

Title Honors Statistics

Unit:		Introduction to Statistics					
Big Ideas:		Talk the talk					
Unit Essential Questions:		What are the branches of statistics? What are data? How are samples selected?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Descriptive and Inferential Statistics - 2 day	CC.2.4.HS.B.1	Statistics Variable Random variable Data Data set Data value Datum Population Sample Descriptive Statistics Inferential Statistics	What is statistics? What is/are data?	Demonstrate knowledge of statistics terms Differentiate between two branches of statistics		Textbook - Section 1.1	Applying the Concepts Ticket-out Homework
Types of Variables and Data - 3 days	CC.2.4.HS.B.1	Qualitative variable Quantitative variable Discrete Continuous Nominal Level of Measurement Ordinal Level of Measurement Interval Level of Measurement Ratio Level of Measurement	What are the different types of data?	Identify types of data Identify the measurement level for each variable		Textbook - Section 1.2	Ticket-out Homework Quiz
Data Collection and Sampling Techniques - 4 days		Random Sample Simple Random Sample Stratified Random Sample Systematic Random Sample Cluster Random Sample	Why is it important to collect data randomly? How can data be collected randomly?	Identify and utilize the four basic sampling techniques.	Beyonce Activity	Textbook - Section 1.3	Ticket-out Homework

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Experimental Design - 3 days		Observational Study Experiment	What is the main difference between an observational study and an experiment? When is it appropriate to use an observational study vs an experiment and vice versa?	Identify observational studies versus experiments. Recognize the components of a well-designed statistical study. Recognize misuses of statistics.		Textbook - Section 1.4	Ticket-out Homework Project
Review and Exam - 2 days	All of above	All of above		All of above		Textbook Chapter 1 Test	Assessment

Unit total = 14 days

Cumulative total = 14 days

Title Honors Statistics

Unit:		Frequency Distributions and Graphs					
Big Ideas:		Organize and display categorical and quantitative data					
Unit Essential Questions:		How can data be organized and displayed in order to appropriately depict all that it represents?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Tables - 3 days	CC.2.4.HS.B.1	Frequency Class limit Class boundaries Class width	How can data be organized in a frequency distribution?	Organize data using frequency distributions		Textbook - Section 2.1	Ticket-out Homework Project
Displaying Quantitative Data - 4 days	CC.2.4.HS.B.1	Histogram Frequency Polygon Ogive Relative Frequency	What are different methods by which data can be displayed?	Represent data from frequency distributions graphically using histograms, frequency polygons, and ogives	Graphs on TI84 Calculators	Textbook - Section 2.2	Ticket-out Homework
Describing Distributions - 2 day	CC.2.4.HS.B.1	Skewed Symmetric Unimodal Bimodal Multimodal Uniform	What does the shape tell us about the distribution of data?	Describe the distribution of data by its shape.		Textbook - Section 2.2	Ticket-out Homework Project Quiz
Other Graphs - 3 days	CC.2.4.HS.B.1	Bar chart Pareto chart Time series graph Pie graph Dotplot Stem-and-leaf plot	What displays can be made from categorical data?	Represent data in bar charts, pareto charts, time series graphs, pie graphs, and stem-and-leaf plots.		Textbook - Section 2.3	Ticket-out Homework
Misleading Graphs - 1 day	CC.2.4.HS.B.1		What makes a graph a "bad graph?"	Identify some common graph mistakes		Textbook - Section 2.3	Ticket-out Homework
Review and Assessment - 2 days	All of above			All of above		Textbook Chapter 2 Test	Assessment

