given data.
4. Create a back-to-back stem and leaf plot for two given data sets.
5. Find median, the upper quartile, lower quartile, and interquartile range of given data.
6. Determine whether a value of a given data set is an outlier.
7. Create a box and whisker plot for given data.
8. Compare two given sets of data using the tools above.

Materials Needed:

1. Several sheets of paper and pencil for making graphs and note taking
2. Straightedge
3. Calculator and link
4. Copy of handout for each student.

Activity One: Who is the best? Compare Sammy Sosa, Barry Bonds, and Mark McGwire using univariate data analysis.

In the table below are the year-by-year totals for each of the players. The data are in order by years, but each row of data is not necessarily the same year for all players. Each row for a given player is the record for the same year. These data are from the ESPN website.

Barry Bonds			Sammy Sosa			Mark McGwire		
Runs	Hits	Homeruns	Runs	Hits	Homeruns	Runs	Hits	Homeruns
72	92	16	27	47	4	10	10	3
99	144	25	72	124	15	97	161	49
97	152	24	39	64	10	87	143	32
96	144	19	41	68	8	74	113	33
104	156	33	92	156	33	87	123	39
95	149	25	59	128	25	62	97	22
109	147	34	89	151	36	87	125	42
129	181	46	84	136	40	16	28	9
89	122	37	90	161	36	26	34	9
109	149	33	134	198	66	75	87	39
122	159	42	114	180	63	104	132	52
123	155	40	106	193	50	86	148	58
120	167	37	146	189	64	130	152	70
91	93	34				118	145	65
129	147	49				60	72	32
129	156	73				48	56	29

It is best to have a program containing this data. Name lists by person and statistic. I can send you the list, but you must have the computer Graph Link and the Graph Link software. Otherwise, we will organize the class to input the data to share with each other so that you do not have input all these numbers in lists. Name the list using I NS to add new lists. Kids will need calculator-to-calculator links to share data.

Using box and whisker plots compare the three players to determine which you believe to be the best of all. Using the calculator, three plots can be shown at one time. This will allow you to use the boundaries of the boxes and whiskers to determine which player you would most like to have on your team. You must support your answer with graphs and facts about those graphs.

In groups the students determine who they would most like to have on their team. Sketch or print the three box and whisker plots and write below each sketch support for which is best in that particular area of baseball.

Student Handout
 Algebra 2
 Univariate Data Analysis

1. In the table below are the year-by-year totals for each of the players. The data are in order by years, but each row of data is not necessarily the same year for all players. Each row is the record for the same year for a given player. These data are from the ESPN website.

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Which player would you like most as a teammate? Support your answer with the tools of univariate data analysis.

Follow Up
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Mr. Brown's math class has 10 girls and 10 boys. Test grades for the most recent test are listed below.

boys	86	85	34	98	52	68	75	72	84	92
girls	81	80	80	88	80	86	78	74	71	75

Using the data analysis techniques for univariate data, compare the result of the two groups. Sketch the box and whisker plots with labeled quartiles. Show a back-to-back stem and leaf plot. Using these graphs, support your answer for which group is best.