DE STATISTICS

Curriculum/Content Area: Mathematics	Course Length: 1 term
Course Title: DE Statistics	Date last reviewed: 2020
Prerequisites: Algebra 1, Geometry	Board approval date: 8/2020

Desired Results

Course description and purpose: Statistics is a course designed to provide a student with an introduction to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. The course is organized around the themes of one/two variable statistics, calculating probabilities, ways of ordering objects, normal and other probability distributions, and statistical inference. This course will build an understanding with real-world problems, and establish a firm foundation for future work in math and statistics courses. A graphing calculator with a statistics package is required.

Enduring Understandings:	**Essential Questions**:
Mathematicians make sense of problems and persevere in solving them.	a. How do we as mathematicians analyze the problem in order to choose the best strategy(ies) or resource to make sense of the problem? b. How do we as mathematicians persevere in solving problems?
Mathematicians attend to precision.	How do we as mathematicians know if we fully & accurately answered the problem and does the results make sense in the context of the problem?
Mathematicians reason abstractly and quantitatively.	How do we as mathematicians make sense of quantities and situations symbolically?
Mathematicians construct viable arguments and critique the reasoning of others.	a. How can we as mathematicians justify our answer(s)? b. How can we as mathematicians evaluate and question whether a mathematical argument is accurate?
Mathematicians model with mathematics.	a. What model(s) can we as mathematicians use to solve a problem? b. How can we as mathematicians determine an effective model to use to solve a problem?
Mathematicians use appropriate tools strategically.	What tools are available and efficient for us as mathematicians to use while solving a problem?
Mathematicians look for and make use of structure	How can we as mathematicians use and apply patterns and structures to solve problems?

Mathematicians look for and express regularity in repeated reasoning.	How can we as mathematicians create and apply generalizations from repeated reasoning?

Mathematical Practice Standards

The Standards for Mathematical Practice are central to the teaching and learning of mathematics. These practices describe the behaviors and habits of mind that are exhibited by students who are mathematically proficient. Mathematical understanding is the intersection of these practices and mathematics content. It is critical that the Standards for Mathematical Practice are embedded in daily mathematics instruction.

Mathematical Practice Standards		Grade Level/Course
Habits of Mind	MP.1 Make sense of problems and persevere in solving them	Understand the meaning of a problem and look for entry points to its conclusion. Analyze information (givens, constraints, relationships, goals. Make conjectures and plan a solution pathway. Monitor and evaluate the progress and change course as necessary Check answers to problems and ask, "Does this make sense?"
	MP.6 Attend to precision.	Communicate precisely using clear definitions. State the meaning of symbols, carefully specifying units of measure, and providing accurate labels. State the meaning of symbols, carefully specifying units of measure, and providing accurate labels. Calculate accurately and efficiently, expressing. numerical answers with a degree of precision. Provide carefully formulated explanations. Label accurately when measuring and graphing.
Reasoning & Explaining	MP.2 Reason abstractly and quantitatively.	Make sense of quantities and relationships in problem situations. Represent abstract situations symbolically and understand the meaning of quantities. Create a coherent representation of the problem at hand. Consider the units involved. Flexibility uses properties of operations.
	MP.3 Construct viable arguments and critique the reasoning of others.	Use definitions and previously established causes/effects (results) in constructing arguments. Make conjectures and use counterexamples to build a logical progression of statements to explore and support ideas. Communicate and defend mathematical reasoning using objects, drawings, diagrams, and/or actions.

