

Documents for Agenda Item 5:
Draft of Evaluation Rubric

DRAFT

SUSD Math Textbook Adoption Evaluation Rubric

Number of Reviewer:	Role:	Learning Community:	Date:
Name of Curriculum Materials:	Subject:	Grade Level(s):	
Rubric for answering questions about Overarching Considerations:			
<ul style="list-style-type: none"> ● 0 points - Not Found - The curriculum materials do not support this element. ● 1 point - Low - The curriculum materials contain limited support for this element; the support is not embedded or consistently present within resource(s). ● 2 points - Medium - The curriculum materials contain support for this element, but it is not always embedded or consistently present within resource(s). ● 3 points - High - The curriculum materials contain embedded support for this element so that it is consistently present within resource(s). 			
Alignment: To what extent do the materials ...	Score 0, 1, 2, 3	Comments	
1. Provide alignment to the Arizona State Math Standards?			
2. Utilize the Standards for Mathematical Practices within each lesson?			
3. Align to the College Board AP Statistics scope and sequence?			
Differentiation: To what extent do the materials...	Score 0, 1, 2, 3	Comments	
4. Provide teachers with strategies for meeting the needs of a range of learners?			
5. Provide instructional support to help teachers sequence or scaffold lessons so that students move from what they know to what they need to know?			
6. Provide opportunities for struggling students to review materials and remediate content not yet mastered?			
7. Provide opportunities for advanced students to investigate content at greater depth?			
Procedural Support - Students: To what extent do the materials...	Score 0, 1, 2, 3	Comments	
8. Support the development of students' proficiency with procedural skills?			
9. Include student activities that build on each other within and across grades in a logical way that supports understanding/procedural skills?			

10. Provide opportunities to spend sufficient time with application problems within lessons?		
11. Provide opportunities for practicing mathematical fluency?		
Procedural Supports - Teachers: To what extent do the materials...	Score 0, 1, 2, 3	Comments
12. Encourage teachers to draw on multiple resources within the program to facilitate learning?		
13. Include essential learning materials, handouts, student and teacher text, and other instructional tools necessary to achieve the provided or indicated learning objectives?		
14. Offer multiple Professional Development opportunities for teachers when implementing this program?		
Assessment: To what extent do the materials ...	Score 0, 1, 2, 3	Comments
15. Include accompanying assessments of student learning (such as homework, observation checklists, portfolio recommendations, extended tasks, tests, and quizzes) that provide evidence regarding students' proficiency?		
16. Provide strategies for gathering information about students' prior knowledge of mathematical background and vocabulary?		
17. Provide strategies for teachers to identify common student errors and misconceptions?		
18. Assess students at a variety of knowledge levels (e.g., memorization, understanding, reasoning, problem-solving)		
19. Provide summative assessments for teacher use?		
20. Encourage students to monitor their own progress?		
21. Provide opportunities for ongoing review and practice with feedback related to learning concepts and skills?		
22. Provide support for a varied system of on-going formative and summative assessment (formal or informal observations, interviews, surveys, performance assessments, target problems)?		

Organization: To what extent do the materials...		Score 0, 1, 2, 3	Comments
23. Include Essential Questions in the chapter or lesson to guide students in recognizing "big ideas"?			
24. Contain illustrations, graphs, charts, and/or demonstrations that are current, correlated, and accurate and are presented in a variety of formats?			
25. Include learning objectives in chapters or lessons to guide students in recognizing what they should be able to demonstrate?			
26. Include a well-organized easy to use and comprehensive teacher's edition?			
Accessibility:		Score 0, 1, 2, 3	Comments
27. The text is free from bias (e.g. gender, cultural)			
28. The text provides accommodations for individual and cultural differences.			
29. The text provides accommodations for differences in language proficiency.			
Technology: To what extent do digital materials...		Score 0, 1, 2, 3	Comments
30. Address the grade level(s) or course level of the course(s)?			
31. Provide content that enhances instruction and assessment?			
32. Provide content support for teachers to further develop expertise?			
33. Integrate technology such as interactive tools, virtual manipulatives/objects, and software that engages students?			
34. Include or reference technology that provides opportunities for teachers and/or students to communicate with each other (e.g. websites, discussion groups, webinars, homework submission)			
35. Include technology resources to assist and engage students?			
36. Include opportunities to assess student content understandings and knowledge of procedural skills using technology?			
37. Include or reference technology that provides teachers additional materials to differentiate instruction for students?			

