Name: _____

AP Statistics Summer Project: 2018 – 2019

Welcome to AP Stats! This summer project was created to assist you with becoming comfortable with content that will be used throughout the entire course as well as reviewing prerequisite skills. I am looking forward to a wonderful year with you all!

This summer project consists of 3 key components:

1. Reading and Vocabulary: You will use an online tutoring site that will provide you information on variables and data displays. While reviewing the information on the site you will be creating a vocab list that could eventually become helpful for studying (flash cards!). Follow the steps below:

- Go to www.stattrek.com

- Click on "AP Statistics tutorial"

- On the left side of the screen is a list of general topics. When you move your cursor over them you will see subtopics. You will read the following subtopics to complete the vocabulary list.

General Topic 1: The Basics	
Subtopics:	Variables
	Mean & Median
General Topic 2: Charts and Graphs	
Subtopics:	Patterns in Data
	Dotplots
	Histograms
	Stemplots
	Boxplots
	Cumulative Frequency
	Comparing Distributions
General Topic 3: Categorical Data	
Subtopics:	One – Way Tables
General Topic 4: Survey Sampling	
Subtopics:	Survey Sampling Methods

2. Practice Problems: After reviewing the content above, you should be able to complete the questions in this project.

3. Algebra Review**:** Review of skills from previous (prerequisite) math courses.

This project will be due once we return to school in August. It is expected that you will complete the ENTIRE PROJECT, which will be graded for correctness (It will be your first study tool; do it right the first time!) Please email me if you have any questions regarding the assignment at fediaz@nlmusd.k12.ca.us .

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Part 1: Vocabulary List

Please define each term from the stattrek website. When asked provide a unique example of the word NOT given on the website. This MAY be typed but it needs to be in your own words. DO NOT COPY+PASTE!!!

1. Categorical Variables

Example:

2. Quantitative Variables

Example:

3. Univariate Data

4. Bivariate Data

5. Median

6. Mean

7. Population

Example:

8. Sample

Example:

9. Center

10. Spread

11. Symmetry

12. Unimodal and Bimodal

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13. Skewness

Sketch Skewed left:

Sketch Skewed right:

14. Uniform

15. Gaps

16. Outliers

17. Dotplots

18. Difference between bar chart and histogram

19. Stemplots

20. Boxplots

21. Quartiles

22. Range

23. Interquartile Range

24. Parallel boxplots

25. Parameter

26. Statistic

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Part 2: Practice Problems

CATEGORICAL OR QUANTITATIVE

Determine if the variables listed below are quantitative or categorical.

1. Time it takes to get to school

2. Number of people under 18 living in a household

3. Hair color

4. Temperature of a cup of coffee

5. Jellybean flavors

6. Gender

7. Smoking

8. Height

9. Amount of oil spilled

10. Country of origin

STATISTIC – WHAT IS THAT?

A statistic is a number calculated from data. Quantitative data has many different statistics that can be calculated. Determine the given statistics from the data below on the number of homeruns Mark McGuire has hit in each season from 1982 – 2001.

70	52	22	49	3	32	58	39
39	65	42	29	9	32	9	33

Mean	
Minimum	
Maximum	
Median	
Q1	
Q3	
Range	
IQR	

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SHOPPING SPREE!

A marketing consultant observed 50 consecutive shoppers at a supermarket. One variable of interest was how much each shopper spent in the store. Here are the data (round to the nearest dollar), arranged in increasing order:

3	9	9	11	13	14	15	16	17	17
18	18	19	20	20	20	21	22	23	24
25	25	26	26	28	28	28	28	32	35
36	39	39	41	43	44	45	45	47	49
50	53	55	59	61	70	83	86	86	93

Make a stemplot using tens of dollars as the stem and dollars as the leaves. Make sure you include appropriate labels, title and key.

Here is a formula that is used often in AP Statistics: $z = \frac{x-\bar{x}}{s}$

1. If z = 2.5, x = 98 and x = 100, what is s? Show your work.

2. If z = -3.35, x = 60, and s = 4, what is x ? Show your work.

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Part 3: Algebra & Probability Review

1. The USDA reported that in 1990 each person in the United States consumed an average of 133 pounds of natural sweeteners. They also claim this amount has decreased by about 0.6 pounds each year.

   a. Write a linear equation that relates years since 1990 to the average consumption of natural sweeteners. Define your variables.

   b. What is the slope and what is the y-intercept?

   c. Predict the average consumption of sweeteners per person for the year 205.

2. The following equation can be used to predict the average height of boys anywhere between birth and 15 years old: $y = 2.79x + 25.64$, where x is the age (in years) and y is the height (in inches).

   a. What does the slope represent in this problem? Interpret it in context.

   b. What does the y-intercept represent in this problem? Interpret it in context.

3. If a coin is tossed twice what is the probability that it will land either heads both times or tails both times?
   A. 1/8
   B. 1/6
   C. 1/4
   D. 1/2
   E. 1

4. Calculate the following probabilities and arrange them in order from least to greatest.

I. The probability that a fair die will produce an even number. _____

II. A random digit from 1 to 9 (inclusive) is chosen, with all digits being equally likely. The probability that when it's squared it will end with the digit 1. _____

III. The probability that a letter chosen from the alphabet will be a vowel. _____

IV. A random number between 1 and 20 (inclusive) is chosen. The probability that its square root will not be an integer. _____