



Content Topic and/or Skill	QCC Topic/ Concept	GHS GT References	When the Content has been Taught The Student should be able to:	Supplemental References Or Resources	Time
<b>2.1 Density Curves and the Normal Distribution</b>			<ol style="list-style-type: none"> <li>Describe the properties of a density curve</li> <li>Locate the mean and median of a density curve</li> <li>Understand the basic concept of simulation</li> <li>Understand the concept of normal distribution</li> <li>Apply the Empirical Rule to normal distributions</li> <li>Understand and locate percentiles on a normal distribution</li> <li>Understand and locate percentiles on a normal distribution</li> </ol>	DTD Video # 7	4 Days
<b>2.2 Standard Normal Calculations</b>			<ol style="list-style-type: none"> <li>Standardize observations using z-scores</li> <li>Use a table to find areas under standard normal curves</li> <li>Find normal proportions</li> <li>Construct a frequency histogram and/or a normal probability plot to assess normality</li> </ol>	DTD Video #8	4 Days
<b>Chapter 3 III. Examining Relationships 3.1 Scatter Plots</b>			<ol style="list-style-type: none"> <li>Distinguish between response variables and explanatory variables</li> <li>Display the relation between two quantitative variables using a scatter plot</li> <li>Interpret scatter plots by analyzing patterns, including clusters, gaps, and outliers</li> </ol>	DTD Video # 11	11 Days Total 3 Days
<b>3.2 Correlation</b>			<ol style="list-style-type: none"> <li>Understand the concept of correlation</li> <li>Calculate and interpret the correlation coefficient</li> <li>Apply the properties of correlation</li> </ol>	DTD Video # 13 MiniTab; TI-83	3 Days

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<b>3.3 Least-Squares Regression</b>			<ol style="list-style-type: none"> <li>1. Understand the purpose of a least squares regression line</li> <li>2. Find the equation of a least squares regression line</li> <li>3. Interpret the slope and y-intercept of the least squares regression line</li> <li>4. Plot the least squares regression line on a scatter plot</li> <li>5. Understand and calculate the coefficient of determination</li> <li>6. Understand and calculate residuals</li> <li>7. Draw a residual plot to determine how well the regression line fits the data</li> <li>8. Identify and understand the difference between outliers and influential points</li> </ol>	DTD Video # 12  MiniTab; TI-83  MiniTab; TI-83 MiniTab; TI-83  DTD Video #9 MiniTab; TI-83	5 Days
<b>Chapter 4 IV. More on Two-Variable Data</b>					12 Days Total
<b>4.1 Modeling Non-Linear Relationships</b>			<ol style="list-style-type: none"> <li>1. Distinguish between exponential, logarithmic, and power functions</li> <li>2. Perform logarithmic and power transformations to achieve linearity</li> </ol>	DTD Video # 10	5 Days
<b>4.2 Interpreting Correlation and Regression</b>			<ol style="list-style-type: none"> <li>1. Understand the concept of extrapolation</li> <li>2. Understand the concept of lurking variables</li> <li>3. Understand the concept that association does not imply causation</li> </ol>		2 Days
<b>4.3 Relations in Categorical Data</b>			<ol style="list-style-type: none"> <li>1. Create two-way tables of categorical data</li> <li>2. Understand the concept of marginal distribution</li> <li>3. Describe the relationship among categorical variables</li> <li>4. Draw bar charts to represent information in a two-way table</li> <li>5. Understand the concept of Simpson's Paradox</li> </ol>		5 Days

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<b>Chapter 5</b> <b>V. Producing Data Samples and Experiments</b>					14 Days Total
<b>5.1 Designing Samples</b>			<ol style="list-style-type: none"> <li>1. Distinguish between a population and a sample</li> <li>2. Distinguish between the different types of sampling designs</li> <li>3. Identify the different sources of bias in surveys</li> <li>4. Use a table of random digits to choose a simple random sample</li> </ol>	DTD Video #14 DTD Video #18  DTD Video #17 MiniTab; TI-83	5 Days
<b>5.2 Designing Experiments</b>			<ol style="list-style-type: none"> <li>1. Distinguish between observational studies and experiments</li> <li>2. Know the basic vocabulary associated with experiments</li> <li>3. Know the proper procedures for carrying out an experiment</li> <li>4. Identify the different sources of bias for experiments</li> <li>5. Understand and apply the three principles of experimental design</li> <li>6. Understand the concepts of a completely randomized design, block design, and a matched pairs design</li> </ol>	DTD Video #15     DTD video #16	5 Days
<b>5.3 Simulating Experiments</b>			<ol style="list-style-type: none"> <li>1. Understand and apply the concept of simulation</li> </ol>	MiniTab; TI-83	4 Days
<b>Probability: Foundations of Inference</b> <b>Chapter 6</b> <b>VI. Probability: The Study of Randomness</b>					10 Days Total
<b>6.1 Randomness</b>			<ol style="list-style-type: none"> <li>1. Understand the idea and language of probability</li> </ol>		1 Day

