Curriculum Framework

Course Title: AP Statistics

Board Approval Date: October 14, 2026

Credit / Hours: 1 credit

Course Description:

AP Statistics introduces students to the major concepts and tools used to collect, analyze, and draw conclusions from data. Throughout this course, students learn how statisticians use data to answer real-world questions and make informed decisions.

Learning Activities / Modes of Assessment:

60% Tests – AP Style Multiple Choice and Free Response Problems

10% Unit Projects – End of unit projects

30% Daily Work – Homework, quizzes, lesson activities, etc.

Instructional Resources:

De Veaux, R. D., Velleman, P. F., Bock, D. E., & Bullard, F. (2027). Stats: Modeling the World (7th ed., AP ed.). Pearson.

Revised 2026

<table>
<tr><th colspan="2">Unit: 1 - Exploring One Variable Data & Collecting Data</th></tr>
<tr><td>Time Frame</td><td>26 Class Periods</td></tr>
<tr><td>Student Learning Outcomes</td><td>The student will:
The following four practices will be cycled throughout all units we learn in AP Statistics:
● Practice #1: Formulate Questions
Determine an investigative question for a statistical study.
● Practice #2: Collect Data
Identify and justify methods for collecting data and conducting statistical inference.
● Practice #3: Analyze Data
Construct representations of data and calculate numerical statistical outputs.
● Practice #4: Interpret Results
Interpret results and justify conclusions and methods.</td></tr>
<tr><td>Essential Questions</td><td>● What kind of question can be answered using data from websites?
● What kind of data is collected about me on social media?
● What methods should I use to collect the data to conduct future inference procedures?</td></tr>
<tr><td>Content</td><td>
<table>
<tr><th>Day</th><th>Lesson and Objectives</th><th>Assignment</th></tr>
<tr><td>1</td><td>Activity: Introduction to Unit 1 – Cookies Are Dangerous
· Students critically evaluate a series of humorous “cookies are dangerous” claims by identifying flaws in statistical reasoning and explaining why misleading data and faulty conclusions should be questioned.</td><td></td></tr>
<tr><td>2</td><td>Topic 1.1 Introducing Statistics: What Can We Learn from Data?
Topic 1.2 Variables
· 1.1.A Identify components within a statistical</td><td>Topic 1.1 & 1.2 HW
Textbook</td></tr>
</table>
</td></tr>
</table>

		study. · 1.1.B Determine an investigative question within a statistical study. · 1.2.A Identify observational units, variables, parameters, and statistics from a statistical study or data set. · 1.2.B Identify types of variables. · 1.2.C Identify types of quantitative variables.	
	3	**Topic 1.3 Tabular Representation and Summary Statistics for One Categorical Variable** · 1.3.A Construct categorical one-variable tabular representations. · 1.3.B Describe categorical one-variable tabular representations with summary statistics.	Topic 1.3 HW Textbook
	4	**Topic 1.4 Graphical Representations for One Categorical Variable** · 1.4.A Construct categorical one-variable graphical representations. · 1.4.B Justify a claim using categorical one-variable graphical representations. · 1.4.C Compare multiple categorical one-variable tabular and graphical representations.	Topic 1.4 HW Textbook
	5	**Topic 1.5 Graphical Representations for One Quantitative Variable** · 1.5.A Construct quantitative one-variable graphical representations.	Topic 1.5 HW Textbook
	6	**Activity: Exploring Chocolate Candies** · Students collect and analyze real data from M&M candies by creating and interpreting bar graphs, dotplots, and pie charts to explore how different graphical displays represent categorical and quantitative data.	
	7	**Review Before Quiz Practice Worksheet** · Students work through practice problems preparing	

	for the quiz. You can have students work individually, with partners, or in a group.	
8	**Quiz 1 (1.1 – 1.5)** · 10 multiple choice questions · 1 free response question	
9	**Topic 1.6 Descriptions for One Quantitative Variable Distributions** · 1.6.A Describe distributions of quantitative one-variable graphical representations. · 1.6.B Justify a claim using distributions of quantitative one-variable graphical representations.	Topic 1.6 HW Textbook
10	**Topic 1.7 Summary Statistics for One Quantitative Variable** · 1.7.A Calculate measures of center and position for quantitative data. · 1.7.B Calculate measures of variability for quantitative data. · 1.7.C Calculate different units of measurement for summary statistics. · 1.7.D Calculate outliers for quantitative data. · 1.7.E Compare multiple quantitative one-variable summary statistics. · 1.7.F Justify the selection of a summary statistic for describing quantitative data.	Topic 1.7 HW Textbook
11	**Topic 1.8 Graphical Representations of Summary Statistics for One Quantitative Variable** · 1.8.A Construct quantitative one-variable graphical representations of summary statistics. · 1.8.B Describe quantitative one-variable graphical representations of summary statistics based on the relationship of the mean and the median.	Topic 1.8 HW Textbook
12	**Activity: Using the TI-84 for One Variable Statistics** · Students learn how to use the TI-84 calculator to input quantitative data, create statistical graphs	One Variable Statistics with the TI-84 HW

		(histograms and boxplots), and interpret one-variable summary statistics to analyze a dataset. · This activity is also available in a Desmos format, and a companion homework assignment is provided for additional practice using technology tools.	
	13	**Topic 1.9 Comparisons of the Distributions for One Quantitative Variable** · 1.9.A Compare multiple quantitative one-variable graphical representations. · 1.9.B Compare multiple quantitative one-variable graphical representations of summary statistics. · 1.9.C Justify a claim using multiple quantitative one-variable graphical representations. · 1.9.D Calculate z-scores with population parameters. · 1.9.E Compare z-scores as measures of relative position for distributions.	Topic 1.9 HW Textbook
	14	**Activity: Roll or Hold Game** · Students play a risk-based dice game to generate real data, then analyze and compare distributions using graphical displays, summary statistics, boxplots, and z-scores to interpret center, spread, and relative performance.	Textbook
	15	**Unit 1 Part 1 Test Review Day** · Students work through a summary lesson, reviewing topics 1.1 – 1.10. After the lesson, students can get started on the test review, which has problems that help prepare them for the unit assessment	Unit 1 Part 1 Test Review
	16	**Unit 1 Part 1 Project: Misleading Graphs** · Students will show what they've learned about	Project due 1 week from today

		graphs by making two versions of a graph from the same dataset, one accurate and one misleading, and then explaining how the misleading graph could give someone the wrong impression.	
	17	**Unit 1 Part 1 Jeopardy Review Game** · Students participate in a Jeopardy-style review game to reinforce key concepts and practice applying skills from the unit.	Textbook
	18	**Unit 1 Part 1 Test (1.1 – 1.9)** · 15 multiple choice questions · 2 free response questions	
	19	**Topic 1.10 The Investigative Question Revisited and Data Collection** · 1.10.A Determine the components of an investigative question within a statistical study. · 1.10.B Identify a census. · 1.10.C Identify an experiment. · 1.10.D Identify an observational study. · 1.10.E Justify the appropriateness of generalizations for a statistical study.	Topic 1.10 HW Textbook
	20	**Topic 1.11 Random Sampling** · 1.11.A Identify a sampling method given a description of a study. · 1.11.B Justify the appropriateness of a sampling method.	Topic 1.11 HW Textbook
	21	**Activity: Pumpkin Picking Sampling Activity** · Students investigate and compare simple random, stratified, and cluster sampling methods by simulating pumpkin harvest samples and analyzing how different sampling techniques affect estimates and conclusions about a population.	Textbook
	22	**Topic 1.12 Potential Problems with Sampling** · 1.12.A Identify potential sources of bias in sampling methods.	Topic 1.12 HW Textbook
	23	**Review Before Quiz Practice Worksheet** · Students work through practice problems preparing for the quiz. You can have students work individually, with partners, or in a group.	Textbook
	24	**Quiz 2 (1.10 – 1.12)**	