		Listen to or read the arguments of others. Decide if the arguments of others make sense and ask probing questions to clarify or improve the arguments.
Modeling & Using Tools	MP.4 Model with mathematics.	Apply prior knowledge to solve real world problems. Identify important quantities and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts, and/or formulas.Use assumptions and approximations to make a problem simpler. Check to see if an answer makes sense within the context of a situation and change a model when necessary.
	MP.5 Use appropriate tools strategically.	Make sound decisions about the use of specific tools (examples might include: calculator, concrete models, digital, technologies, pencil/paper, ruler, compass, protractor) Use technology tools to visualize the results of assumptions, explore consequences, and compare predictions with data. Identify relevant external math resources (digital content on a website) and use them to pose or solve problems. Use technological tools to explore and deepen understanding of concepts.
Seeing Structure & Generalizing	MP.7 Look for and make use of structure.	Look for patterns or structure, recognizing that quantities can be represented in different ways. Recognize the significance in concepts and models and use the patterns or structure for solving related problems. View complicated quantities both as single objects or compositions of several objects and use operations to make sense of problems.
	MP.8 Look for and express regularity in repeated reasoning.	Notice repeated calculations and look for general methods and shortcuts. Continually evaluate the reasonableness of intermediate results (comparing estimates), while attending to details, and make generalizations based on findings.

Priority Standard Clusters

Cluster Number S-IDA Summarize, represent, and interpret data on a single count or measurement variable.

- **(S-IDA1):** Represent data with plots on the real number line (dot plots, histograms, and box plots).
- **(S-IDA2):** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
- **(S-IDA3):** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
- **(S-IDA4):** 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.

Cluster Number S-ICA Understand and evaluate random processes underlying statistical experiments.

- **(S-ICA1):** Understand statistics as a process for making inferences about population parameters baked on a random sample from that population.

Cluster Number S-ICB Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

- **(S-ICB3):** Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
- **(S-ICB4):** Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
- **(S-ICB6):** Evaluate reports based on data.

Cluster Number S-IDA Summarize, represent, and interpret data on a single count or measurement variable.

- **(S-IDA4):** 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.

Cluster Number S-IDB Summarize, represent, and interpret data on two categorical and quantitative variables.

- **(S-IDB5):** Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

Cluster Number S-MDA Calculate expected values and use them to solve problems.

- **(S-MDA2):** Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.
- **(S-MDA4):** Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

Cluster Number S-MDB Use probability to evaluate outcomes of decisions.

- **(S-MDB5):** Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. (A) Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant. (B) Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

Cluster Number S-CPA Understand independence and conditional probability and use them to

interpret data.

- **(S-CPA2):** Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
- **(S-CPA3):** Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.
- **(S-CPA4):** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two way table as a sample space to decide if events are independent and to approximate conditional probabilities.
- **(S-CPA5):** Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

Cluster Number S-CPB Use the rules of probability to compute probabilities of compound events in a uniform probability model

- **(S-CPB7):** Apply the Addition Rule, P(A or B) = P(A) + P(B) - P(A and B), and interpret the answer in terms of the model.
- **(S-CPB8):** Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.
- **(S-CPB9):** Use permutations and combinations to compute probabilities of compound events and solve problems.

Supporting Standard Clusters

Cluster Number S-MDA Calculate expected values and use them to solve problems.

- **(S-MDA1):** (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.
- **(S-MDA3):** (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

Cluster Number S-MDB Use probability to evaluate outcomes of decisions.

- **(S-MDB6):** (+) Use probabilities to make fair decisions (for example: drawing by lots using a random number generator).

Cluster Number S-MDB Use probability to evaluate outcomes of decisions.

- **(S-MDB7):** (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

Unit 1 - Statistics Vocabulary, Organizing Data, and Descriptive Statistics (Chapters 1 and 2)

Essential Questions:

1. How can you use measures of center, spread, and position to interpret a data set?
2. How could you represent and express that graphically and verbally?

3. Can you correctly identify and describe statistical attributes of a data set?
4. *What model(s) can we as mathematicians use to solve a problem?*
5. *How can we as mathematicians evaluate and question whether a mathematical argument is accurate?*

Unit Standards

Priority Standards

Cluster Number S-IDA Summarize, represent, and interpret data on a single count or measurement variable.

- **(S-IDA1):** Represent data with plots on the real number line (dot plots, histograms, and box plots).
- **(S-IDA2):** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
- **(S-IDA3):** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
- **(S-IDA4):** 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.