Unit total = 14 days

Cumulative total = 28 days

Title **Honors Statistics**

<p>Measuring Center - 4 days</p>	<p>CC.2.4.HS.B.1</p>	<p>Statistic Parameter Mean Median Data array Mode Modal class Midrange Weighted mean</p>	<p>What single value is best to be used as a measure of center?</p>	<p>Summarize data using measures of central tendency, such as mean and median Summarize data further, using other measures of central tendency, such as mode, midrange, and weighted mean</p>	<p>Calculations on TI84 Calculators</p>	<p>Textbook - Section 3.1</p>	<p>Ticket-out Homework Project Quiz</p>
<p>Measuring Variability - 3 days</p>	<p>CC.2.4.HS.B.1</p>	<p>Range Variance Standard deviation Range Rule of Thumb Chebyshev's Theorem</p>	<p>What values can be used to measure the spread, or variability, of a data set?</p>	<p>Describe data using measure of variation, such as the range, variance, and standard deviation</p>	<p>Calculations on TI84 Calculators</p>	<p>Textbook - Section 3.2</p>	<p>Ticket-out Homework Project</p>
<p>Summarizing Quantitative Data - 2 days</p>	<p>CC.2.4.HS.B.1</p>	<p>Quartiles Interquartile range Boxplot</p>	<p>What makes an extreme value an outlier?</p>	<p>Use the $1.5 \times$ IQR rule to identify outliers. Make and interpret boxplots of quantitative data. Compare distributions of quantitative data with boxplots.</p>		<p>Textbook - Section 3.3 & 3.4</p>	<p>Ticket-out Homework</p>
<p>Review and Assessment - 2 Days</p>	<p>CC.2.4.HS.B.1</p>			<p>All of above</p>		<p>Textbook Chapter 3 Test</p>	<p>Assessment</p>

Unit total = 11 days

Cumulative total = 39 days

Title Honors Statistics

Unit:		Modeling One-Variable Data					
Big Ideas:		Describe the effects of transformation. Model data through density curves.					
Unit Essential Questions:		How can data be displayed and summarized in order to appropriately depict all that it represents?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Describing Location in a Distribution - with previous	CC.2.4.HS.B.1	Percentiles z-score	What values can be used to describe location?	Find and interpret a percentile in a distribution of quantitative data. Find and interpret a standardized score (z-score) in a distribution of quantitative data. Use percentiles or standardized scores (z-scores) to compare the location of values in different distributions.		Textbook - Section 3.3	Ticket-out Homework
Transforming Data - 2 days	CC.2.4.HS.B.1		What happens to the shape, center, and variability of data when it is transformed?	Describe the effect of adding or subtracting a constant on a distribution of quantitative data. Describe the effect of multiplying or dividing by a constant on a distribution of quantitative data. Analyze the effect of adding or subtracting a constant and multiplying or dividing by a constant on measures of center, location, and variability.		Supplemental materials	Ticket-out Homework
Density Curves and the Normal Distribution - 1 day	CC.2.4.HS.B.1	Normal distribution	What types of density curves can be used for data sets?	Use a density curve to model a distribution of quantitative data. Identify the relative locations of the mean and median of a distribution from a density curve. Draw a normal curve to model a distribution of quantitative data.		Textbook - Section 6.1	Ticket-out Homework
The Empirical Rule and Accessing Normality - 2 days	CC.2.4.HS.B.1	The Empirical Rule	What does the empirical rule tell us about a data set?	Use the empirical rule to estimate the proportion of values in a specified interval in a normal distribution. Use the empirical rule to estimate the value that corresponds to a given percentile in a normal distribution. Use graphical and numerical evidence to determine if a distribution of quantitative data is approximately normal.		Textbook - Section 6.1	Ticket-out Homework Project Quiz
Normal Distributions: Find Areas from Values - 2 days	CC.2.4.HS.B.1		How can the normal distribution be used to calculate proportions above and below values?	Find the proportion of values to the left of a boundary in a normal distribution. Find the proportion of values to the right of a boundary in a normal distribution. Find the proportion of values between two boundaries in a normal distribution.		Textbook - Section 6.1	Ticket-out Homework

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Normal Distributions: Finding Values from Area - 2 days	CC.2.4.HS.B.1		How can the normal distribution be used to determine values with given areas?	Find the value that corresponds to a given percentile in a normal distribution. Find the mean or standard deviation of a normal distribution given the value of a percentile.		Textbook - Section 6.1 and 6.2	Ticket-out Homework
Review and Assessment - 2 Days	CC.2.4.HS.B.1			All of above		Textbook Chapter 6 Test	Assessment