	· 10 multiple choice questions · 1 free response question	
25	**Topic 1.13 Experimental Design** · 1.13.A Identify elements of a well-designed experiment. · 1.13.B Identify experimental designs. · 1.13.C Justify the appropriateness of a particular experimental design. · 1.13.D Justify the appropriateness of the conclusions based on a well-designed experiment.	Topic 1.13 HW Textbook
26	**Activity: Can You Taste a Difference?** · Students design and conduct a randomized taste-test experiment comparing M&M's and generic candies. An optional extension to then analyze the results using proportions and hypothesis testing to determine whether people can truly taste a difference is included.	
27	**Unit 1 Part 2 Test Review Day** · Students work through a summary lesson, reviewing topics 1.11 – 1.13. After the lesson, students can get started on the test review, which has problems that help prepare them for the unit assessment	Unit 1 Part 2 Test Review
28	**Unit 1 Part 2 Project: Sample Survey** · In this two-week project, students design and carry out a survey investigating how bias in wording or conditions affects responses. Students work individually or in pairs to collect real data, analyze results, and present findings through a visual report and brief presentation. · Students use this day to be introduced to the project and to begin working on it. After today, students have 2 weeks to complete the project outside of class.	Project due 2 weeks from today
29	**Unit 1 Part 2 Trivia Review Game** · Students review key concepts from sampling methods, experimental design, and sources of bias by competing in a classic trivia game night–style review that reinforces understanding.	
30	**Unit 1 Part 2 Test (1.10 – 1.13)** · 15 multiple choice questions	

	· 2 free response questions
Assessments	• Quiz 1 (1.1 – 1.5) • Quiz 2 (1.10 – 1.12) • Unit 1 Part 2 Test (1.10 – 1.13)
Standards	Topic 1.1 Introducing Statistics: What Can We Learn from Data? Topic 1.2 Variables 1.1.A Identify components within a statistical study. 1.1.B Determine an investigative question within a statistical study. 1.2.A Identify observational units, variables, parameters, and statistics from a statistical study or data set. 1.2.B Identify types of variables. 1.2.C Identify types of quantitative variables. Topic 1.3 Tabular Representation and Summary Statistics for One Categorical Variable 1.3.A Construct categorical one-variable tabular representations. 1.3.B Describe categorical one-variable tabular representations with summary statistics. Topic 1.4 Graphical Representations for One Categorical Variable 1.4.A Construct categorical one-variable graphical representations. 1.4.B Justify a claim using categorical one-variable graphical representations. 1.4.C Compare multiple categorical one-variable tabular and graphical representations. Topic 1.5 Graphical Representations for One Quantitative Variable 1.5.A Construct quantitative one-variable graphical representations. 3.A Topic 1.6 Descriptions for One Quantitative Variable Distributions 1.6.A Describe distributions of quantitative one-variable graphical representations. 1.6.B Justify a claim using distributions of quantitative one-variable graphical representations. Topic 1.7 Summary Statistics for One Quantitative Variable 1.7.A Calculate measures of center and position for quantitative data. 1.7.B Calculate measures of variability for quantitative data. 1.7.C Calculate different units of measurement for summary statistics. 1.7.D Calculate outliers for quantitative data.

	1.7.E Compare multiple quantitative one-variable summary statistics. 1.7.F Justify the selection of a summary statistic for describing quantitative data. Topic 1.8 Graphical Representations of Summary Statistics for One Quantitative Variable 1.8.A Construct quantitative one-variable graphical representations of summary statistics. 1.8.B Describe quantitative one-variable graphical representations of summary statistics based on the relationship of the mean and the median. Topic 1.9 Comparisons of the Distributions for One Quantitative Variable 1.9.A Compare multiple quantitative one-variable graphical representations. 1.9.B Compare multiple quantitative one-variable graphical representations of summary statistics. 1.9.C Justify a claim using multiple quantitative one-variable graphical representations. 1.9.D Calculate z-scores with population parameters. 1.9.E Compare z-scores as measures of relative position for distributions. Topic 1.10 The Investigative Question Revisited and Data Collection 1.10.A Determine the components of an investigative question within a statistical study. 1.10.B Identify a census. 1.10.C Identify an experiment. 1.10.D Identify an observational study. 1.10.E Justify the appropriateness of generalizations for a statistical study. Topic 1.11 Random Sampling 1.11.A Identify a sampling method given a description of a study. 1.11.B Justify the appropriateness of a sampling method. Topic 1.12 Potential Problems with Sampling 1.12.A Identify potential sources of bias in sampling methods. Topic 1.13 Experimental Design 1.13.A Identify elements of a well-designed experiment. 1.13.B Identify experimental designs. 1.13.C Justify the appropriateness of a particular experimental design. 1.13.D Justify the appropriateness of the conclusions based on a well-designed experiment.

Key Vocabulary	Academic/Concept Vocabulary	Literary Terms
Materials/ Resources	Unit 1 Notes Packet Unit 1 Homework Packet	

Unit 2: Probability, Random Variables, and Probability Distributions	
Time Frame	24 Class Periods
Student Learning Outcomes	The student will: The following four practices will be cycled throughout all units we learn in AP Statistics: ● Practice #1: Formulate Questions Determine an investigative question for a statistical study. ● Practice #2: Collect Data Identify and justify methods for collecting data and conducting statistical inference. ● Practice #3: Analyze Data Construct representations of data and calculate numerical statistical outputs. ● Practice #4: Interpret Results Interpret results and justify conclusions and methods.
Essential Questions	● How might we represent the reading habits of people with and without an electronic reading device to help describe similarities and/or differences between the two groups? ● How can the weather be predicted? ● Why might the data we collect influence decisions being made?

Content

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Day	Lesson and Objectives	Assignment
1	**Topic 2.1 Tabular and Graphical Representations for the Distributions of Two Categorical Variables** · 2.1.A Compare tabular and graphical representations for the relationship between two categorical variables. · 2.1.B Justify a claim using tabular and graphical representations for the distributions of two categorical variables.	Topic 2.1 HW Textbook
2	**Topic 2.2 Summary Statistics for Two Categorical Variables** · 2.2.A Calculate summary statistics from two-way tables. · 2.2.B Compare summary statistics for two categorical variables. · 2.2.C Justify a claim using summary statistics for two categorical variables.	Topic 2.2 HW Textbook
3	**Introduction to Probability Activity** · In this introduction game, students will be simulating a dice game and analyzing class results to estimate empirical probability, and then comparing it to the theoretical probability to determine whether the game is favorable.	Textbook
4	**Topic 2.3 Estimating Probabilities Using Simulation** **Topic 2.4 Introduction to Probability** · 2.3.A Estimate probabilities using simulations. · 2.4.A Calculate probabilities for events and their complements.	Topic 2.3 & 2.4 HW Textbook
5	**Investigating Random Chance Using Simulations Activity** · Students use coins, random number generators, and tables of random digits to run simulations that estimate probabilities and evaluate whether observed outcomes are consistent with random chance.	Textbook