Cluster Number S-IDB Summarize, represent, and interpret data on two categorical and quantitative variables.

- **(S-IDB5):** Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

Cluster Number S-ICA Understand and evaluate random processes underlying statistical experiments.

- **(S-ICA1):** Understand statistics as a process for making inferences about population parameters baked on a random sample from that population.

Cluster Number S-ICB Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

- **(S-ICB3):** Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

Cluster Number S-MDA Calculate expected values and use them to solve problems.

- **(S-MDA4):** Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

Learning Targets

A. Identify common statistics vocabulary
   - I can name, define, and apply commonly used terms in statistics (sample, population, parameter, statistics, qualitative data, quantitative data).
   - I can distinguish between inferential and descriptive statistics.

B. Construct and Interpret Expanded Frequency distributions and their graphs
   - I can use a data set to construct an expanded frequency distribution.
   - I can construct and interpret a frequency histogram, relative frequency histogram, ogive, and frequency polygon.

C. Graphs and displays of qualitative and quantitative data
    - I can graph and interpret quantitative data sets using a stem-and-leaf plot and dot plot.
    - I can graph and interpret qualitative data sets using pie chart and pareto.
D. Measures of central tendency
    - I can calculate the mean, median, and mode of a population and sample.
    - I can determine which is the best measure of center.
    - I can determine an outlier of a data set, and explain its significance to the measures of central tendency.
    - I can calculate the weighted mean of a data set.
    - I can calculate the approximate mean of a frequency distribution.
    - I can determine the distribution of a data set.
E. Measures of variation/spread
    - I can calculate the range of a data set.
    - I can calculate the standard deviation of a population or a sample.
    - I understand the relationship between variance and standard deviation.
    - I understand the Empirical Rule and can use it to calculate percents of data within a given number of standard deviations.
F. Measures of position
    - I can find the quartiles of a data set and use this information to draw a box and whisker plot.
    - I can interpret the percentiles of a data set.

Assessment Evidence

Performance Assessment Options
May include, but are not limited to the following:

- Summative assessments- written or oral
- Feedback & Scoring Rubric based on Priority Standards
- Performance based assessment- project or problem-based

Other assessment options
May include, but are not limited to the following:

Formative Assessments
- Quick Writes
- KWL Chart - (What I Know, Want to know, Learned)
- Marking Text
- Learning Log Reflection - Daily/Weekly
- I-Chart - Gather/Organize Information on a topic
- Focused Note Taking
- CSG - Collaborative Study Groups
- Socratic Seminar
- Philosophical Chairs
- Think/Pair/Share

Digital Tools & Supplementary Resources

TI-84 calculator or higher

Unit 2 - Probability (Chapter 3)

Essential Questions:

1. How do you determine what type of probability needs to be used in a given situation? Can you identify key words that would signify what calculations need to be performed?
2. Can you correctly calculate probabilities in different situations, based off your work from the above question?
3. *How can we as mathematicians use and apply patterns and structures to solve problems?*

Unit Standards

Priority Standards

Cluster Number S-CPA Understand independence and conditional probability and use them to interpret data.

- **(S-CPA2):** Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
- **(S-CPA3):** Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.
- **(S-CPA4):** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two way table as a sample space to decide if events are independent and to approximate conditional probabilities.
- **(S-CPA5):** Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

Cluster Number S-CPB Use the rules of probability to compute probabilities of compound events in a uniform probability model

- **(S-CPB7):** Apply the Addition Rule, P(A or B) = P(A) + P(B) - P(A and B), and interpret the answer in terms of the model.
- **(S-CPB8):** Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.
- **(S-CPB9):** Use permutations and combinations to compute probabilities of compound events and solve problems.

Supporting Standards

Cluster Number S-MDA Calculate expected values and use them to solve problems.

- **(S-MDA3):** (+) Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.

Cluster Number S-MDB Use probability to evaluate outcomes of decisions.