38. Include teacher guidance for the mindful use of embedded technology to support and enhance student learning?		
39. Include an online platform that is easy to access and accessible when needed (speed, accessibility, ease of navigation)?		
40. Include an online platform that is user-friendly and engaging to the student?		
References:	Score 0, 1, 2, 3	Comments
41. Customer service is reliable and questions, feedback, and assistance can be made frequently and in a timely and appropriate manner.		
Overall Evaluation:	Total Points	Additional Comments
	/ 123	

*possible add-ons to list:

Clear alignment of each lesson to standard
 Project-based learning opportunities
 Tier 2 and Tier 3 resources
 Gamification, engaging group activities and thinking tasks
 Google Classroom connection
 iXL connection
 Flexibility in assessment creation

Added to list per request of committee members

**Documents for Agenda Item 6:
Drafts of Vendor Criteria List**

Vendor Criteria List #1

Alignment to State Standards:

- Ensures that the curriculum aligns with the Arizona State Math Standards
- Incorporates the Standards for Mathematical Practices in every lesson
- Closely follows the College Board AP Statistics scope and sequence

Differentiation:

- Offers teachers strategies to address diverse learner needs
- Supports teachers in sequencing lessons for effective progression of knowledge
- Creates chances for struggling students to revisit and master content
- Enables advanced students to explore topics more thoroughly

Procedural Support for Students:

- Encourages the enhancement of students' procedural skills through sequential activities that logically connect across grades, ensuring ample time for application problems and opportunities for practicing mathematical fluency within lessons
- Easy to access digital resources that are student and parent user-friendly
- Encourages students to self-monitor their own progress

Procedural Support for Teachers:

- Encourages educators to utilize various resources available in the program to enhance learning
- Inclusion of key materials such as handouts, worksheets for students and teachers, and other instructional tools needed to meet the specified learning objectives.
- Provides several professional development opportunities for teachers to effectively implement the program.

Assessments:

- Materials incorporate student assessments (like homework, observation checklists, portfolios, extended tasks, tests, and quizzes) to demonstrate proficiency; strategies for assessing prior mathematical knowledge and vocabulary; methods for identifying common errors and misconceptions
- Varied assessments across different knowledge levels
- Editable formative and summative assessments for teachers
- Opportunities for self-monitoring by students
- Ongoing review and practice opportunities with feedback

Organization:

- Organization of the materials should include essential questions to highlight key concepts, relevant illustrations and graphs, vocabulary, clear learning objectives and stated standards, and a comprehensive and user-friendly teacher's edition.

Accessibility:

- Text is unbiased and considerate of various individual and cultural differences, including language proficiency. It ensures inclusivity by accommodating these differences effectively.

Technology:

- User-friendly and easily accessible
- Enhances instruction and assessment
- Supports teachers in developing their expertise,
- Integrates engaging technology like interactive tools and virtual manipulatives, and includes resources for communication, differentiation, and assessment of student understanding, all while providing guidance for effective use of technology and maintaining an accessible, user-friendly online platform.