		6	**Review Before Quiz Practice Worksheet** · Students work through practice problems preparing for the quiz. You can have students work individually, with partners, or in a group.	
		7	**Quiz 1 (2.1 – 2.4)** · 10 multiple choice questions · 1 free response question	
		8	**Topic 2.5 Mutually Exclusive Events and The Addition Rule** · 2.5.A Justify why two events are mutually exclusive (or disjoint) using joint probability. · 2.7.A Calculate probabilities for independent events and for the union of two events.	Topic 2.5 HW Textbook
		9	**Topic 2.6 Conditional Probability** · 2.6.A Calculate conditional probabilities.	Topic 2.6 HW Textbook
		10	**Topic 2.7 Independent Events and Tree Diagrams** · 2.6.A Calculate conditional probabilities. · 2.7.A Calculate probabilities for independent events and for the union of two events.	Topic 2.7 HW Textbook
		11	**Probability Circuit** · Students will solve and connect a sequence of probability problems involving rules, conditional probability, and complements to reinforce probability topics across multiple contexts, in this classic circuit-style activity.	Textbook
		12	**Unit 2 Part 1 Test Review Day** · Students work through a summary lesson, reviewing topics 2.1 – 2.7. After the lesson, students can get started on the test review, which has problems that help prepare them for the unit assessment	Unit 2 Part 1 Test Review
		13	**Unit 2 Part 1 Project: Casino Lab** · In this project, students will simulate and analyze	Project due 1 week from today

	games like craps, roulette, and blackjack to compare empirical and theoretical probabilities while applying concepts such as conditional probability, compound events, and the law of large numbers.	
14	**Jeopardy Review Game** · Students participate in a Jeopardy-style review game to reinforce key concepts and practice applying skills from the unit in a collaborative and engaging format.	
15	**Unit 2 Part 1 Test (2.1 – 2.7)** ● 15 multiple choice questions · 2 free response questions	
16	**Topic 2.8 Introduction to Random Variables and Probability Distributions** · 2.8.A Construct a probability distribution for a discrete random variable.	Topic 2.8 HW Textbook
17	**Topic 2.9 Parameters of Random Variables** · 2.9.A Calculate the mean and standard deviation for a discrete random variable. · 2.9.B Interpret the mean and standard deviation for a discrete random variable.	Topic 2.9 HW Textbook
18	**Activity: Introduction to the Binomial** · This activity introduces the binomial setting by having students analyze true/false quiz results to compare empirical and theoretical probabilities while exploring Bernoulli trials, discrete random variables, and combinations.	
19	**Topic 2.10 The Binomial Distribution** · 2.10.A Justify why a random variable is or is not a binomial random variable. · 2.10.B Calculate the mean and standard deviation for a binomial distribution.	Topic 2.10 HW Textbook

		· 2.10.C Interpret the mean, standard deviation, and probabilities for a binomial distribution. · 2.10.D Estimate probabilities of binomial random variables using data from a simulation. · 2.10.E Calculate probabilities for a binomial distribution.	
	20	**Activity: The Binomial Distribution of Blue** · Students model a binomial setting using M&Ms to calculate probabilities, mean, and standard deviation, then compare the theoretical distribution to class-simulated data.	Textbook
	21	**Review Before Quiz Practice Worksheet** · Students work through practice problems preparing for the quiz. You can have students work individually, with partners, or in a group.	
	22	**Quiz 2 (2.8 – 2.10)** · 10 multiple choice questions · 1 free response question	
	23	**Topic 2.11 The Normal Distribution Part 1** · 2.11.A Describe a normal distribution. · 2.11.B Calculate the mean and standard deviation for a normal distribution · 2.11.C Calculate percentages from a normal distribution using the empirical rule.	Topic 2.11 Part 1 HW Textbook
	24	**Topic 2.11 The Normal Distribution Part 2** · 2.11.D Calculate the probability that a particular value lies within a given interval of a normal distribution. · 2.11.E Calculate the associated intervals and areas of a normal distribution. · 2.11.F Compare measures of relative position for distributions.	Topic 2.11 Part 2 HW Textbook

	25	**The Normal Distribution Circuit** · Students will work through an engaging circuit of normal distribution problems, applying z-scores, percentiles, and probability concepts to analyze real-world height data of volleyball players.	Textbook
	26	**A Simulation of the Central Limit Theorem** · Students will explore a hands-on simulation of the Central Limit Theorem by rolling dice to build population, sample, and sampling distributions, discovering how sample means become more normal, centered, and less variable as sample size increases.	
	27	**Topic 2.12 Sampling Distributions and the Central Limit Theorem** · 2.12.A Describe sampling distributions with simulations.	Topic 2.12 HW Textbook
	28	**Unit 2 Part 2 Test Review Day** · Students work through a summary lesson, reviewing topics 2.8 – 2.12. After the lesson, students can get started on the test review, which has problems that help prepare them for the unit assessment	Unit 2 Part 2 Test Review
	29	**Unit 2 Part 2 Project: Make Your Own Casino** · Students will design and analyze their own creative casino games by determining probabilities, expected value, and variability, then running simulations to evaluate whether each game favors the house, the player, or is fair.	Project due 1 week from today
	30	**Trivia Review Game** · Students review key concepts from the unit by competing in a classic trivia game night–style review that reinforces understanding through collaborative problem solving and discussion.	

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<tr><td>31</td><td>Unit 2 Part 2 Test (2.8 – 2.12)
● 15 multiple choice questions
· 2 free response questions</td><td></td></tr>
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●
</td></tr>
<tr><td>Assessments</td><td>
● Quiz 1 (2.1 – 2.4)
● Unit 2 Part 1 Test (2.1 – 2.7)
● Quiz 2 (2.8 – 2.10)
● Unit 2 Part 2 Test (2.8 – 2.12)
</td></tr>
<tr><td>Standards</td><td>
Topic 2.1 Tabular and Graphical Representations for the Distributions of Two Categorical Variables
2.1.A Compare tabular and graphical representations for the relationship between two categorical variables.
2.1.B Justify a claim using tabular and graphical representations for the distributions of two categorical variables.

Topic 2.2 Summary Statistics for Two Categorical Variables
2.2.A Calculate summary statistics from two-way tables.
2.2.B Compare summary statistics for two categorical variables.
2.2.C Justify a claim using summary statistics for two categorical variables.

Topic 2.3 Estimating Probabilities Using Simulation
Topic 2.4 Introduction to Probability
2.3.A Estimate probabilities using simulations.
2.4.A Calculate probabilities for events and their complements.

Topic 2.5 Mutually Exclusive Events and The Addition Rule
2.5.A Justify why two events are mutually exclusive (or disjoint) using joint probability.
2.7.A Calculate probabilities for independent events and for the union of two events.

Topic 2.6 Conditional Probability
2.6.A Calculate conditional probabilities. 3.C
Topic 2.7 Independent Events and Tree Diagrams
2.6.A Calculate conditional probabilities.
2.7.A Calculate probabilities for independent events and for the union of two events.

