

Analyzing Data



1. List all the data points collected for the **unwashed hands treatment** from your Bacterial Growth Experiment in Science in order from least to greatest.
2. List all the data points from the **cold water for 5 seconds treatment** group in order from least to greatest.
3. List all the data points from the **warm water and soap for 20 seconds treatment** group in order from least to greatest.
4. List all the data points from the **hand sanitizer treatment** in order from least to greatest.
5. For each treatment, find the mean, median, mode, and range. Record your answers in the chart below:

Treatment	Mean	Median	Mode	Range
Unwashed hands				
Cold water for 5 sec				
Warm water & soap for 20 sec				
Sanitizer				

6. Is there a difference in the colony growth resulting from the two different treatments? For example, are the medians different? If so, explain why you think this difference exists.
7. In each treatment group, is there a difference in the median and the mean? Which number do you think better represents the data? Why?
8. Which treatment had the smallest range? Why do you think this is?

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Box and Whisker Plots are designed to COMPARE groups. Refer to the data recorded in items 1 – 4 and follow the steps listed below to create a box and whisker plots for each of the 4 groups.

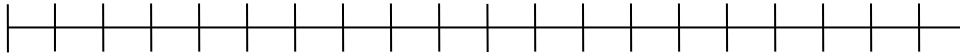
Step 1: Identify and plot the highest and lowest values

Step 3: Identify and plot the 1st and 3rd quartiles

Step 2: Identify and plot the median value

Step 4: Complete the picture by drawing the box

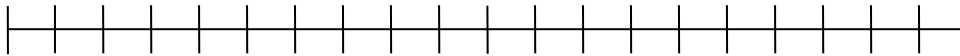
9. Use the data set from the **unwashed hands treatment** group



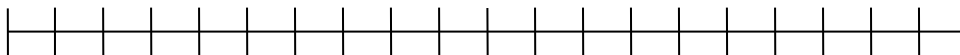
10. Use the data set from the **cold water for 5 seconds treatment** group



11. Use the data set from the **warm water and soap for 20 seconds treatment** group



12. Use the data set from **hand sanitizer treatment** group



Discussion Questions:

1. What are some of the differences between each set of data?
2. What do you notice about the values used in each set of data?
3. What do the graphs tell you about each treatment?