



WEST SHORE SCHOOL DISTRICT
AP Stats Learning Module #1

Title of Module	Exploring and Understanding Data	Grade Level	10-12
Curriculum Area	AP Statistics	Time Frame	21 days

Desired Results

Best Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure (Deductive Reasoning)
8. Look for and express regularity in repeated reasoning.

Transfer Goals

- Students will be able to independently use their learning to...
- Connect old problem solving techniques to new curriculum.
 - Connect new material to real world applications.
 - Create viable mathematical arguments and use them to critique the arguments of fellow classmates.

Key Learnings/Big Ideas

- Categorical and Quantitative Data
- Displaying and Describing Categorical Data
- Displaying and Summarizing Quantitative Data
- Understanding and Comparing Distributions
- The Standard Deviation as a Ruler and the Normal Model

Content and Reading and Writing Standards

- CC.2.4.HS.B.1
Summarize, represent, and interpret data on a single count or measurement variable.
- CC.2.4.HS.B.2
Summarize, represent, and interpret data on two categorical and quantitative variables.
- CC.2.4.HS.B.5
Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.
- CC.2.4.HS.B.6
Use the concepts of independence and conditional probability to interpret data.

Essential Questions	Vocabulary (Best Practices) Utilize concepts & competencies to add to vocabulary
<p>Unit EQ: How do we explore and describe Data?</p> <p>LEQ: What is the difference between categorical and quantitative data?</p> <p>How do we display and describe categorical data?</p> <p>How do we display and describe quantitative data?</p> <p>How do we compare distributions?</p> <p>How does the standard deviation relate to a normal distribution?</p>	<p>Statistics data, datum variation individual respondent subject participant experimental unit observation variable categorical quantitative frequency table relative frequency table distribution bar chart pie chart contingency table marginal distribution conditional distribution independent segmented bar chart Simpson's Paradox distribution histogram relative frequency histogram stem-and-leaf display dot plot shape center spread mode unimodal bimodal multimodal uniform symmetric tail skewed outliers gaps</p>

	<p>time plot re-expressing data center spread midrange median range quartile interquartile range percentile five-number summary boxplot mean standard deviation variance standard deviation standardized value rescaling z-score normal model parameter statistic standard Normal model 68-95-99.7 Rule normal probability plot</p>
<p>Concepts Students will know...</p>	<p>Skills/Competencies (I Can...) Based on LEQs Students will be able to...</p>
<p>The difference between categorical and quantitative data</p> <p>How to display and describe categorical data</p> <p>How to display and describe quantitative data</p> <p>How to compare distributions</p> <p>How the standard deviation relates to a normal distribution</p>	<p>Categorize variables as either categorical or quantitative</p> <p>Display and describe categorical data</p> <p>Display and describe quantitative data</p> <p>Compare distributions</p> <p>Relate the standard deviation to a normal distribution</p>

Assessment Evidence

Formative Assessment

Questioning, Think Pair Share, Graphic Organizers, Visual Representations.

Summative Assessment

Common Assessments

Best Instructional Practices

[Activating Strategies](#)
[Extended Thinking](#)
[Summarizing](#)
[Vocabulary in Context](#)
[Advance Organizers](#)
[Non-verbal Representation](#)
[Integration of Webb's Depth](#)
[Integration of 21st Century Skills](#)
[Reading and writing across disciplines](#)
[Rigor and Relevance](#)

Resources

Student	Teacher

Adapted from Wiggins, Grant and J. Mc Tighe. (1998). *Understanding by Design*, Association for Supervision and Curriculum Development, ISBN # 0-87120-313-8 (ppk)