Topic 2.8 Introduction to Random Variables and Probability Distributions
2.8.A Construct a probability distribution for a discrete random variable. 3.A
Topic 2.9 Parameters of Random Variables
2.9.A Calculate the mean and standard deviation for a discrete random variable.
</td></tr>
</table>

	2.9.B Interpret the mean and standard deviation for a discrete random variable. Topic 2.10 The Binomial Distribution 3.C, 3.D, 2.10.A Justify why a random variable is or is not a binomial random variable. 2.10.B Calculate the mean and standard deviation for a binomial distribution. 2.10.C Interpret the mean, standard deviation, and probabilities for a binomial distribution. 2.10.D Estimate probabilities of binomial random variables using data from a simulation. 2.10.E Calculate probabilities for a binomial distribution. Topic 2.11 The Normal Distribution Part 1 2.11.A Describe a normal distribution. 2.11.B Calculate the mean and standard deviation for a normal distribution 2.11.C Calculate percentages from a normal distribution using the empirical rule. Topic 2.11 The Normal Distribution Part 2 2.11.D Calculate the probability that a particular value lies within a given interval of a normal distribution. 2.11.E Calculate the associated intervals and areas of a normal distribution. 2.11.F Compare measures of relative position for distributions. Topic 2.12 Sampling Distributions and the Central Limit Theorem 2.12.A Describe sampling distributions with simulations. 4.C	
Key Vocabulary	Academic/Concept Vocabulary	Literary Terms
Materials/ Resources	Unit 2 Notes Packet Unit 2 Homework Packet	

<table>
<tr><th colspan="2">Unit 3: Inference for Categorical Data: Proportions</th></tr>
<tr><td>Time Frame</td><td>30 Class Periods</td></tr>
<tr><td>Student Learning Outcomes</td><td>The student will:
The following four practices will be cycled throughout all units we learn in AP Statistics:
● Practice #1: Formulate Questions
Determine an investigative question for a statistical study.
● Practice #2: Collect Data
Identify and justify methods for collecting data and conducting statistical inference.
● Practice #3: Analyze Data
Construct representations of data and calculate numerical statistical outputs.</td></tr>
<tr><td>Essential Questions</td><td>● How can we measure changing opinions in populations over time?
● When can we perform inference calculations using data from websites to answer everyday questions?
● How can we determine whether the difference between two groups is statistically significant?
● Are the distributions of various types of wild birds different in urban areas than in rural areas?</td></tr>
<tr><td>Content</td><td>
<table>
<tr><th>Day</th><th>Lesson and Objectives</th><th>Assignment</th></tr>
<tr><td>1</td><td>Topic 3.1 Estimators
Topic 3.2 Sampling Distributions for Sample Proportions
· 3.1.A Justify why an estimator is or is not unbiased.
· 3.1.B Calculate estimates for a population parameter
· 3.2.A Calculate the mean and standard deviation of a sampling distribution for a sample proportion.
· 3.2.B Justify the appropriateness of conditions for the sampling distribution of a sample proportion.
· 3.2.C Interpret the mean, standard deviation, and probabilities for a sampling distribution of a sample proportion.</td><td>Topic 3.1/3.2 HW
Textbook</td></tr>
<tr><td>2</td><td>Population, Sample, and Sampling with Yellow M&Ms Activity
· Students explore population vs. sample by repeatedly drawing M&Ms to build and analyze a sampling distribution of proportions, then use real data to check inference conditions</td><td>Textbook</td></tr>
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	and calculate probabilities in a hands-on, meaningful way.	
3	**An Introduction to Confidence Intervals – A Simulation Activity** · Students use a card-sampling simulation to build a sampling distribution and develop an intuitive understanding of confidence intervals, including how they estimate a population proportion and what different confidence levels mean.	Textbook
4	**Topic 3.3 Constructing a Confidence Interval for a Population Proportion** · 3.3.A Identify an appropriate confidence interval procedure including the parameter for a population proportion. · 3.3.B Justify the appropriateness of constructing a confidence interval for a population proportion by verifying conditions. · 3.3.C Calculate an appropriate confidence interval for a population proportion. · 3.4.A Interpret a confidence interval in context for a population proportion.	Topic 3.3 HW Textbook
5	**Topic 3.4 Justifying a Claim Based on a Confidence Interval for a Population Proportion** · 3.3.D Calculate the standard error and margin of error of a sample statistic for a confidence interval for a population proportion, and estimate a given sample size from the margin of error. · 3.4.B Justify a claim based on a confidence interval for a population proportion. · 3.4.C Identify the relationships among sample size, confidence interval width, confidence level, and margin of error for a population proportion.	Topic 3.4 HW Textbook
6	**Confidence Levels with Yellow M&Ms Activity** · Students use repeated sampling with M&Ms to construct and visualize m8ultiple confidence intervals, helping them understand confidence levels, variability, and how often	Textbook

	intervals capture the true population proportion.	
7	**Review Before Quiz Practice Worksheet** · Students work through practice problems preparing for the quiz. You can have students work individually, with partners, or in a group.	
8	**Quiz 1 (3.1 – 3.4)** · 10 multiple choice questions · 1 free response question	
9	**Topic 3.5 Setting Up a Test for a Population Proportion** **Topic 3.6 p-Values** · 3.5.A Identify an appropriate testing method for a population proportion including the parameter for the population proportion · 3.5.B Identify the null and alternative hypotheses for a population proportion. · 3.5.C Justify the appropriateness of a hypothesis test for a population proportion by verifying conditions. · 3.6.A Interpret the p-value of a hypothesis test for a population proportion.	Topic 3.5/3.6 HW Textbook
10	**Topic 3.7 Carrying Out a Test for a Population Proportion** · 3.7.A Calculate an appropriate test statistic and p-value for testing a hypothesis about a population proportion. · 3.7.B Justify a claim about the population based on the results of a hypothesis test for a population proportion.	Topic 3.7 HW Textbook
11	**Topic 3.8 Potential Errors When Performing Tests** · 3.8.A Identify Type I and Type II errors. · 3.8.B Calculate the probability of Type I and Type II errors. · 3.8.C Identify the factors that affect the probability of errors in hypothesis testing. · 3.8.D Interpret Type I and Type II errors.	Topic 3.8 HW Textbook
12	**Exploring p-Values and Type I Error M&M Activity** · Students simulate repeated hypothesis tests with M&Ms to	Textbook

	deepen their understanding of p-values, “extreme” outcomes, and how Type I error can occur.	
13	**Inference for Proportions Circuit Activity** · Students review and apply key concepts of inference for proportions, confidence intervals, significance tests, conditions, and error, by solving interconnected problems in an engaging, self-paced circuit format.	Textbook
14	**Unit 3 Part 1 Summary Lesson and Test Review** · Students work through a summary lesson, reviewing topics 3.1 – 3.8. After the lesson, students can get started on the test review, which has problems that help prepare them for the unit assessment	Unit 3 Part 1 Test Review
15	**Unit 3 Part 1 Project: Sampling the Seas – A Confidence Interval Simulation** · Students use simulation to build and interpret confidence intervals for a real-world proportion, exploring how sampling variability, confidence level, and repeated sampling impact accuracy and long-run capture rates.	Project due 1 week from today
16	**Jeopardy Review Game** · Students participate in a Jeopardy-style review game to reinforce key concepts and practice applying skills from the unit in a collaborative and engaging format.	Textbook
17	**Unit 3 Part 1 Test (3.1 – 3.8)** ● 15 multiple choice questions · 2 free response questions	
18	**Topic 3.9 Sampling Distributions for the Difference Between Sample Proportions** · 3.9.A Calculate the mean and standard deviation of the sampling distribution for the difference between two sample proportions. · 3.9.B Justify the appropriateness of conditions for the	Topic 3.9 HW Textbook

	sampling distribution for the difference between two sample proportions. · 3.9.C Interpret the mean, standard deviation, and probabilities for the sampling distribution for the difference between two sample proportions.	
19	**Topic 3.10 Constructing a Confidence Interval for the Difference Between Two Population Proportions** · 3.10.A Identify an appropriate confidence interval procedure including the parameters for the difference between two population proportions. · 3.10.B Justify the appropriateness of constructing a confidence interval for the difference between two population proportion. · 3.10.C Calculate an appropriate confidence interval for the difference between two population proportions. · 3.10.D Calculate the standard error and margin of error for estimating the difference between two population proportions.	Topic 3.10 HW Textbook
20	**Topic 3.11 Justifying a Claim Based on a Confidence Interval for the Difference Between Two Population Proportions** · 3.11.A Interpret a confidence interval in context for the difference between two population proportions. · 3.11.B Justify a claim based on a confidence interval for the difference between two population proportions	Topic 3.11 HW Textbook
21	**Topic 3.12 Setting Up a Test for the Difference Between Two Population Proportions** **Topic 3.13 Carrying Out a Test for the Difference Between Two Population Proportions** · 3.12.A Identify an appropriate testing method for the difference between population proportions including the parameters · 3.12.B Identify the null and alternative hypotheses for the difference between population proportions.	Topic 3.12/3.13 HW Textbook