Vendor Criteria List #2

- **Alignment with Arizona State Math Standards:**
 - Includes Standards for Mathematical Practices
 - Closely aligned to College Board scope and sequence for AP Statistics
- **Rigorous Mathematical Content:**
 - Includes college-level math content and skills, ensuring students are prepared for higher-level statistical application
 - Thinking tasks, project-based exploration, and engaging student activities
- **Assessment Methods:**
 - Includes various assessment methods such as formative and summative assessments, practice exams, and performance tasks that prepare students for success in college-level math courses
- **Teacher Training:**
 - Provides professional development that ensures that teachers are prepared to teach the course successfully using the curriculum.
- **Equity and Access:**
 - Promotes equity and access, ensuring all students have the opportunity to succeed in this course.
- **Teacher Resources:**
 - Provides a detailed course syllabus that includes a timeline, unit plans, scope and sequence, and instructional strategies. Specifies the necessary prerequisite skills, worksheets, videos, and other resources needed to effectively teach the course.
- **Student Support:**
 - Includes strategies for supporting diverse learners.
 - Includes strategies for student engagement.
- **Technology Integration:**
 - Incorporates technology to enhance mathematical and statistical learning and provides access to digital resources and simulations.

Documents for Agenda Item 7:
AP College Board Course Content

AP[®] Statistics

About the Advanced Placement Program[®] (AP[®])

The Advanced Placement Program[®] has enabled millions of students to take college-level courses and earn college credit, advanced placement, or both, while still in high school. AP Exams are given each year in May. Students who earn a qualifying score on an AP Exam are typically eligible, in college, to receive credit, placement into advanced courses, or both. Every aspect of AP course and exam development is the result of collaboration between AP teachers and college faculty. They work together to develop AP courses and exams, set scoring standards, and score the exams. College faculty review every AP teacher's course syllabus.

AP Statistics Course Overview

The AP Statistics course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes evident in the content, skills, and assessment in the AP Statistics course: exploring data, sampling and experimentation, probability and simulation, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding.

The AP Statistics course is equivalent to a one-semester, introductory, non-calculus-based college course in statistics.

PREREQUISITES

The AP Statistics course is an excellent option for any secondary school student who has successfully completed a second-year course in algebra and who possesses sufficient mathematical maturity and quantitative reasoning ability. Because second-year algebra is the prerequisite course, AP Statistics is usually taken in either the junior or senior year.

AP Statistics Course Content

The course content is organized into nine commonly taught units, which have been arranged in the following suggested, logical sequence:

- **Unit 1:** Exploring One-Variable Data
- **Unit 2:** Exploring Two-Variable Data
- **Unit 3:** Collecting Data
- **Unit 4:** Probability, Random Variables, and Probability Distributions
- **Unit 5:** Sampling Distributions
- **Unit 6:** Inference for Categorical Data: Proportions
- **Unit 7:** Inference for Quantitative Data: Means
- **Unit 8:** Inference for Categorical Data: Chi-Square
- **Unit 9:** Inference for Quantitative Data: Slopes

Each unit is broken down into teachable segments called topics.

In addition, the following big ideas serve as the foundation of the course, enabling students to create meaningful connections among concepts and develop deeper conceptual understanding:

- **Variation and Distribution:** The distribution of measures for individuals within a sample or population describes variation. The value of a statistic varies from sample to sample. How can we determine whether differences between measures represent random variation or meaningful distinctions? Statistical methods based on probabilistic reasoning provide the basis for shared understandings about variation and about the likelihood that variation between and among measures, samples, and populations is random or meaningful.
- **Patterns and Uncertainty:** Statistical tools allow us to represent and describe patterns in data and to classify departures from patterns. Simulation and probabilistic reasoning allow us to anticipate patterns in data and to determine the likelihood of errors in inference.
- **Data-Based Predictions, Decisions, and Conclusions:** Data-based regression models describe relationships between variables and are a tool for making predictions for values of a response variable. Collecting data using random sampling or randomized experimental design means that findings may be generalized to the part of the population from which the selection was made. Statistical inference allows us to make data-based decisions.

AP Statistics Course Skills

Students should develop course skills in the following skills categories:

- **Selecting Statistical Methods:** Select methods for collecting and/or analyzing data for statistical inference.
- **Data Analysis:** Describe patterns, trends, associations, and relationships in data.
- **Using Probability and Simulation:** Explore random phenomena.
- **Statistical Argumentation:** Develop an explanation or justify a conclusion using evidence from data, definitions, or statistical inference.