Unit total = 11 days

Cumulative Total = 44 days

Title Honors Statistics

Unit:		Analyzing Two-Variable Data					
Big Ideas:		Analyze two-variable data, both categorical and quantitative.					
Unit Essential Questions:		How can data be displayed and summarized in order to appropriately depict all that it represents?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Relationships between Two Categorical Variables - 2 days	CC.2.4.HS.B.2	Explanatory variable Response variable	How can the relationship between two categorical variables be shown and described?	Distinguish between explanatory and response variables. Make a segmented bar chart to display the relationship between two categorical variables. Determine if there is an association between two categorical variables and describe the association if it exists.		Supplemental materials	Ticket-out Homework
Relationships between Two Quantitative Variables - 2 days	CC.2.4.HS.B.2	Scatterplot Association	How can the relationship between two quantitative variables be shown in a scatterplot?	Make a scatterplot to display the relationship between two quantitative variables. Describe the direction, form, and strength of a relationship displayed in a scatterplot, and identify outliers.	Plots on TI84 Calculators	Textbook - Section 10.1	Ticket-out Homework
Correlation - 3 days	CC.2.4.HS.B.2	Correlation coefficient	What does the value correlation coefficient tell us about the relationship between two variables?	Estimate the correlation between two quantitative variables from a scatterplot. Interpret the correlation. Distinguish correlation from causation. Calculate the correlation between two quantitative variables. Apply the properties of the correlation. Describe how outliers influence the correlation.		Textbook - Section 10.1	Ticket-out Homework
Least-Squares Regression Line - 3 days	CC.2.4.HS.B.3		How can a least-squares regression line be used to represent a relationship between two variables?	Make predictions using regression lines, keeping in mind the dangers of extrapolation. Calculate and interpret a residual. Interpret the slope and y intercept of a regression line. Calculate the equation of the least-squares regression line using technology. Describe how outliers affect the least-squares regression line. Explain the concept of regression to the mean.		Textbook - Section 10.2	Ticket-out Homework

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Assessing a Regression Model - 2 days	CC.2.4.HS.B.3		How can we determine the validity of a regression model?	Use a residual plot to determine whether a regression model is appropriate. Interpret the standard deviation of the residuals. Interpret r^2 .		Textbook - Section 10.3	Ticket-out Homework
Review and assessment - 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.3			All of above		Textbook Chapter 10 Test	Assessment

Unit total = 14 days

Cumulative total = 58 days

Title Honors Statistics

Unit:		Collecting Data					
Big Ideas:		Identify the key components to statistics studies.					
Unit Essential Questions:		How do we appropriately collect data? Why might the data we collected not be valid for drawing conclusions about an entire population?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Introduction to Data Collection - 2 days	CC.2.4.HS.B.5		What are the different methods by which data is collected?	Distinguish statistical questions from other types of questions. Identify the population and sample in a statistical study. Distinguish between an observational study and an experiment.		Textbook - Section 1.1	Ticket-out Homework
Sampling and Surveys - 3 days	CC.2.4.HS.B.5	Surveys Observational Study Experimental Study Random Sampling Systematic Sampling Stratified Sampling Cluster Sampling Sampling error Nonsampling error	How can bias be avoided when conducting studies?	Describe how convenience sampling can lead to bias. Describe how voluntary response sampling can lead to bias. Explain how random sampling can help to avoid bias. Explain how undercoverage can lead to bias. Explain how nonresponse can lead to bias. Explain how other aspects of a sample survey can lead to bias.		Textbook - Section 1.3	Ticket-out Homework
Observational Studies and Experiments - 2 days	CC.2.4.HS.B.5	Control Hawthorne effect Confounding variable	What are the different components that make up an experiment?	Explain the concept of confounding and how it limits the ability to make cause-and-effect conclusions. Identify the treatments in an experiment. Explain the purpose of a control group in an experiment.		Textbook - Section 1.4	Ticket-out Homework
More with Experiments - 3 days	CC.2.4.HS.B.5		What is the purpose of random assignment in experiments?	Describe how to randomly assign treatments in an experiment using slips of paper or technology. Explain the purpose of random assignment in an experiment. Identify other sources of variability in an experiment and explain the benefits of keeping these variables the same for all experimental units.		Textbook - Section 1.4	Ticket-out Homework

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Uses and Misuses of Statistics - 1 day	CC.2.4.HS.B.5		What can go wrong when using results of studies?	Recognize misuses of statistics		Textbook - Section 1.5	Ticket-out Homework
Review and Assessment - previously counted	CC.2.4.HS.B.5					Textbook Chapter 1 Test	

