



Statistical Reasoning UNIT PLANNER



Unit title	Unit 1 Analyzing One Variable Data	Unit duration	12 Days
Essential Questions (OR GUIDING QUESTIONS?)			
<ul style="list-style-type: none">• What is the origin of data?• How do we analyze categorical data?• What data is best represented with a dot plot?• How are stem plots used to make decisions?• When are histograms used to compare data sets?• What are the steps to measure center in a data set?• How is data variability measured?• When is a data point considered an outlier?• How are percentiles calculated and what do they mean?			
Assessments			
<ul style="list-style-type: none">• Checkpoint quiz topic 1.1-1.5• Checkpoint quiz topic 1.6-1.9• Unit 1 Test			
Content Standards			
<p><u>Students will select appropriate graphical and numerical methods and use these methods to analyze the data.</u></p> <p>MSR.AD.1 Students will use distributions to identify the key features of the data collected.</p> <ol style="list-style-type: none">Students will describe the distribution for quantitative data.<ol style="list-style-type: none">Describe and interpret the shape of the distribution.Describe and interpret the measures of center for the distribution.Describe and interpret the patterns in variability for the distribution.Describe and interpret any outliers or gaps in the distribution.Students will describe the distribution for categorical data.<ol style="list-style-type: none">Describe and interpret the modal category for the distribution.Describe and interpret patterns that exist for the distribution.			





Students will formulate questions to clarify the problem at hand and formulate one (or more) questions that can be answered with data.

MSR.FQ.1 Students will apply the statistical method to real-world situations.

- i. Formulate questions to clarify the problem at hand and formulate one (or more) questions that can be answered with data.
- ii. Collect data by designing a plan to collect appropriate data and employ the plan to collect the data.
- iii. Analyze data by selecting appropriate graphical and numerical methods and using these methods to analyze the data.
- iv. Interpret results by interpreting the analysis and relating the interpretation to the original question

Learning Activities and Experiences

Topic	Resource	Content Addressed	Standards Addressed
Origin of Data	1.1 Statistics: The Science and Art of Data Statistics and Probability with Applications 3rd Edition pg. 4 – 10	<ul style="list-style-type: none"> ● Identify the individuals and variables in a data set, then classify the variables as categorical or quantitative. ● Summarize the distribution of a variable with a frequency table or a relative frequency table. 	MSR.FQ.1
Displaying Data	1-2 Displaying Categorical Data Statistics and Probability with Applications 3rd Edition pg. 11 - 20	<ul style="list-style-type: none"> ● Make and interpret bar charts of categorical data. ● Interpret pie charts. ● Identify what makes some graphs of categorical data deceptive. 	MSR.AD.1
	1-3 Displaying Quantitative Data: Dot Plots Statistics and Probability with Applications 3rd Edition pg. 21 - 29 (http://www.rossmanchance.com/applets/Dotplot.html)	<ul style="list-style-type: none"> ● Make and interpret dot plots of quantitative data. ● Describe the shape of a distribution. ● Compare distributions of quantitative data with dot plots. 	MSR.FQ.1
	1-4 Displaying Quantitative Data: Stem Plots Statistics and Probability with Applications 3rd Edition pg. 30 - 37	<ul style="list-style-type: none"> ● Make stem plots of quantitative data. ● Interpret stem plots. ● Compare distributions of quantitative data with stem plots 	MSR.FQ.1
	1-5 Displaying Quantitative Data: Histograms Statistics and Probability with Applications 3rd Edition pg. 38 – 48	<ul style="list-style-type: none"> ● Make histograms of quantitative data. ● Interpret histograms. ● Compare distributions of quantitative data with histograms. 	MSR.FQ.1

	<p>Additional Resources:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Activity 1.2.doc </div> <div style="text-align: center;">  Mozart and Mazes.docx </div> </div>		
Characteristics of Distributions	<p>1-6 Measuring Center Statistics and Probability with Applications 3rd Edition pg. 49 - 58</p>	<ul style="list-style-type: none"> ● Find and interpret the median of a distribution of quantitative data. ● Calculate the mean of a distribution of quantitative data. ● Compare the mean and median of a distribution, and choose the more appropriate measure of center in a given setting. 	MSR.AD.1
	<p>1-7 Measuring Variability Statistics and Probability with Applications 3rd Edition pg. 58 - 67</p>	<ul style="list-style-type: none"> ● Find the range of a distribution of quantitative data. ● Find and interpret the interquartile range. ● Calculate and interpret the standard deviation. 	MSR.AD.1
	<p>1-8 Summarizing Quantitative Data: Boxplots and Outliers Statistics and Probability with Applications 3rd Edition pg. 67 - 77</p>	<ul style="list-style-type: none"> ● Use the $1.5 \times \text{IQR}$ rule to identify outliers. ● Make and interpret boxplots of quantitative data. ● Compare distributions of quantitative data with boxplots. 	MSR.FQ.1
	<p>1-9 Describing Location in a Distribution Statistics and Probability with Applications 3rd Edition pg. 77 - 86</p>	<ul style="list-style-type: none"> ● Find and interpret a percentile in a distribution of quantitative data. ● Estimate percentiles and individual values using a cumulative relative frequency graph. ● Find and interpret a standardized score (z score) in a distribution of quantitative data. 	MSR.AD.1
	<p>Additional Resources:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Box and Whisker activity.doc </div> <div style="text-align: center;">  Unit 1 Test Review.doc </div> </div>		
Personalized Learning and Differentiation			

Teachers differentiate by providing examples (work samples or task-specific clarifications of assessment criteria); structuring support (advance organizers, flexible grouping, peer relationships); establishing flexible deadlines, and adjusting the pace.

- SWD/504- Accommodations provided
- ELL- Five Principle ELL Curriculum Framework and Vocabulary Supports
- Intervention Support- Re-teaching Activities in Small Groups with Progress Monitoring
- Extensions- Enrichment Tasks and Projects

Resources

Statistics and Probability with Applications (High School) 3rd Ed. Daren S. Starnes; Josh Tabor