AP Statistics Exam Structure

AP STATISTICS EXAM: 3 HOURS

Assessment Overview

The AP Statistics Exam assesses student understanding of the skills and learning objectives outlined in the course framework. The exam is 3 hours long and includes 40 multiple-choice questions and 6 free-response questions.

Format of Assessment

Section I: Multiple-choice | 40 Questions | 90 Minutes | 50% of Exam Score

- All four skill categories are assessed.

Section II: Free-response | 6 Questions | 90 Minutes | 50% of Exam Score

- Part A: Questions 1–5 (37.5% of Exam Score).
- Part B: Question 6: Investigative task (12.5% of Exam Score).

Exam Components

Sample Multiple-Choice Question

EXPERIMENTAL DESIGN

An independent polling agency was hired to track the preferences of registered voters in a district for an upcoming election. The polling agency divided the district into twenty regions and believes that the regions are similar to one another in their composition. The agency then randomly selected two of the regions and surveyed all registered voters in both regions.

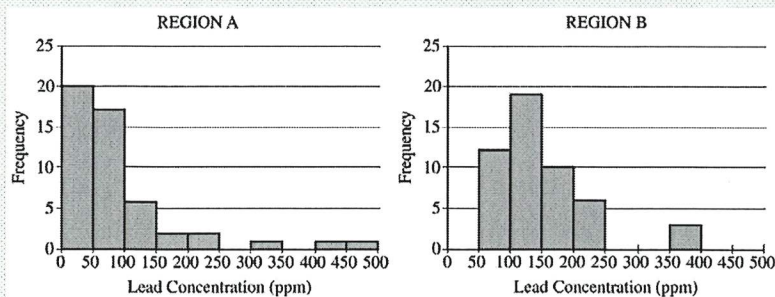
Which of the following best describes the sampling method used by the polling agency?

- (A) Convenience sampling
- (B) Simple random sampling
- (C) Stratified random sampling
- (D) Systematic sampling
- (E) Cluster sampling

Correct Answer: E

Sample Free-Response Question: Multi-Focus

A geologist studying lead concentration in soil selected random samples of soil from two regions: region A and region B. The following histograms show the distribution of lead concentration, in parts per million (ppm), for the two samples.



(A) Write a few sentences comparing the distributions of lead concentration in the two samples.

(B) To investigate whether the mean lead concentration is different in region A than in region B, the geologist conducted the appropriate test. All conditions for inference are met, and the p -value of the test is 0.007. Based on the p -value, is there convincing statistical evidence, at a level of significance of $\alpha = 0.05$, that there is a difference between the mean lead concentration of region A and the mean lead concentration of region B? Justify your answer.

Course at a Glance

Plan

The Course at a Glance provides a useful visual organization of the AP Statistics curricular components, including:

- Sequence of units, along with approximate weighting and suggested pacing. Please note, pacing is based on 45-minute class periods, meeting five days each week for a full academic year.
- Progression of topics within each unit
- Spiraling of the big ideas and course skills across units

Teach

SKILL CATEGORIES

Skill categories spiral throughout the course.

- | | |
|--|---|
| 1 Selecting Statistical Methods | 3 Using Probability and Simulation |
| 2 Data Analysis | 4 Statistical Argumentation |

+ Indicates 3 or more skills for a given topic. See the individual topic for all the relevant skills.

BIG IDEAS

Big ideas spiral across topics and units.

- | | |
|---------------------------------------|---|
| VAR Variation and Distribution | DAT Data-Based Predictions, Decisions, and Conclusions |
| UNC Patterns and Uncertainty | |

Assess

Assign the Personal Progress Checks—either as homework or in class—for each unit. Each Personal Progress Check contains formative multiple-choice and free-response questions. The feedback from the Personal Progress Checks shows students the areas where they need to focus.