Unit total = 11 days

Cumulative total = 69 days

Title Honors Statistics

Unit:		Probability					
Big Ideas:		Determine the likeliness of single and compound and dependent and independent events.					
Unit Essential Questions:		What exactly are the chances of that?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Randomness, Probability, and Simulation - 1 day	CC.2.4.HS.B.7	Probability Probability experiment Outcome Sample space	How can simulations be used to represent chance processes?	Interpret probability as a long-run relative frequency. Avoid common myths about randomness. Use simulation to model chance behavior.	Coin activity	Coin activity paper Coins Textbook - Section 4.1	Activity Ticket-out Homework
Basic Probability Rules - 2 days	CC.2.4.HS.B.7	Event Simple event Compound event Complement of an event Mutually exclusive	How can probability be calculated using simple rules?	Give a probability model for a chance process with equally likely outcomes and use it to find the probability of an event. Use the complement rule to find probabilities. Use the addition rule for mutually exclusive events to find probabilities. Calculate probabilities with the general addition rule.		Textbook - Section 4.2	Ticket-out Homework
Conditional Probability and Independence - 3 days	CC.2.4.HS.B.6 CC.2.4.HS.B.7		How can probability be calculated for conditional and independent events?	Find and interpret conditional probabilities using two-way tables. Use the conditional probability formula to calculate probabilities. Determine whether two events are independent. Use the general multiplication rule to calculate probabilities. Use a tree diagram to model a chance process involving a sequence of outcomes. Calculate conditional probabilities using tree diagrams. Use the multiplication rule for independent events to calculate probabilities. Calculate P(at least one) using the complement rule and the multiplication rule for independent events. Determine if it is appropriate to use the multiplication rule for independent events in a given setting.		Textbook - Section 4.3	Ticket-out Homework

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<p>The Multiplication Counting Principle, Permutations, and Combinations - 2 days</p>	<p>CC.2.4.HS.B.4 CC.2.4.HS.B.7</p>		<p>How many ways can an event occur?</p>	<p>Use the multiplication counting principle to determine the number of ways to complete a process involving several steps. Use factorials to count the number of permutations of a group of individuals. Compute the number of permutations of n individuals taken r at a time. Compute the number of combinations of n individuals taken r at a time. Use combinations to calculate probabilities.</p>		<p>Textbook - Section 4.4</p>	<p>Ticket-out Homework Ticket-out Homework</p>
<p>Counting Rules and Probability - 2 days</p>	<p>CC.2.4.HS.B.4 CC.2.4.HS.B.7</p>		<p>How can counting rules be used in determining probabilities?</p>	<p>Use the multiplication counting principle and combinations to calculate probabilities.</p>		<p>Textbook - Section 4.5</p>	
<p>Review and assessment - 2 days</p>	<p>CC.2.4.HS.B.4 CC.2.4.HS.B.6 CC.2.4.HS.B.7</p>			<p>All of above</p>		<p>Textbook Chapter 4 Test</p>	<p>Assessment</p>

Unit total = 12 days

Cumulative total = 81 days

Title Honors Statistics

Unit:		Random Variables					
Big Ideas:		Utilize random variables to represent chance processes.					
Unit Essential Questions:		How can chance processes be represented by random variables?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Types of Random Variables - 2 days	CC.2.4.HS.B.7	Random variable Discrete probability distribution	What is the difference between discrete and continuous random variables?	Calculate probabilities involving a discrete random variable. Classify a random variable as discrete or continuous. Calculate probabilities involving a discrete random variable.		Textbook - Section 5.1	Ticket-out Homework
Analyzing Discrete Random Variables - 2 days	CC.2.4.HS.B.7	Expected value	How can random variables be represented by measures of center and spread?	Make a histogram to display the probability distribution of a discrete random variable and describe its shape. Calculate and interpret the mean (expected value) of a discrete random variable. Calculate and interpret the standard deviation of a discrete random variable.		Textbook - Section 5.2	Ticket-out Homework
Binomial Random Variables - 2 days	CC.2.4.HS.B.7	Binomial experiment Binomial distribution	What makes a random variable binomial?	Determine whether the conditions for a binomial setting are met. Calculate probabilities involving a single value of a binomial random variable. Make a histogram to display a binomial distribution and describe its shape. Use a formula to find probabilities involving several values of a binomial random variable. Use technology to find probabilities involving several values of a binomial random variable. Calculate and interpret the mean and standard deviation of a binomial random variable.	Scavenger hunt Calculations on TI84 Calculators	Textbook - Section 5.3 Scavenger hunt papers	Ticket-out Homework Scavenger hunt
Normal Approximations of the Binomial Distribution - 2 days	CC.2.4.HS.B.7		How can the normal model be used to estimate a binomial probability?	Determine if it is appropriate to use normal approximation to a binomial distribution. When appropriate, use normal approximation to a binomial distribution to calculate probabilities.		Textbook - Section 6.4	Ticket-out Homework