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6.2 Probability Models			<ol style="list-style-type: none"> <li>Construct a tree diagram to show all possible outcomes of a sample space</li> <li>Apply the multiplication principle to determine the number of outcomes in a sample space</li> <li>Understand and apply the probability rules</li> <li>Construct Venn Diagrams to understand the meanings of completeness and disjoint events</li> <li>Understand and apply the multiplication rule for independent events</li> </ol>		4 Days
6.3 More About Probability			<ol style="list-style-type: none"> <li>Understand and apply the definition of conditional probability</li> </ol>		5 Days
Chapter 7 VII. Random Variables					8 Days Total
7.1 Discrete and Continuous Random Variables			<ol style="list-style-type: none"> <li>Distinguish between discrete and continuous random variables</li> <li>Understand normal distributions as probability distributions</li> </ol>		3 Days
7.2 Means and Variances of Random Variables			<ol style="list-style-type: none"> <li>Calculate the mean of a discrete random variable</li> <li>Know and apply the Law of Large Numbers</li> <li>Know and apply the Rules for Means</li> <li>Know and apply the Rules for Variances</li> </ol>	MiniTab; TI-83	5 Days
Chapter 8 VIII. The Binomial and Geometric Distributions					13 Days Total
8.1 The Binomial Distribution			<ol style="list-style-type: none"> <li>Understand a binomial distribution and its properties</li> <li>Calculate binomial probabilities</li> <li>Calculate and understand the binomial coefficient</li> <li>Simulate binomial experiments</li> <li>Calculate the mean and standard deviation of a binomial random variable</li> </ol>	MiniTab; TI-83 MiniTab; TI-83 MiniTab; TI-83 MiniTab; TI-83	7 Days

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<b>8.2 The Geometric Distribution</b>			<ol style="list-style-type: none"> <li>1. Distinguish between a binomial distribution and a geometric distribution</li> <li>2. Understand a geometric distribution and its properties</li> <li>3. Know and apply the rule for calculating geometric probabilities</li> <li>4. Calculate the mean, or expected value, of a geometric random variable</li> </ol>	MiniTab; TI-83  MiniTab; TI-83	6 Days
<b>End of 1<sup>st</sup> Semester</b>					
<b>Chapter 9 IX. Sampling Distributions</b>					11 Days Total
<b>9.1 Sampling Distributions</b>			<ol style="list-style-type: none"> <li>1. Know the vocabulary associated with sampling distributions</li> <li>2. Describe sampling distributions</li> <li>3. Understand the concept of an unbiased statistic</li> <li>4. Understand the variability of a statistic</li> </ol>	DTD Video #19	4 Days
<b>9.2 Sample Proportions</b>			<ol style="list-style-type: none"> <li>1. Understand the sampling distribution of a sample proportion</li> <li>2. Know and apply the two “Rules of Thumb” to sampling distribution of sample proportions</li> </ol>		2 Days
<b>9.3 Sample Means</b>			<ol style="list-style-type: none"> <li>1. Calculate the mean and standard deviation of the sampling distribution of the sample mean</li> <li>2. Understand and apply the Central Limit Theorem</li> </ol>		5 Days
<b>Inference: Calculations With Confidence Chapter 10 X. Introduction to Inference</b>					23 Days Total

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<b>10.1 Estimating With Confidence</b>			<ol style="list-style-type: none"> <li>1. Calculate and interpret confidence intervals</li> <li>2. Know and apply the assumptions of confidence intervals to justify the accuracy of the results</li> <li>3. Understand how the margin of error of a confidence interval changes with the sample size and the level of confidence</li> <li>4. Find the sample size required to obtain a confidence interval of a specified margin of error</li> </ol>	DTD Video # 20	8 Days
<b>10.2 Tests of Significance</b>			<ol style="list-style-type: none"> <li>1. State the null and alternative hypothesis in a testing situation when the parameter in question is a population mean</li> <li>2. Explain the meaning of the p-value for a test of significance</li> <li>3. Calculate the z-statistic and the p-value for both one-sided and two-sided tests about the mean of a normal population</li> <li>4. Assess statistical significance</li> </ol>	DTD Video # 21  MiniTab; TI-83	7 Days
<b>10.3 Using Significance Tests</b>			<ol style="list-style-type: none"> <li>1. Distinguish between statistical significance and practical significance</li> <li>2. Understand when statistical inference is valid</li> </ol>		2 Days
<b>10.4 Inference As Decision</b>			<ol style="list-style-type: none"> <li>1. Understand the concepts of Type I and Type II errors</li> <li>2. Find the probability of a Type I error. (Finding the probability of a Type II error is not currently on the AP syllabus)</li> <li>3. Understand the concept of "Power of the Test"</li> </ol>		6 Days
<b>Chapter 11 XI. Inferences for Distributions</b>					14 Days Total