UNIT

1

Exploring One-Variable Data

~14–16 Class Periods

15–23% AP Exam Weighting

VAR	1.1	Introducing Statistics: What Can We Learn from Data?
1		
VAR	1.2	The Language of Variation: Variables
2		
UNC	1.3	Representing a Categorical Variable with Tables
2		
UNC	1.4	Representing a Categorical Variable with Graphs
2		
UNC	1.5	Representing a Quantitative Variable with Graphs
2		
UNC	1.6	Describing the Distribution of a Quantitative Variable
2		
UNC	1.7	Summary Statistics for a Quantitative Variable
2		
4		
UNC	1.8	Graphical Representations of Summary Statistics
2		
UNC	1.9	Comparing Distributions of a Quantitative Variable
2		
VAR	1.10	The Normal Distribution
2		
3		

Personal Progress Check 1

Multiple-choice: ~35 questions

Free-response: 2 questions

- Exploring Data
- Exploring Data

UNIT

2

Exploring Two-Variable Data

~10–11 Class Periods

5–7% AP Exam Weighting

VAR	2.1	Introducing Statistics: Are Variables Related?
1		
UNC	2.2	Representing Two Categorical Variables
2		
UNC	2.3	Statistics for Two Categorical Variables
2		
UNC	2.4	Representing the Relationship Between Two Quantitative Variables
DAT		
2		
DAT	2.5	Correlation
2		
4		
DAT	2.6	Linear Regression Models
2		
DAT	2.7	Residuals
2		
DAT	2.8	Least Squares Regression
2		
4		
DAT	2.9	Analyzing Departures from Linearity
2		

Personal Progress Check 2

Multiple-choice: ~35 questions

Free-response: 2 questions

- Exploring Data
- Investigative Task

UNIT 3

Collecting Data

~9–10 Class Periods **12–15%** AP Exam Weighting

VAR 1	3.1 Introducing Statistics: Do the Data We Collected Tell the Truth?
DAT 1 4	3.2 Introduction to Planning a Study
DAT 1	3.3 Random Sampling and Data Collection
DAT 1	3.4 Potential Problems with Sampling
VAR 1	3.5 Introduction to Experimental Design
VAR 1	3.6 Selecting an Experimental Design
VAR 4	3.7 Inference and Experiments

Personal Progress Check 3

Multiple-choice: ~20 questions

Free-response: 2 questions

- Exploring Data and Collecting Data
- Collecting Data

UNIT 4

Probability, Random Variables, and Probability Distributions

~18–20 Class Periods **10–20%** AP Exam Weighting

VAR 1	4.1 Introducing Statistics: Random and Non-Random Patterns?
UNC 3	4.2 Estimating Probabilities Using Simulation
VAR 3 4	4.3 Introduction to Probability
VAR 4	4.4 Mutually Exclusive Events
VAR 3	4.5 Conditional Probability
VAR 3	4.6 Independent Events and Unions of Events
VAR 2 4	4.7 Introduction to Random Variables and Probability Distributions
VAR 3 4	4.8 Mean and Standard Deviation of Random Variables
VAR 3	4.9 Combining Random Variables
UNC 3	4.10 Introduction to the Binomial Distribution
UNC 3 4	4.11 Parameters for a Binomial Distribution
UNC 3 4	4.12 The Geometric Distribution

Personal Progress Check 4

Multiple-choice: ~45 questions

Free-response: 2 questions

- Probability
- Investigative Task

UNIT 5

Sampling Distributions

~10–12 Class Periods **7–12%** AP Exam Weighting

VAR 1	5.1 Introducing Statistics: Why Is My Sample Not Like Yours?
VAR 3	5.2 The Normal Distribution, Revisited
UNC 3	5.3 The Central Limit Theorem
UNC 4 3	5.4 Biased and Unbiased Point Estimates
VAR 3 4	5.5 Sampling Distributions for Sample Proportions
UNC 3 4	5.6 Sampling Distributions for Differences in Sample Proportions
UNC 3 4	5.7 Sampling Distributions for Sample Means
UNC 3 4	5.8 Sampling Distributions for Differences in Sample Means