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				Determine if it is appropriate to use normal approximation to a binomial distribution.			
Other types of Distributions - 2 days	CC.2.4.HS.B.7	Multinomial experiment Poisson experiment Hypergeometric experiment Geometric experiment	How can probabilities be calculated using Poisson, hypergeometric, geometric and multinomial distributions?	Calculate the probabilities for outcomes of variables using the Poisson, hypergeometric, geometric, and multinomial distributions.	Calculations on TI84 Calculators	Textbook - Section 5.4	Ticket-out Homework
Review and assessment - 2 days	CC.2.4.HS.B.7			All of above		Textbook Chapter 5 Test	Assessment

Unit total = 12 days
 Cumulative total = 93 days

Mid Term Review and Exam = 3 days

Title Honors Statistics

Unit:		Sampling Distributions					
Big Ideas:		Represent and analyze data through sampling distributions.					
Unit Essential Questions:		How can data be displayed and summarized in order to appropriately depict all that it represents?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Sampling Distribution - 2 days	CC.2.4.HS.B.1		What is a sampling distribution and how can it be used to evaluate claims?	Distinguish between a parameter and a statistic. Create a sampling distribution using all possible samples from a small population. Use the sampling distribution of a statistic to evaluate a claim about a parameter.		Textbook - Section 6.1	Ticket-out Homework
Center and Variability of Sampling Distributions - 2 days	CC.2.4.HS.B.1		Is a statistic an unbiased estimator?	Determine whether or not a statistic is an unbiased estimator of a population parameter. Describe the relationship between sample size and the variability of a statistic.		Textbook - Section 6.1	Ticket-out Homework
The Sampling Distribution of a Sample Proportion - 2 days	CC.2.4.HS.B.1		How can the mean and standard deviation of a sample proportion be used to determine the chances of an occurrence?	Calculate the mean and standard deviation of the sampling distribution of a sample proportion and interpret the standard deviation. Determine if the sampling distribution of the sample proportion is approximately normal. If appropriate, use a normal distribution to calculate probabilities involving the sample proportion.		Supplemental materials	Ticket-out Homework
The Sampling Distribution of a Sample Mean - 2 days	CC.2.4.HS.B.1		How can the mean and standard deviation of a sample mean be used to determine the chances of an occurrence?	Find the mean and standard deviation of the sampling distribution of a sample mean and interpret the standard deviation. Use a normal distribution to calculate probabilities involving the sample mean when sampling from a normal population.		Textbook - Section 6.1	Ticket-out Homework
The Central Limit Theorem - 2 days	CC.2.4.HS.B.1 CC.2.4.HS.B.7	Sampling distribution of sample means Sampling error Central Limit Theorem	What makes the Central Limit Theorem so powerful?	Determine if the sampling distribution of the sample means is approximately normal when sampling from a non-normal population. If appropriate, use a normal distribution to calculate probabilities involving a sample mean.		Textbook - Section 6.3	Ticket-out Homework

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Review and assessment - 2 days	CC.2.4.HS.B.1 CC.2.4.HS.B.7			All of above		Textbook Chapter 6 Test	Assessment
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Unit total = 12 days

Cumulative total = 118 days

Title Honors Statistics

Unit:		Estimating a Parameter					
Big Ideas:		Estimate parameters through the use of confidence intervals.					
Unit Essential Questions:		How certain can you be that the parameter is what you think it is?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Introduction to Confidence Intervals - 2 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5	Inferential statistics Statistic Parameter Point estimate Interval estimate Confidence level Confidence interval	What are confidence intervals and what can they tell us about a parameter?	Interpret a confidence interval in context. Determine the point estimate and margin of error from a confidence interval. Use confidence intervals to make decisions. Interpret a confidence level in context. Describe how the sample size and confidence level affect the margin of error.		Textbook Section 7.1	Ticket-out Homework
Confidence Intervals for Proportions - 3 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5		What does a confidence interval for a proportion tell us?	Check the Random and Large Counts conditions for constructing a confidence interval for a population proportion. Determine the critical value for calculating a C% confidence interval for a population proportion using z-table or technology. Calculate a C% confidence interval for a population proportion. Determine the sample size required to obtain a C% confidence interval for a population proportion with a specified margin of error.		Textbook - Section 7.3	Ticket-out Homework
Confidence Intervals for the Mean - 3 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5	t distribution Degrees of freedom	What does a confidence interval for a mean tell us?	State and check the Random and Normal/Large Sample conditions for constructing a confidence interval for a population mean. Determine critical values for calculating a C% confidence interval for a population mean. Calculate a C% confidence interval for a population mean.	Intervals on TI84 Calculators	Textbook - Section 7.1 and 7.2 t-table	Ticket-out Homework Practice Quiz
Review and assessment - 2 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5			All of above		Textbook Chapter 7 Test	Assessment