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<b>11.1 Inference for the Mean of a Population</b>			<ol style="list-style-type: none"> <li>1. Know the assumption for inference about a mean</li> <li>2. Calculate the standard error of a statistic</li> <li>3. Distinguish between the z-distribution and the t-distribution</li> <li>4. Calculate the one-sample t-statistic</li> <li>5. Find the degree of freedom for a t-distribution</li> <li>6. Find and determine t-confidence intervals</li> <li>7. Perform significance test on t-distribution</li> <li>8. Interpret computer outputs of significance testing</li> <li>9. Calculate confidence intervals and perform tests of significance on matched pairs t-procedures</li> <li>10. Understand the concept of robustness</li> <li>11. Know the assumptions for using the t-procedures</li> </ol>	MiniTab; TI-83  MiniTab; TI-83  MiniTab; TI-83 MiniTab; TI-83 MiniTab; TI-83	7 Days
<b>11.2 Comparing Two Means</b>			<ol style="list-style-type: none"> <li>1. Know the assumptions for comparing two means</li> <li>2. Understand the sampling distribution of the difference between two sample means</li> <li>3. Calculate the two-sample t-statistic</li> <li>4. Understand and apply the two options for calculating the t-critical value</li> <li>5. Use the two-sample t-procedure for calculating confidence intervals and perform tests of significance</li> </ol>	MiniTab; TI-83 MiniTab; TI-83  MiniTab; TI-83	7 Days
<b>Chapter 12 XII. Inference for Proportions</b>					12 Days Total
<b>12.1 Inference for a Population Proportion</b>			<ol style="list-style-type: none"> <li>1. Know and understand the assumptions for inference about a proportion</li> <li>2. Calculate the standard error of the sample proportion</li> <li>3. Use z-procedures to calculate and interpret confidence intervals and perform tests of significance for a population proportion</li> <li>4. Find the minimum sample required for a desired margin of error.</li> </ol>	MiniTab; TI-83 MiniTab; TI-83	6 Days

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12.2 Comparing Two Proportions			<ol style="list-style-type: none"> <li>Understand the sampling distributions of the difference of two sample proportions</li> <li>Calculate and interpret confidence intervals and perform tests of significance for comparing two proportions</li> </ol>	MiniTab; TI-83	6 Days
<b>Chapter 13</b> <b>XIII. Inference for Tables: Chi-Square Procedures</b>					4 Days Total
13.1 Tests for Goodness of Fit			<ol style="list-style-type: none"> <li>Understand the appropriate uses of the chi-square test for goodness of fit</li> <li>Calculate the chi-square statistic</li> <li>Calculate the degrees of freedom of a two-way table</li> <li>Understand the properties of the chi-square distribution</li> <li>Understand the assumptions for a chi-square test</li> <li>Understand the follow-up analysis of a chi-square test</li> </ol>	MiniTab; TI-83	2 Days
13.2 Inferences for Two-Way Tables			<ol style="list-style-type: none"> <li>Calculate expected counts in any cell of a two-way table</li> <li>Perform a chi-square test of independence</li> </ol>	MiniTab; TI-83 MiniTab; TI-83	2 Days
<b>Chapter 14</b> <b>XIV. Inference for Regression</b>					3 Days
14.1 Inference About the Model			<ol style="list-style-type: none"> <li>Understand the assumption for regression inference</li> <li>Calculate the standard error about the least-squares regression line</li> <li>Calculate the degrees of freedom of the standard error</li> <li>Find and interpret confidence intervals for the slope of the true regression line</li> <li>Perform significance test for regression slope.</li> </ol>	MiniTab; TI-83 MiniTab; TI-83 MiniTab; TI-83	3 Days

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<b>Review for the AP Exam</b> Chapter 15 XV. Analysis of Variance (Post-Exam Topic)  15.1 Inference for Population Spread 15.2 One-Way Analysis of Variance					<b>20 Days</b> 8 Days Total  2 Days  6 Days