- **(S-MDB6):** (+) Use probabilities to make fair decisions (for example: drawing by lots using a random number generator).

Learning Targets

A. Basic Concepts of Probability

- I can define basic probability vocabulary, including experiments, outcome, sample space, event, complement of the event, simple events, theoretical probability, experimental probability and subjective probability.
- I understand the Law of Large Numbers and the range of probabilities.
- I can calculate the probability and the complement of a given event.

B. Conditional Probability and the Multiplication Rule
- I understand the difference between independent and dependent events.
- I can properly notate probabilities.
- I can calculate probabilities of events happening in sequence.

C. Mutually Exclusive Events and the Addition Rule
- I can determine whether two events are mutually exclusive.
- I can use the addition rule to calculate probabilities.

D. Counting Principles
- I can use the Fundamental counting principle to calculate probabilities.
- I can identify if an arrangement is a permutation or combination and calculate the number of arrangements.
- I can calculate the number of distinguishable permutations.
- I can use permutations and combinations to find probabilities of events.

Assessment Evidence

Performance Assessment Options
May include, but are not limited to the following:

- Summative assessments- written or oral
- Feedback & Scoring Rubric based on Priority Standards
- Performance based assessment- project or problem-based

Other assessment options
May include, but are not limited to the following:

Formative Assessments
- Quick Writes
- KWL Chart - (What I Know, Want to know, Learned)
- Marking Text
- Learning Log Reflection - Daily/Weekly
- I-Chart - Gather/Organize Information on a topic
- Focused Note Taking
- CSG - Collaborative Study Groups
- Socratic Seminar
- Philosophical Chairs
- Think/Pair/Share

Digital Tools & Supplementary Resources

TI-84 calculator or higher

Unit 3: Discrete Probability Distributions (Chapter 4)

Essential Questions:
1. How would you determine which probability distribution best fits a scenario?

2.What information do you need for each distribution to correctly find probabilities?

3. *How can we as mathematicians determine an effective model to use to solve a problem?*

Unit Standards

Priority Standards

Cluster Number S-MDA Calculate expected values and use them to solve problems.

- **(S-MDA2):** Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.
- **(S-MDA4):** Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

Cluster Number S-MDB Use probability to evaluate outcomes of decisions.

- **(S-MDB5):** Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. (A) Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant. (B) Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

Supporting Standards

Cluster Number S-MDA Calculate expected values and use them to solve problems.

- **(S-MDA1):** (+) Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

Cluster Number S-MDB Use probability to evaluate outcomes of decisions.

- **(S-MDB6):** (+) Use probabilities to make fair decisions (for example: drawing by lots using a random number generator).

Learning Targets

A. Probability Distributions
   - I can determine if a random variable is continuous or discrete.
   - I can construct, graph and verify a probability distribution given a data set.
   - I can find the mean (expected value) of a discrete random variable.

B. Binomial Distributions
   - I can determine if a distribution is binomial.
   - I can calculate binomial probabilities using technology.
   - I can calculate the mean and standard deviation of a binomial distribution.

C. Geometric and Poisson Distributions
   - I can calculate probabilities using the geometric and Poisson distributions.
   - I can identify when to use binomial, geometric or Poisson distributions.

Assessment Evidence

Performance Assessment Options	**Other assessment options**

May include, but are not limited to the following:	*May include, but are not limited to the following:*
• Summative assessments- written or oral • Feedback & Scoring Rubric based on Priority Standards • Performance based assessment- project or problem-based	Formative Assessments • Quick Writes • KWL Chart - (What I Know, Want to know, Learned) • Marking Text • Learning Log Reflection - Daily/Weekly • I-Chart - Gather/Organize Information on a topic • Focused Note Taking • CSG - Collaborative Study Groups • Socratic Seminar • Philosophical Chairs • Think/Pair/Share
Digital Tools & Supplementary Resources	
TI-84 calculator or higher	

Unit 4: Normal Probability (Chapter 5)

Essential Questions:

1. Can you identify and interpret the characteristics of a normal curve and the standard normal curve (including z-score)?
2. Can you accurately calculate probabilities of normally distributed situations, world problem or otherwise, using properties given from the normal curve/standard normal curve?
3. Can you use the properties of the Central Limit Theorem to infer information about a population given sample statistics?
4. *What model(s) can we as mathematicians use to solve a problem?*

Unit Standards

<u>Priority Standards</u>

Cluster Number S-IDA Summarize, represent, and interpret data on a single count or measurement variable.