Unit total = 10 days

Cumulative total = 128 days

Title Honors Statistics

Unit:		Testing a Claim					
Big Ideas:		Conduct tests to measure the validity of hypotheses.					
Unit Essential Questions:		How do results from a study support a claim?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Intro to Testing - 3 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5	Statistical hypothesis Null hypothesis Alternative hypothesis Type I Error Type II Error One-tailed test Left-tailed test Right-tailed test Two-tailed test	What are the key components to a hypothesis test?	State appropriate hypotheses for a significance test about a population parameter. Interpret a P-value in context. Determine if the results of a study are statistically significant and make an appropriate conclusion using a significance level. Interpret a Type I error and a Type II error in context. Give a consequence of a Type I error and a Type II error in a given setting.		Textbook - Section 8.1	Ticket-out Homework
Testing Proportions - 3 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5		What does an observed proportion indicate about the population proportion?	Check the Random and Large Counts conditions for performing a significance test about a population proportion. Calculate the standardized test statistic for a significance test about a population proportion. Find the P-value for a one-sided significance test about a population proportion using a z-table or technology.	Tests on TI84 Calculators	Textbook - Section 8.4	Ticket-out Homework
Using Confidence Intervals in Testing - 2 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5		How can confidence intervals be used to support the result of a hypothesis test?	Construct confidence intervals for mean and compare with results of mean tests.	Tests on TI84 Calculators	Textbook - Section 8.6	Ticket-out Homework Practice
Testing Mean - 3 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5	t test	What does an observed mean indicate about the population mean?	Check the Random and Normal/Large Sample conditions for performing a significance test about a population mean. Calculate the standardized test statistic for a significance test about a population mean. Find the P-value for a significance test about a population mean using a t-table.	Tests on TI84 Calculators	Textbook - Section 8.2 & 8.3	Ticket-out Homework

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Review and assessment - 2 days	CC.2.4.HS.B.1 CC.2.4.HS.B.5			All of above		Textbook Chapter 8 Test	Assessment
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Unit total = 13 days

Cumulative total = 141 days

Title Honors Statistics

Unit:		Comparing Two Populations or Treatments					
Big Ideas:		How can hypothesis tests be used to compare populations or treatments?					
Unit Essential Questions:		Conduct hypothesis tests to compare populations or treatments.					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Estimating the Difference Between Two Proportions - 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5		How do two proportions compare with each other?	Describe the shape, center, and variability of the sampling distribution of a difference between two sample proportions. Check the Random and Large Counts conditions for constructing a confidence interval for a difference between two proportions. Construct and interpret a confidence interval for the difference between two proportions.	Test on TI84 Calculators	Textbook - Section 9.4	Ticket-out Homework
Testing a Claim about the Difference Between Two Proportions - 3 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5		How do two proportions compare with each other?	State hypotheses and check conditions for performing a significance test about a difference between two proportions. Calculate the standardized test statistic and P-value for a significance test about a difference between two proportions. Perform a significance test about a difference between two proportions.		Textbook - Section 9.4	Ticket-out Homework
Estimating the Difference Between Two Means - 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5		What is the anticipated difference between two population means?	Describe the shape, center, and variability of the sampling distribution of a difference between two sample means. Check the Random and Normal/Large Sample conditions for constructing a confidence interval for a difference between two means. Construct and interpret a confidence interval for the difference between two means.	Test on TI84 Calculators	Textbook - Section 9.2 & 9.3	Ticket-out Homework
Testing the Difference Between Two Means - 3 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5	Dependent samples	How do two means compare with each other?	State hypotheses and check conditions for performing a significance test about a difference between two means. Calculate the standardized test statistic and P-value for a significance test about a difference between two means.	Test on TI84 Calculators	Textbook - Section 9.2 & 9.3	Ticket-out Homework Quiz

