Making sense of data   **Group Members:**_____

Making sense of information and data is a common feature of many careers. It is also important for a thorough understanding of social media, television, and radio, which often include information gathered from user lists, downloads, or surveys. As an example, consider the following report which tracks digital music users to determine which artists are getting the most online listening.

Last.fm uses scrobbling to make determine who is being listened to online. The results as of Jan 11, 2015 are listed below.

Top 20 artists with the most listeners on Last.fm were given up to 100 points based on how often they were being listened to.

Rank	Artist	Points		Rank	Artist	Points
1	Kanye West	90		11	alt-J	37
2	Radio Head	73		12	Fall Out Boy	34
3	Daft Punk	67		13	David Bowie	34
4	Beyonce'	59		14	Kendrick Lamar	28
5	Drake	51		15	Arcade Fire	27
6	Lana Del Rey	50		16	Arctic Monkeys	22
7	Modest Mouse	49		17	Taylor Swift	21
8	Nicki Minaj	46		18	Lorde	21
9	Coldplay	46		19	Calvin Harris	20
10	Hozier	45		20	Weezer	18

1. Students in one class at City High were asked to describe the distribution of points for the top 20 artists and groups.
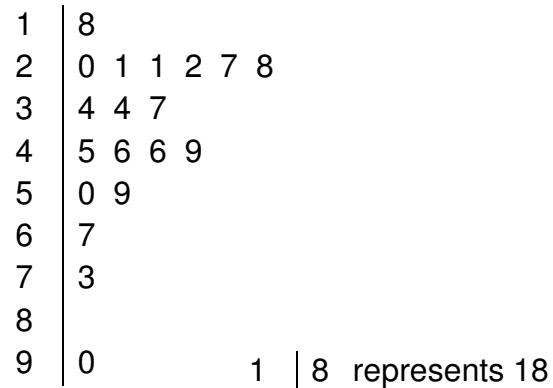
> ***Joshua's response***: "Kanye West was highest with 90 points and Weezer was 20th with 18 points. My favorite singer is Nicki Minaj at 8th place. I don't think this is an accurate assessment of how 'hot' she really is. She will be around longer than some of those rated above her."

> ***Sarah's response***: "With 90 points, Kanye West was much higher than the other artists or groups. Most of the artists points were between 73 and 18 points. Only six artists scored 50 or higher, so more than half scored below 50."

a) Whose response does your group think was the most complete and helpful? Why?

b) What would you do to improve the response that you chose best?

2. When asked to describe the distribution of points for the top 20 artists and groups, Paul and Maria first mad a **stem-and-leaf plot** like the one shown below.

Last.fm Top 20

```
1 | 8
2 | 0 1 1 2 7 8
3 | 4 4 7
4 | 5 6 6 9
5 | 0 9
6 | 7
7 | 3
8 |
9 | 0          1 | 8  represents 18
```

a) In your group, discuss the organization of this stem-and-leaf plot. Is the plot an accurate display of the data in the chart? If no, explain how to correct it.

Paul's description: "Based on the stem-and-leaf plot, most artists and groups were ranked pretty low. Only a few artists and groups had high ratings"

Maria's description: "You can see in the stem-and-leaf plot that there were a whole bunch in the 20s and this amount decreased a lot by the time you got up to the 60s. The 90 is all by itself."

b) What are the strengths and weaknesses of Paul's response?

c) What are the strengths and weaknesses of Maria's response?

3. For homework, students at City High were asked to explain why stem-and-leaf plots are helpful in understanding data such as the rankings and points from Last.fm.

> *Kara wrote this explanation:* "Stem-and-leaf plots help you understand the information because you can see quickly how the data are spread out or clumped together. You can see any gaps, where there are no data. By using the numbers instead of tally marks or Xs, you can still read the number of points that were assigned. Since these data sets are small, the stem-and-leaf displays were concise, easy to make, and easy to read."

Ms. Turner, the math teacher, decided Kara's explanation was excellent, so she gave her 4 points, the maximum points possible.

> *Here is Chaz's explanation:* "The stem-and-leaf plot has the stems on the left and the leaves on the right. For the numbers that have two digits, the tens digit is the stem and the ones digit is the leaf. For numbers that have three digits, the hundreds and tens digits together are the stem and the onse digit is still the leaf. The numbers are in order from smallest at the top to largest at the bottom."

As a group, use Kara's response as a guide to evaluate Chaz's explanation on at scale of 0 to 4, with 4 being the top score. Explain why you assigned the score you did.

Score_____ Explain:

Checkpoint

You have explored characteristics of good written responses.

A. What are the important features of a good response when you are asked to ***describe*** something?

B. What are the important features of a good response when you are asked to ***explain*** something?

C. What are the important features of a good response when you are asked to ***compare*** two or more things?