	· 3.12.C Justify the appropriateness of a hypothesis test for the difference between two population proportions by verifying conditions · 3.13.A Calculate an appropriate test statistic and p-value for testing a hypothesis for the difference between two population proportions. · 3.13.B Interpret the p-value of a hypothesis test for the difference between two population proportions. · 3.13.C Justify a claim about the populations based on the results of a hypothesis test for the difference between two population proportions	
22	**Matching Confidence Intervals and Significance Tests Activity** · Students actively practice organizing and applying the full process of inference for proportions by sequencing steps and solving real-world confidence interval and significance test problems.	Textbook
23	**Review Before Quiz Practice Worksheet** · Students work through practice problems preparing for the quiz. You can have students work individually, with partners, or in a group.	Textbook
24	**Quiz 2 (3.9 – 3.13)** · 10 multiple choice questions · 1 free response question	
25	**Topic 3.14 Setting Up a Chi-Square Test for Homogeneity or Independence** · 3.14.A Describe chi-square distributions. · 3.14.B Identify an appropriate testing method for comparing distributions in two-way tables of categorical data including the populations and variables. · 3.14.C Identify the null and alternative hypotheses for a chi-square test for homogeneity or independence. · 3.14.D Justify the appropriateness of a chi-square test for	Topic 3.14 HW Textbook

	independence or homogeneity by verifying conditions.	
26	**Topic 3.15 Carrying Out a Chi-Square Test for Homogeneity or Independence** · 3.15.A Calculate expected counts for two-way tables of categorical data. · 3.15.B Calculate the appropriate test statistic and p-value for a chi square test for homogeneity or independence. · 3.15.C Interpret the p-value for the chi-square test for homogeneity or independence. · 3.15.D Justify a claim about the population(s) based on the results of a chi-square test for homogeneity or independence.	Topic 3.15 HW Textbook
27	**Inference Error Analysis Activity** · Students critique incorrect inference solutions to identify mistakes in method selection, calculator use, and statistical reasoning. This activity will build in skills students need to choose their inference procedure while also practicing TI-84 Calculator Commands (or Demos commands as an optional modification).	Textbook
28	**Unit 3 Part 2 Summary Lesson and Test Review** · Students work through a summary lesson, reviewing topics 3.9 – 3.15. After the lesson, students can get started on the test review, which has problems that help prepare them for the unit assessment	Unit 3 Part 2 Test Review
29	**Unit 3 Part 2 Project: Chi-Square Survey Analysis** · Students design and conduct their own survey to investigate relationships between categorical variables, using chi-square methods to analyze real data and draw meaningful conclusions.	Project due 1 week from today
30	**Trivia Review Game** · Students review key concepts from the unit by competing in a classic trivia game night–style review that reinforces understanding through collaborative problem solving and discussion.	Textbook

	31	**Unit 3 Part 2 Test (3.9 – 3.15)** ● 15 multiple choice questions · 2 free response questions	
Assessments	● Quiz 1 (3.1 – 3.4) ● Unit 3 Part 1 Test (3.1 – 3.8) ● Quiz 2 (3.9 – 3.13) ● Unit 3 Part 2 Test (3.9 – 3.15)		
Standards	Topic 3.1 Estimators Topic 3.2 Sampling Distributions for Sample Proportions 3.1.A Justify why an estimator is or is not unbiased. 3.1.B Calculate estimates for a population parameter 3.2.A Calculate the mean and standard deviation of a sampling distribution for a sample proportion. 3.2.B Justify the appropriateness of conditions for the sampling distribution of a sample proportion. 3.2.C Interpret the mean, standard deviation, and probabilities for a sampling distribution of a sample proportion. Topic 3.3 Constructing a Confidence Interval for a Population Proportion 3.3.A Identify an appropriate confidence interval procedure including the parameter for a population proportion. 3.3.B Justify the appropriateness of constructing a confidence interval for a population proportion by verifying conditions. 3.3.C Calculate an appropriate confidence interval for a population proportion. 3.4.A Interpret a confidence interval in context for a population proportion. Topic 3.4 Justifying a Claim Based on a Confidence Interval for a Population Proportion 3.3.D Calculate the standard error and margin of error of a sample statistic for a confidence interval for a population proportion, and estimate a given sample size from the margin of error. 3.4.B Justify a claim based on a confidence interval for a population proportion. 3.4.C Identify the relationships among sample size, confidence interval width, confidence level, and margin of error for a population proportion. Topic 3.5 Setting Up a Test for a Population Proportion Topic 3.6 p-Values 3.5.A Identify an appropriate testing method for a population proportion including the parameter for the population proportion 3.5.B Identify the null and alternative hypotheses for a population proportion.		

	3.5.C Justify the appropriateness of a hypothesis test for a population proportion by verifying conditions. 3.6.A Interpret the p-value of a hypothesis test for a population proportion. Topic 3.7 Carrying Out a Test for a Population Proportion 3.7.A Calculate an appropriate test statistic and p-value for testing a hypothesis about a population proportion. 3.7.B Justify a claim about the population based on the results of a hypothesis test for a population proportion. Topic 3.8 Potential Errors When Performing Tests 2.D, 3.C, 3.8.A Identify Type I and Type II errors. 3.8.B Calculate the probability of Type I and Type II errors. 3.8.C Identify the factors that affect the probability of errors in hypothesis testing. 3.8.D Interpret Type I and Type II errors. Topic 3.9 Sampling Distributions for the Difference Between Sample Proportions 3.9.A Calculate the mean and standard deviation of the sampling distribution for the difference between two sample proportions. 3.9.B Justify the appropriateness of conditions for the sampling distribution for the difference between two sample proportions. 3.9.C Interpret the mean, standard deviation, and probabilities for the sampling distribution for the difference between two sample proportions. Topic 3.10 Constructing a Confidence Interval for the Difference Between Two Population Proportions 3.10.A Identify an appropriate confidence interval procedure including the parameters for the difference between two population proportions. 3.10.B Justify the appropriateness of constructing a confidence interval for the difference between two population proportion. 3.10.C Calculate an appropriate confidence interval for the difference between two population proportions. 3.10.D Calculate the standard error and margin of error for estimating the difference between two population proportions. Topic 3.11 Justifying a Claim Based on a Confidence Interval for the Difference Between Two Population Proportions 3.11.A Interpret a confidence interval in context for the difference between two population proportions.

