



# THE KNOX SCHOOL

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## AP Statistics 2020 Summer Assignment

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**Directions:** You must show all work, even for multiple choice. Any graphing problem should be done without a graphing calculator.

**Due Date:** First day of school! You will be held accountable for this material upon your return to school.

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1. Compare and contrast the measures of central tendency (mean, median, mode and midrange). Give examples of when the mean would be a preferred measure, and when the median would be a preferred measure. Explain your answer.

<https://www.expji.com/t/word-problems-when-to-use-mean-median-and-mode-4645>

2. Find the mean, median, mode and midrange for the number of natural gas drilling sites in Pennsylvania counties with drilling operations listed below. Discuss the differences in these measures, and which best describes the center of the data. Explain your answer.

9	112	1	1	6	1008	109	6	14	58
20	136	85	3	58	185	6	415	2	43
26	2	2	2	473	53	76	19	41	462
693	1	2	560	4	191	98			

3. Use the website <https://stattrek.com/survey-research/sampling-methods.aspx> to research the following:

Explain what is meant by Probability Samples and Non-probability samples.

Determine how each of the sampling methods is executed and give an example for which each method would best be used:

I. Simple Random Sampling

II. Systematic Sampling

III. Stratified Sampling

IV. Cluster Sampling

V. Convenience Sampling

VI. Multi-stage Sampling

4. Use the website <https://stattrek.com/statistics/dictionary.aspx> to complete the following vocabulary definitions.

- I. Variable
- II. Continuous Variable
- III. Independent Variable Population
- IV. Sample
- V. Census
- VI. Parameter
- VII. Statistic
- VIII. Categorical Variable
- IX. Quantitative Variable
- X. Discrete
- XI. Dependent Variable
- XII. Experiment
- XIII. Experimental Design
- XIV. Factor
- XV. Blinding

XVI. Control Group

XVII. Double Blinding

XVIII. Treatment

XIX. Placebo

XX. Bias

XXI. Confounding