Mathematics

Unit/Timeframe: Probability and Statistics / 17 days	Grade Level: 9, 10, 11, 12
Content Standards	**2017 MA Literacy Framework**
AII.S-ID.4: Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate . Use calculators, spreadsheets, and tables to estimate areas under the normal curve. AII.S-IC.1: Understand statistics as a process for making inferences to be made about population parameters based on a fandom sample from that population. AII.S-IC.2: Decide if a specific model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls up with probability 0.5. Would a result of five tails in a row cause you to question the model? AII.S-IC.3: Recognize the purposes of and differences among sample surveys, experiments, and observational studies: explain how randomization relates to each. AII.S-IC.4: Use data from a sample survey to estimate a population mean or proportions: develop a margin of error through the use of simulation models for random sampling. AII.S-IC.5: Use data from a randomized experiment to compare two treatments: use simulations to decide if differences between parameters are significant. AII.S-IC.6: Evaluate reports based on data.	Speaking and LIstening Standard: Comprehension and Collaboration 2. Reason abstractly and quantitatively 3. Construct viable arguments and respond to the reasoning of others. Writing Standard: Text, type and purposes 1C. Use words, phrases and clauses with precision.

Essential Questions	Skills/Knowledge
What is the difference between permutation and a computation? What is the difference between experimental and experimental probability? How are measures of central tendency different from standard deviation?	Students will able to find permutation and computation for a data set using formulas. Students will be able to use simulation to model experimental probability. Student will able able to find the theoretical probability of events using a formula. Students will find and analyze the measures of central tendency of given data sets. Students will find the standard deviation of given data sets.

Common Resources	Common Assessments
Algebra II text and available resources	Unit Project/Test

Vocabulary
Tier II: mean median mode Tier III: binomial probability conditional probability continuous probability distribution dependent events discrete probability distribution equally likely outcomes independent event interquartile range mutually exclusive normal distribution outlier percentile probability distribution probability model random sample range of a set of data sample sample space standard deviation survey variance
Additional Notes