	3.11.B Justify a claim based on a confidence interval for the difference between two population proportions Topic 3.12 Setting Up a Test for the Difference Between Two Population Proportions Topic 3.13 Carrying Out a Test for the Difference Between Two Population Proportions 3.12.A Identify an appropriate testing method for the difference between population proportions including the parameters 3.12.B Identify the null and alternative hypotheses for the difference between population proportions. 3.12.C Justify the appropriateness of a hypothesis test for the difference between two population proportions by verifying conditions 3.13.A Calculate an appropriate test statistic and p-value for testing a hypothesis for the difference between two population proportions. 3.13.B Interpret the p-value of a hypothesis test for the difference between two population proportions. 3.13.C Justify a claim about the populations based on the results of a hypothesis test for the difference between two population proportions Topic 3.14 Setting Up a Chi-Square Test for Homogeneity or Independence 3.14.A Describe chi-square distributions. 3.14.B Identify an appropriate testing method for comparing distributions in two-way tables of categorical data including the populations and variables. 3.14.C Identify the null and alternative hypotheses for a chi-square test for homogeneity or independence. 3.14.D Justify the appropriateness of a chi-square test for independence or homogeneity by verifying conditions. Topic 3.15 Carrying Out a Chi-Square Test for Homogeneity or Independence 3.15.A Calculate expected counts for two-way tables of categorical data. 3.15.B Calculate the appropriate test statistic and p-value for a chi square test for homogeneity or independence. 3.15.C Interpret the p-value for the chi-square test for homogeneity or independence. 3.15.D Justify a claim about the population(s) based on the results of a chi-square test for homogeneity or independence.	
Key Vocabulary	Academic/Concept Vocabulary	Literary Terms

Materials/ Resources	Unit 3 Notes Packet Unit 3 Homework Packet

<table>
<tr><th colspan="2">Unit 4: Inference for Quantitative Data: Means</th></tr>
<tr><td>Time Frame</td><td>18 Class Periods</td></tr>
<tr><td>Student Learning Outcomes</td><td>The student will:
The following four practices will be cycled throughout all units we learn in AP Statistics:
● Practice #1: Formulate Questions
Determine an investigative question for a statistical study.
● Practice #2: Collect Data
Identify and justify methods for collecting data and conducting statistical inference.
● Practice #3: Analyze Data
Construct representations of data and calculate numerical statistical outputs.
● Practice #4: Interpret Results
Interpret results and justify conclusions and methods.</td></tr>
<tr><td>Essential Questions</td><td>● How can we compare the average salaries of different professions across different regions of a country?
● How can we evaluate the effectiveness of a new medicine in lowering cholesterol for older adults?
● How can a pre-test and a post-test be used to evaluate student learning?</td></tr>
<tr><td>Content</td><td>
<table>
<tr><th>Day</th><th>Lesson and Objectives</th><th>Assignment</th></tr>
<tr><td>1</td><td>Topic 4.1 Sampling Distributions for Sample Means
· 4.1.A Calculate the mean and standard deviation of a sampling distribution of a sample mean.
· 4.1.B Justify the appropriateness of conditions for the sampling distribution of a sample mean.
· 4.1.C Interpret the mean, standard deviation, and probabilities for the sampling distribution of a sample mean.</td><td>Topic 4.1 HW
Textbook</td></tr>
<tr><td>2</td><td>Topic 4.2 Constructing a Confidence Interval for a Population Mean or a Population Mean Difference
· 4.2.A Describe t-distributions.
· 4.2.B Identify an appropriate confidence interval procedure including the parameter for a population mean or population</td><td>Topic 4.2 HW
Textbook</td></tr>
</table>
</td></tr>
</table>

	mean difference. · 4.2.C Justify the appropriateness of constructing a confidence interval for a population mean or population mean difference by verifying conditions. · 4.2.D Calculate an appropriate confidence interval for a population mean or population mean difference. · 4.2.E Calculate the standard error and margin of error for a sample size for a one-sample t-interval.	
3	**Topic 4.3 Justifying a Claim Based on a Confidence Interval for a Population Mean or a Population Mean Difference** · 4.3.A Interpret a confidence interval in context for a population mean or population mean difference. · 4.3.B Justify a claim based on a confidence interval for a population mean or population mean difference. · 4.3.C Identify the relationships among sample size, confidence interval width, confidence level, and margin of error for a population mean or population mean difference.	Topic 4.3 HW Textbook
4	**Creating a Confidence Interval with the Presidents Activity** · Students will practice creating a confidence interval by collecting data on the number of U.S. presidents they can recall in one minute, and subsequently creating a One Sample T Interval and a One Proportion Z Interval to interpret and analyze the collected data.	Textbook
5	**Topic 4.4 Setting Up a Test for a Population Mean or a Population Mean Difference** · 4.4.A Identify an appropriate testing method and parameter for a population mean or population mean difference with unknown σ . · 4.4.B Identify the null and alternative hypotheses for a population mean or population mean difference with unknown σ. · 4.4.C Justify the appropriateness of a hypothesis test for a	Topic 4.4 HW Textbook

	population mean or population mean difference by verifying conditions.	
6	**Topic 4.5 Carrying Out a Test for a Population Mean or a Population Mean Difference** · 4.5.A Calculate an appropriate test statistic and p-value for testing a hypothesis about a population mean or population mean difference. · 4.5.B Interpret the p-value of a hypothesis test for a population mean or population mean difference. · 4.5.C Justify a claim about the population based on the results of a hypothesis test for a population mean or population mean difference.	Topic 4.5 HW Textbook
7	**Testing a Claimed Mean with M&Ms Activity** · Students test a real-world claim about the average number of M&Ms in fun-size bags by conducting a one-sample significance test, using class data to check conditions, calculate a p-value, and interpret results in context.	Textbook
8	**Review for Quiz Practice Worksheet** · Students work through practice problems preparing for the quiz. You can have students work individually, with partners, or in a group.	Textbook
9	**Unit 4 Quiz** · 10 multiple choice questions · 1 free response question	
10	**Topic 4.6 Sampling Distributions for the Difference Between Two Sample Means** · 4.6.A Calculate the mean and standard deviation of a sampling distribution for the difference between two sample means. · 4.6.B Justify the appropriateness of conditions for the sampling distribution of the difference between two sample means.	Topic 4.6 HW Textbook

	· 4.6.C Interpret the mean, standard deviation, and probabilities for a sampling distribution for the difference between sample means	
11	**Topic 4.7 Constructing a Confidence Interval for the Difference Between Two Population Means** **Topic 4.8 Justifying a Claim Based on a Confidence Interval for the Difference Between Two Population** · 4.7.A Identify an appropriate confidence interval procedure including the parameter for the difference between two population means. · 4.7.B Justify the appropriateness of constructing a confidence interval for the difference between two population means by verifying conditions. · 4.7.C Calculate an appropriate confidence interval for the difference between two population means. · 4.7.D Calculate the standard error and margin of error for estimating the difference between two population means. · 4.8.A Interpret a confidence interval in context for the difference between two population means. · 4.8.B Justify a claim based on a confidence interval for the difference between two population means.	Topic 4.7/4.8 HW Textbook
12	**Inference Games Activity** · In this activity, students compete in three “Minute to Win It” style games to collect data, use technology to create graphs and perform statistical inference, and draw conclusions about differences between populations.	Textbook
13	**Topic 4.9 Setting Up a Test for the Difference Between Two Population Means** **Topic 4.10 Carrying Out a Test for the Difference Between Two Population Means** · 4.9.A Identify an appropriate testing method for the difference between two population means including the parameters for the difference between the two population means. · 4.9.B Identify the null and alternative hypotheses for the difference between two population means · 4.9.C Justify the appropriateness of a hypothesis test for the difference between two population means by verifying conditions. · 4.10.A Calculate an appropriate test statistic and p-value for	Topic 4.9/4.10 HW Textbook