Personal Progress Check 5

Multiple-choice: ~35 questions

Free-response: 2 questions

- Probability and Sampling Distributions
- Investigative Task

UNIT 6

Inference for Categorical Data: Proportions

~16–18 Class Periods **12–15%** AP Exam Weighting

VAR 1	6.1 Introducing Statistics: Why Be Normal?
UNC +	6.2 Constructing a Confidence Interval for a Population Proportion
UNC 4	6.3 Justifying a Claim Based on a Confidence Interval for a Population Proportion
VAR 1 4	6.4 Setting Up a Test for a Population Proportion
VAR DAT 3 4	6.5 Interpreting <i>p</i> -Values
DAT 4	6.6 Concluding a Test for a Population Proportion
UNC +	6.7 Potential Errors When Performing Tests
UNC +	6.8 Confidence Intervals for the Difference of Two Proportions
UNC 4	6.9 Justifying a Claim Based on a Confidence Interval for a Difference of Population Proportions
VAR 1 4	6.10 Setting Up a Test for the Difference of Two Population Proportions
VAR DAT 3 4	6.11 Carrying Out a Test for the Difference of Two Population Proportions

Personal Progress Check 6

Multiple-choice: ~55 questions

Free-response: 2 questions

- Inference
- Investigative Task

UNIT 7

Inference for Quantitative Data: Means

~14–16 Class Periods **10–18%** AP Exam Weighting

VAR 1	7.1 Introducing Statistics: Should I Worry About Error?
VAR UNC +	7.2 Constructing a Confidence Interval for a Population Mean
UNC 4	7.3 Justifying a Claim About a Population Mean Based on a Confidence Interval
VAR 1 4	7.4 Setting Up a Test for a Population Mean
VAR DAT 3 4	7.5 Carrying Out a Test for a Population Mean
UNC +	7.6 Confidence Intervals for the Difference of Two Means
UNC 4	7.7 Justifying a Claim About the Difference of Two Means Based on a Confidence Interval
VAR 1 4	7.8 Setting Up a Test for the Difference of Two Population Means
VAR DAT 3 4	7.9 Carrying Out a Test for the Difference of Two Population Means
	7.10 Skills Focus: Selecting, Implementing, and Communicating Inference Procedures

Personal Progress Check 7

Multiple-choice: ~50 questions

Free-response: 2 questions

- Inference and Collecting Data
- Investigative Task

UNIT 8

Inference for Categorical Data: Chi-Square

~10–11 Class Periods **2–5%** AP Exam Weighting

VAR 1	8.1 Introducing Statistics: Are My Results Unexpected?
VAR +	8.2 Setting Up a Chi-Square Goodness of Fit Test
VAR DAT 3 4	8.3 Carrying Out a Chi-Square Test for Goodness of Fit
VAR 3	8.4 Expected Counts in Two-Way Tables
VAR 1 4	8.5 Setting Up a Chi-Square Test for Homogeneity or Independence
VAR DAT 3 4	8.6 Carrying Out a Chi-Square Test for Homogeneity or Independence
	8.7 Skills Focus: Selecting an Appropriate Inference Procedure for Categorical Data

Personal Progress Check 8

Multiple-choice: ~30 questions

Free-response: 2 questions

- Inference
- Inference and Exploring Data/Collecting Data

UNIT 9

Inference for Quantitative Data: Slopes

~7–8 Class Periods **2–5%** AP Exam Weighting

VAR 1	9.1 Introducing Statistics: Do Those Points Align?
UNC +	9.2 Confidence Intervals for the Slope of a Regression Model
UNC 4	9.3 Justifying a Claim About the Slope of a Regression Model Based on a Confidence Interval
VAR 1 4	9.4 Setting Up a Test for the Slope of a Regression Model
VAR DAT 3 4	9.5 Carrying Out a Test for the Slope of a Regression Model
	9.6 Skills Focus: Selecting an Appropriate Inference Procedure

Personal Progress Check 9

Multiple-choice: ~25 questions

Free-response: 1 question

- Inference and Exploring Data