

# Statistics Project 2018

This is your unit assessment for our statistics unit. For this project, you will:

- conduct a survey
- collect data
- analyze that data based on your populations
- present your findings with the class.

This is a group project. There cannot be more than three people in a group. For this project, you will need to remember the following vocabulary words:

- sample
- population
- random
- representative
- Median
- Inter-Quartile Range (IQR)
- Variance

You will also need to remember how to create and interpret the following:

- Box Plots
- Dot Plots

Important dates you need to remember:

- A-Day Math
  - Work in class on the project: May 18
  - Present your project in class: May 22
- B-Day Math
  - Work in class on the project: May 21
  - Present your project in class: May 23

If you know you will be absent on the day we will be presenting this project, come talk with me. You will need to do the project on your own.

**Statistical Questions:** A question that can be answered by collecting data, knowing that there will be variability(differences) in the data.

**Numerical Data:** Data that is made up of numbers, not categories.  
(ex. How many pets do you have?)  
(non ex. Do you like Coke or Pepsi better?)

You and your group must first come up with a statistical question *that you are interested in*. Choose a question that you can ask people, that will give you numerical data.

**Our group's statistical question:**

In order to get data on this question, you must survey a population using the question you wrote above. In our class, you want to compare two populations. You could compare:

- boys and girls
- 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup> graders
- teens and adults
- etc.

**The populations that our group will survey are:**

You need to make sure that when you survey, you make the survey random so that it is representative of the entire population. Your group needs to come up with a method of surveying your population that will ensure your sample is random.

**Our survey method to ensure randomness is...**

Once you are finished with this page, take it up to Miss Feld so she can verify that your plan is statistically sound.

# Gather the Data

To make sure your results are statistically sound, you must collect **40 pieces of data FOR EACH POPULATION**. One piece of data is found by surveying one person. Use the tables below to help you collect your data.

Population #1: \_\_\_\_\_


Population #2: \_\_\_\_\_


Population #3: \_\_\_\_\_ (you only need to use this table if you are comparing three populations)


MISS FELD WILL ASK FOR THIS PAGE FROM EACH GROUP ON THE DAY OF YOUR PRESENTATION!

# Analyze Your Data

You now need to analyze the data that you collected to help you answer your statistical question. You must create a box plot for each population and then compare these box plots. You may also use any additional graphs or plots to help you analyze your data and answer your statistical question. You should be asking questions of the data like:

- Which population shows more variance? Did we expect that?
- Which population shows the highest amount? Did we expect that?
- Are there any outliers? What caused these outliers to happen?
- What can we conclude from our data about our statistical question?
- Can we say that all of Utah would also give these same results?
- Other questions that will help you to think about and analyze your data.

After you have analyzed your data and you are able to compare the populations, you must put together a presentation. You will present your results of your statistical question to the class. Miss Feld will give you butcher paper to use as well as any resources she has available in her room. If you would like to use other resources, they must come from you.

When you present to the class, anything that is on your butcher paper must be large enough and dark enough for the entire class to see. You must present

- Your statistical question
- Your populations
- Your method of surveying to keep your sample random
- Answers to the questions (some of which are listed above)

A rubric for your project has been provided on the following page.

# Statistics Project Rubric

This rubric shows how your project will be scored.

Learning Target	No Evidence of Learning (0)	Below Proficient (1)	Approaching Proficient (2)	Proficient (3)	Highly Proficient (4)
<b>I can create box plots</b>	I didn't create a box plot for one or more of my populations	I was able to create a box plot of all of my populations, but they were not created correctly	I was able to create a box plot of all of my populations, but had some mistakes	I was able to create a box plot of all of my populations	I was able to create a box plot of all of my populations as well as label each part of each box plot.
<b>I can interpret box plots and compare populations</b>	I didn't identify parts of my box plot, or, there was not box plot to interpret	I was only able to identify a few of the parts of a box plot	I was able to identify the IQR, the median, the LQ, the UQ, and the min and max, but I don't know how to compare my populations based on these findings.	I was able to identify the IQR, the median, the LQ, the UQ, and the min and max and answer my statistical question by comparing the populations	I was able to identify the IQR, the median, the LQ, the UQ, and the min and max and explain, in detail, explain how my populations compare based on these findings
<b>I can create a random and representative sample</b>	I didn't create a survey at all.	I created a survey, but it isn't random.	I was able to create a survey that was kind of random	I was able to create a survey that would guarantee a random sample	I was able to create a survey that would guarantee a random sample, and I explained how that sample would be random and representative
<b>I can clearly describe my findings</b>	No one presented our findings from our group	Some members of my group didn't participate in the presentation, but rather just stood up with our group. OR we were not clear about our findings and we didn't talk about the statistics in depth	All of my group participated in the presentation. Some members of the group talked more than others and we didn't share responsibility as effectively as we could have	All of my group participated in the presentation. We each described part of our findings and shared responsibility in our presentation	All of my group participated in the presentation. We each described part of our findings and shared responsibility in our presentation. Each of us showed that we understand how to compare populations using measures of center and variance
<b>I can show my findings in an organized way</b>	We did not create a poster	Our poster was difficult to see, didn't show many representations, OR hindered us in our presentation	Our poster had some things which were difficult for the whole class to see because some things were too light or not legible. But our poster wasn't cluttered	Our poster was clear, dark enough to see, and legible and wasn't cluttered.	Our poster was clear, dark enough to see, and legible and wasn't cluttered. It clearly showed our statistical question and our findings, and it helped us through the presentation

Total statistical score: \_\_\_\_/12

Average statistical score: \_\_\_\_/4

Total presentation score: \_\_\_\_/8

# Grading My Partner(s)

Name of partner \_\_\_\_\_

This partner surveyed people	Yes	No
This partner helped to create the box plots	Yes	No
This partner was willing to help present	Yes	No

I think this partner should get the following grade:

A                  B                  C                  D

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