		testing a hypothesis for the difference between two population means. · 4.10.B Interpret the p-value of a hypothesis test for the difference between two population means. · 4.10.C Justify a claim about the populations based on the results of a hypothesis test for the difference between two population means.	
	14	**Inference Investigator Activity** · In this activity, students identify the investigative question being asked in a scenario, determine the appropriate inference procedure, and then use the TI-84 to carry out the procedure and interpret the results in context.	Textbook
	15	**Unit 4 Summary Lesson and Test Review** · Students work through a summary lesson, reviewing all topics from Unit 4. After the lesson, students can get started on the test review, which has problems that help prepare them for the unit assessment	Unit 4 Test Review Textbook
	16	**Unit 4 Project: Taste Test Comparison** · In this project, students will collect data and perform two inference procedures: a matched pairs t-test and a matched pairs t-interval. Students will analyze the results they get and answer questions on the findings.	Project due 1 week from today Textbook
	17	**Jeopardy Review Game** · Students participate in a Jeopardy-style review game to reinforce key concepts and practice applying skills from the unit in a collaborative and engaging format.	Textbook
	18	**Unit 4 Test** ● 15 multiple choice questions · 2 free response questions	
Assessments	● **Unit 4 Quiz** ● **Unit 4 Test**		
Standards	Topic 4.1 Sampling Distributions for Sample Means		

	4.1.A Calculate the mean and standard deviation of a sampling distribution of a sample mean. 4.1.B Justify the appropriateness of conditions for the sampling distribution of a sample mean. 4.1.C Interpret the mean, standard deviation, and probabilities for the sampling distribution of a sample mean. Topic 4.2 Constructing a Confidence Interval for a Population Mean or a Population Mean Difference 4.2.A Describe t-distributions. 4.2.B Identify an appropriate confidence interval procedure including the parameter for a population mean or population mean difference. 4.2.C Justify the appropriateness of constructing a confidence interval for a population mean or population mean difference by verifying conditions. 4.2.D Calculate an appropriate confidence interval for a population mean or population mean difference. 4.2.E Calculate the standard error and margin of error for a sample size for a one- sample t-interval. Topic 4.3 Justifying a Claim Based on a Confidence Interval for a Population Mean or a Population Mean Difference 4.3.A Interpret a confidence interval in context for a population mean or population mean difference. 4.3.B Justify a claim based on a confidence interval for a population mean or population mean difference. 4.3.C Identify the relationships among sample size, confidence interval width, confidence level, and margin of error for a population mean or population mean difference. Topic 4.4 Setting Up a Test for a Population Mean or a Population Mean Difference 4.4.A Identify an appropriate testing method and parameter for a population mean or population mean difference with unknown σ . 4.4.B Identify the null and alternative hypotheses for a population mean or population mean difference with unknown σ. 4.4.C Justify the appropriateness of a hypothesis test for a population mean or population mean difference by verifying conditions. Topic 4.5 Carrying Out a Test for a Population Mean or a Population Mean Difference 4.5.A Calculate an appropriate test statistic and p-value for testing a hypothesis about a population mean or population mean difference. 4.5.B Interpret the p-value of a hypothesis test for a population mean or population mean difference. 4.5.C Justify a claim about the population based on the results of a hypothesis test for a population mean or population mean difference. Topic 4.6 Sampling Distributions for the Difference Between Two Sample Means 4.6.A Calculate the mean and standard deviation of a sampling distribution for the difference between two sample means. 4.6.B Justify the appropriateness of conditions for the sampling distribution of the difference between two sample means.

	4.6.C Interpret the mean, standard deviation, and probabilities for a sampling distribution for the difference between sample means Topic 4.7 Constructing a Confidence Interval for the Difference Between Two Population Means Topic 4.8 Justifying a Claim Based on a Confidence Interval for the Difference Between Two Population 4.7.A Identify an appropriate confidence interval procedure including the parameter for the difference between two population means. 4.7.B Justify the appropriateness of constructing a confidence interval for the difference between two population means by verifying conditions. 4.7.C Calculate an appropriate confidence interval for the difference between two population means. 4.7.D Calculate the standard error and margin of error for estimating the difference between two population means. 4.8.A Interpret a confidence interval in context for the difference between two population means. 4.8.B Justify a claim based on a confidence interval for the difference between two population means. Topic 4.9 Setting Up a Test for the Difference Between Two Population Means Topic 4.10 Carrying Out a Test for the Difference Between Two Population Means 4.9.A Identify an appropriate testing method for the difference between two population means including the parameters for the difference between the two population means. 4.9.B Identify the null and alternative hypotheses for the difference between two population means 4.9.C Justify the appropriateness of a hypothesis test for the difference between two population means by verifying conditions. 4.10.A Calculate an appropriate test statistic and p-value for testing a hypothesis for the difference between two population means. 4.10.B Interpret the p-value of a hypothesis test for the difference between two population means. 4.10.C Justify a claim about the populations based on the results of a hypothesis test for the difference between two population means.	
Key Vocabulary	Academic/Concept Vocabulary	Literary Terms
Materials/ Resources	Unit 4 Notes Packet Unit 4 Homework Packet	

<table>
<tr><th colspan="2">Unit 5: Regression Analysis</th></tr>
<tr><td>Time Frame</td><td>9 Class Periods</td></tr>
<tr><td>Student Learning Outcomes</td><td>The student will:
The following four practices will be cycled throughout all units we learn in AP Statistics:
● Practice #1: Formulate Questions
Determine an investigative question for a statistical study.
● Practice #2: Collect Data
Identify and justify methods for collecting data and conducting statistical inference.
● Practice #3: Analyze Data
Construct representations of data and calculate numerical statistical outputs.</td></tr>
<tr><td>Essential Questions</td><td>● Does the fact that the number of shark attacks increases as ice cream sales increase necessarily mean that ice cream sales cause shark attacks?
● How can we determine the effectiveness of a linear model that uses the number of cricket chirps per minute to predict temperature?</td></tr>
<tr><td>Content</td><td>
<table>
<tr><th>Day</th><th>Lesson and Objectives</th><th>Assignment</th></tr>
<tr><td>1</td><td>Vitruvian Man Activity – Introduction to Linear Regression
· Students will collect and analyze real data on height and arm span to explore relationships in scatterplots and discover how a line of best fit can model and predict real-world patterns.</td><td>Textbook</td></tr>
<tr><td>2</td><td>Topic 5.1 Graphical Representations Between Two Quantitative Variables
· 5.1.A Construct scatterplots depicting the relationship between two quantitative variables.
· 5.1.B Describe the characteristics of a scatterplot.
· 5.1.C Justify a claim using scatterplots depicting the relationship between two quantitative variables.</td><td>Topic 5.1 HW
Textbook</td></tr>
<tr><td>3</td><td>Topic 5.2 Correlation
· 5.2.A Interpret the correlation for a linear relationship.</td><td>Topic 5.2 HW
Textbook</td></tr>
<tr><td>4</td><td>Topic 5.3 Linear Regression Models</td><td>Topic 5.3/5.5 HW
Textbook</td></tr>
</table>
</td></tr>
</table>