- **(S-IDA4):** 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.

Learning Targets

A. Normal Distributions and the Standard Normal Curve
   - I can interpret graphs of normal probability functions.

- I can standardize data, given the mean and standard deviation (z-score).
- I can compare the z-scores of a data set and evaluate their significance from the mean.
- I can find the area under the standard normal curve.
- I can use probability to estimate the number of subjects, out of the total, that satisfy certain conditions.

B. Finding Values using Normal Distributions
- I can calculate the data piece given a z-score, mean and standard deviation.
- I can calculate a specific data value for a given probability.

C. Sampling Distributions and the Central Limit Theorem
- I can find the probability of a given interval under the normal curve, with and without a sample population.

Assessment Evidence

Performance Assessment Options *May include, but are not limited to the following:*	**Other assessment options** *May include, but are not limited to the following:*
● Summative assessments- written or oral ● Feedback & Scoring Rubric based on Priority Standards ● Performance based assessment- project or problem-based	Formative Assessments ● Quick Writes ● KWL Chart - (What I Know, Want to know, Learned) ● Marking Text ● Learning Log Reflection - Daily/Weekly ● I-Chart - Gather/Organize Information on a topic ● Focused Note Taking ● CSG - Collaborative Study Groups ● Socratic Seminar ● Philosophical Chairs ● Think/Pair/Share

Digital Tools & Supplementary Resources

TI-84 calculator or higher

Unit 5: Inferential Statistics (Chapter 6)- OPTIONAL

Essential Questions:

1. Are you able to construct a confidence interval to make inferences about a population?
2. Can you interpret the meaning of a confidence interval within the context of a problem (either for means and/or proportions of certain scenarios)?
3. *How can we as mathematicians evaluate and question whether a mathematical argument is accurate?*
4. *How do we as mathematicians know if we fully & accurately answered the problem and does the*

results make sense in the context of the problem?

Unit Standards

Priority Standards

Cluster Number S-ICA Understand and evaluate random processes underlying statistical experiments.

- **(S-ICA1):** Understand statistics as a process for making inferences about population parameters baked on a random sample from that population.

Cluster Number S-ICB Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

- **(S-ICB4):** Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
- **(S-ICB6):** Evaluate reports based on data.

Supporting Standards

Cluster Number S-MDB Use probability to evaluate outcomes of decisions.

- **(S-MDB7):** (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

Learning Targets

A. Confidence Intervals for the Mean and Population Proportion (6.1 and 6.3)
   - I can check to see if normal conditions are met.
   - I can construct and interpret a confidence interval to capture the true mean or population proportion.

B. Minimum Sample Size (6.1 and 6.3)
   - I can determine the minimum sample size necessary to construct a specified confidence interval with a given amount of error.

Assessment Evidence

Performance Assessment Options
May include, but are not limited to the following:

- Summative assessments- written or oral
- Feedback & Scoring Rubric based on Priority Standards
- Performance based assessment- project or problem-based

Other assessment options
May include, but are not limited to the following:

Formative Assessments

- Quick Writes
- KWL Chart - (What I Know, Want to know, Learned)
- Marking Text
- Learning Log Reflection - Daily/Weekly
- I-Chart - Gather/Organize Information on a topic
- Focused Note Taking
- CSG - Collaborative Study Groups
- Socratic Seminar
- Philosophical Chairs
- Think/Pair/Share

Digital Tools & Supplementary Resources
TI-84 calculator or higher