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				Perform a significance test about a difference between two means.			
Testing the Difference Between Two Variances - 3 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5	F Test F distribution	How do two variances compare with each other?	Test the difference between two variances or standard deviations.	Test on TI84 Calculators	Textbook - Section 9.5	Ticket-out Homework
Analyzing Paired Data: Estimating a Mean Difference - 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5		What does the mean difference between matched pairs results tell us about the matched pairs?	Use a graph to analyze the distribution of differences in a paired data set. Calculate the mean and standard deviation of the differences in a paired data set, and interpret the mean difference in context. Construct and interpret a confidence interval for the true mean difference.		Textbook - Section 9.4	Ticket-out Homework
Testing a Claim about a Mean Difference - 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5		What does the mean difference between matched pairs results tell us about the matched pairs?	Perform a significance test about a mean difference. Determine whether you should use two-sample t procedures for inference or one-sample t procedures for inference in a given setting.		Textbook - Section 9.4	Ticket-out Homework
Review and Assessment - 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5			All of above		Textbook Chapter 9 Test	Assessment

Unit total = 19 days

Cumulative total = 160 days

Title Honors Statistics

Unit:		Inference for Categorical Variables					
Big Ideas:		Conduct hypothesis tests to compare categorical variables.					
Unit Essential Questions:		What can hypothesis tests tell us about categorical variables?					
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Test for Goodness of Fit - 4 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5	Chi-square Goodness of Fit Observed frequencies Expected frequencies	How well do categorical data fit with what was anticipated?	State hypotheses for a test about the distribution of a categorical variable. Calculate expected counts for a test about the distribution of a categorical variable. Calculate the test statistic for a test about the distribution of a categorical variable. Check conditions for a test about the distribution of a categorical variable. Calculate the P-value for a test about the distribution of a categorical variable. Perform a chi-square test for goodness of fit.	Test on TI84 Calculators	Textbook - Section 11.1	Ticket-out Homework
Test for Independence - 4 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5	Independence test Contingency table Cell value Homogeneity of Proportions Test	Are two variables independent of each other?	State hypotheses for a test about the relationship between two categorical variables. Calculate expected counts for a test about the relationship between two categorical variables. Calculate the test statistic for a test about the relationship between two categorical variables. Check conditions for a test about the relationship between two categorical variables. Calculate the P-value for a test about the relationship between two categorical variables. Perform a chi-square test for association.	Test on TI84 Calculators	Textbook - Section 11.2	Ticket-out Homework
Test for Homogeneity - 4 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5		What does the p-value tell us about the homogeneity between variables?	State appropriate hypotheses and compute the expected counts and chi-square test statistic for a chi-square test based on data in a two-way table. State and check the Random, 10%, and Large Counts conditions for a		Textbook - Section 11.2	Ticket-out Homework

Title Honors Statistics

				chi-square test based on data in a two-way table. Calculate the degrees of freedom and P-value for a chi-square test based on data in a two-way table. Perform a chi-square test for homogeneity.			
Review and assessment - 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.5			All of above		Textbook - Chapter 11 Test	Assessment

Unit total = 14 days
 Cumulative total = 174 days

Title Honors Statistics

Unit:	Inference for Regression						
Big Ideas:	Conduct hypothesis tests on slopes of linear regression models.						
Unit Essential Questions:	What can the results of a hypothesis test tell us about a predicted slope?						
Concept & Pacing	Pa Core Standard	Key Vocabulary	Essential Questions	Competencies (skills, knowledge, abilities)	Mini-Lessons/Activities	Instructional Materials	Assessments
Inference for the Slope of the LSRL - 3 days	CC.2.4.HS.B.2 CC.2.4.HS.B.3 CC.2.4.HS.B.5		What does the p-value tell us about the relationship between two quantitative variables?	Use technology to calculate the test statistic and P-value for a test about the relationship between two quantitative variables. Perform a test for the slope of a least-squares regression line. Calculate and interpret a confidence interval for the slope of a least-squares regression line.	Test on TI84 Calculators	Supplemental Materials	Ticket-out Homework
Unit Review and Assessment - 2 days	CC.2.4.HS.B.2 CC.2.4.HS.B.3 CC.2.4.HS.B.5			All of above		Supplemental materials	Assessment

Chapter total = 5 days
 Cumulative total = 179 days