		Topic 5.5 Least-Squares Regression · 5.3.A Calculate a predicted response value using a linear regression model. · 5.5.A Calculate the coefficients for the least-squares regression line model. · 5.5.B Interpret coefficients for the least-squares regression line model.	Textbook
	5	**Review for Quiz Practice Worksheet** · Students work through practice problems preparing for the quiz. You can have students work individually, with partners, or in a group.	Textbook
	6	**Unit 5 Quiz** · 10 multiple choice questions · 1 free response question	
	7	**Topic 5.4 Residuals** · 5.4.A Calculate the differences between the observed and predicted values. · 5.4.B Interpret the differences between the observed and predicted values. · 5.4.C Describe the form of association of bivariate data using residual plots.	Topic 5.4 HW Textbook
	8	**Handspan vs Chocolate Grab Activity** · Students will investigate the relationship between hand span and candy-grabbing ability by collecting real data, building a regression model, and interpreting slope, correlation, and predictions in a fun, hands-on context.	Textbook
	9	**Unit 5 Summary Lesson and Test Review** · Students work through a summary lesson, reviewing topics 3.1 – 3.8. After the lesson, students can get started on the test review, which has problems that help prepare them for the unit assessment	Unit 5 Test Review

<table>
<tr><td></td><td>
<table>
<tr><td>10</td><td>Unit 5 Project: Addition vs Multiplication Facts
· Students will collect their own class data on addition and multiplication fluency, then use linear regression to analyze and interpret the relationship between the two skills.</td><td>Project due one week from today</td></tr>
<tr><td>11</td><td>Trivia Review Game
· Students review key concepts from the unit by competing in a classic trivia game night–style review that reinforces understanding through collaborative problem solving and discussion.</td><td>Textbook</td></tr>
<tr><td>12</td><td>Unit 5 Test
● 15 multiple choice questions
· 2 free response questions</td><td></td></tr>
</table>
</td></tr>
<tr><td>Assessments</td><td>● Unit 5 Quiz
● Unit 5 Test</td></tr>
<tr><td>Standards</td><td>Topic 5.1 Graphical Representations Between Two Quantitative Variables
5.1.A Construct scatterplots depicting the relationship between two quantitative variables.
5.1.B Describe the characteristics of a scatterplot.
5.1.C Justify a claim using scatterplots depicting the relationship between two quantitative variables.

Topic 5.2 Correlation
5.2.A Interpret the correlation for a linear relationship.

Topic 5.3 Linear Regression Models

Topic 5.5 Least-Squares Regression
5.3.A Calculate a predicted response value using a linear regression model.
5.5.A Calculate the coefficients for the least-squares regression line model.
5.5.B Interpret coefficients for the least-squares regression line model.

Topic 5.4 Residuals
5.4.A Calculate the differences between the observed and predicted values.
5.4.B Interpret the differences between the observed and predicted values.
5.4.C Describe the form of association of bivariate data using residual plots.</td></tr>
</table>

Key Vocabulary	Academic/Concept Vocabulary	Literary Terms
Materials/ Resources	Unit 5 Notes Packet Unit 5 Homework Packet	

Danville Area School District
Course Overview and Scope and Sequence

Course Title: AP Statistics
Content Area: Mathematics
Grade Level: High School
Date Developed: Summer 2026
Date Updated: 8/15/26
Board Approved: October 14, 2026

COURSE OVERVIEW: AP Statistics introduces students to the major concepts and tools used to collect, analyze, and draw conclusions from data. Throughout this course, students learn how statisticians use data to answer real-world questions and make informed decisions.

ANCHOR STANDARDS: Unit 1(1-13), Unit 2(1-12), Unit 3(1-15), Unit 4(1-10), Unit 5(1-5)
1.A Identify the question to be answered or problem to be solved (not assessed). 1.B Identify key and relevant information to answer a question or solve a problem. 1.C Describe an appropriate method for gathering and representing data. 1.D Identify an appropriate inference method for confidence intervals. 1.E Identify an appropriate inference method for significance tests. 1.F Identify null and alternative hypotheses
2.A Describe data presented numerically or graphically. 2.B Construct numerical or graphical representations of distributions. 2.C Calculate summary statistics, relative positions of points within a distribution, correlation, and predicted response. 2.D Compare distributions or relative positions of points within a distribution.
3.A Determine relative frequencies, proportions, or probabilities using simulation or calculations. 3.B Determine parameters for probability distributions. 3.C Describe probability distributions. 3.D Construct a confidence interval, provided conditions for inference are met. 3.E Calculate a test statistic and find a p-value, provided conditions for inference are met.
4.A Make an appropriate claim or draw an appropriate conclusion. 4.B Interpret statistical calculations and findings to assign meaning or assess a claim. 4.C Verify that inference procedures apply in a given situation. 4.D Justify a claim based on a confidence interval. 4.E Justify a claim using a decision based on significance tests

KEY COURSE TEXT AND MATERIALS:

De Veaux, R. D., Velleman, P. F., Bock, D. E., & Bullard, F. (2027). *Stats: Modeling the World* (7th ed., AP ed.). Pearson.
KEY ASSESSMENTS: Formative: Quizzes, Personal Progress Checks, Unit Exams Summative: AP Statistics Exam

SCOPE AND SEQUENCE					
Unit	PRIORITY STANDARDS	SUPPORTING STANDARDS	ASSESSMENT	MATERIALS	TIMEFRAME
Unit: 1 - Exploring One Variable Data & Collecting Data	1.A 2.A 2.B 3.A 3.B 4.A 4.B 4.C	1.A 2.A 2.B 3.A 3.B 4.A 4.B 4.C	Quiz 1 Quiz 2 Unit 1 Test	Textbook Notes Packet Homework Packet Project Worksheets	26-28 Class Periods
Unit 2: Probability, Random Variables, and Probability Distributions	3.A 3.B 3.C 3.D 4.A 4.B 4.C 4.D	3.A 3.B 3.C 3.D 4.A 4.B 4.C 4.D	Quiz 1 (2.1 – 2.4) Unit 2 Part 1 Test (2.1 – 2.7) Quiz 2 (2.8 – 2.10) Unit 2 Part 2 Test (2.8 – 2.12)	Textbook Notes Packet Homework Packet Project Worksheets	24-28 Class Periods

Unit 3: Inference for Categorical Data: Proportions	2.C 2.D 2.E 3.C 3.D 3.E 4.B 4.C 4.D 4.E 4.F 4.G	2.C 2.D 2.E 3.C 3.D 3.E 4.B 4.C 4.D 4.E 4.F 4.G	Quiz 1 (3.1 – 3.4) Unit 3 Part 1 Test (3.1 – 3.8) Quiz 2 (3.9 – 3.13) Unit 3 Part 2 Test (3.9 – 3.15)	Textbook Notes Packet Homework Packet Project Worksheets	30-35 Class Periods
Unit 4: Inference for Quantitative Data: Means	2.C 2.D 2.E 3.D 3.E 4.C 4.D 4.E 4.F 4.G	2.C 2.D 2.E 3.D 3.E 4.C 4.D 4.E 4.F 4.G	Unit 4 Quiz Unit 4 Test	Textbook Notes Packet Homework Packet Project Worksheets	18-22 Class Periods
Unit 5: Regression Analysis	3.A 3.B 4.A 4.B 4.D	3.A 3.B 4.A 4.B 4.D	Unit 5 Quiz Unit 5 Test	Textbook Notes Packet Homework Packet Project Worksheets	9-14 Class Periods
AP Exam Preparation	All standards listed in the Anchors/Standards are reviewed here.	All standards listed in the Anchors/Standards are reviewed here.	Released exams, Final Exam (secure exam from Course Audit), Free Response	The College Board created materials via secure documents through the Course Audit and AP Classroom.	30-38 Class Periods

			questions from past years		
Post AP Exam	All standards listed in the Anchors/Standards are reviewed here.	All standards listed in the Anchors/Standards are reviewed here.	Free Response Questions (current and past), enrichment assignments	The College Board created materials via secure documents through the Course Audit and AP Classroom.	15 Class Periods