

UbD: Algebra 1 - One Variable Statistics

Time Frame: 16 Lessons	Unit 1: One Variable Statistics	Course Name: Algebra 1
Stage 1: Desired Results		
Established Goal(s)	Transferable Skills	
<p>Competencies Addressed: One variable statistics</p> <p>Standards Addressed: 6.SPA.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages. 6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. 6.SP.B.5.c Giving quantitative measures of center (median and/or mean) and variability (interquartile range</p>	<p><i>Students will be able to independently use their learning to</i></p> <ul style="list-style-type: none"> ● discuss the difference between statistical and non-statistical questions and classify that data as numerical or categorical. ● develop clear and effective communication. ● increase self-direction. ● develop creative and practical problem-solving. ● become responsible and involved citizens. ● develop informed and integrative thinking. 	
	Meaning	
	<p>Understandings <i>Students will understand that..</i></p> <ul style="list-style-type: none"> ● this unit on one-variable statistics allows students to practice data collection and analysis to set a tone for understanding quantities in context. ● gathering and displaying data, measuring data distribution, and interpreting statistical results encourages students to collaborate, communicate, and explore new tools and routines. ● there are common patterns/shapes formed from normal distribution ● spreadsheets can be used to organize and understand data ● data can be manipulated ● data can be analyzed 	<p>Essential Questions</p> <ul style="list-style-type: none"> ● How can data be displayed in order to inform decision making? ● In what ways can data be analyzed to inform decision making? ● How can we effectively communicate the results of statistical analysis in order to inform others of our findings?
	Acquisition	

UbD: Algebra 1 - One Variable Statistics

and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
HSS-ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).
HSS-ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

Students will know...

- how to tell the difference between numerical and categorical data.
- how to use a dot plot, histogram, or box plot to represent data.
- how to describe the shape of a distribution using the terms "symmetric, skewed, uniform, bimodal, and bell-shaped."
- how to calculate mean absolute deviation, interquartile range, mean, and median for a set of data.
- how to determine basic relationships between cell values in a spreadsheet by changing the values and noticing what happens in another cell.
- how to use a spreadsheet as a calculator to find solutions to word problems.
- how to use the shape of a distribution to compare the mean and median.
- how to arrange data sets in order of variability given graphic representations.
- how to describe standard deviation as a measure of variability.
- how to use technology to compute the standard deviation.
- how to tell how an outlier will impact the mean, median, IQR, or standard deviation.
- how to compare and contrast situations using measures of center and measures of variability.
- how to collect data from an experiment and compare the results using measures of center and measures of variability.

Students will be able to...

- tell statistical questions from non-statistical questions and can explain the difference.
- find the five-number summary for data
- graphically represent the data I collected and critique the representations of others.
- use a graphical representation of data to suggest a situation that produced the data pictured.
- create graphic representations of data and calculate statistics using technology.
- describe how an extreme value will affect the mean and median.
- use standard deviation to say something about a situation.
- find values that are outliers, investigate their source, and figure out what to do with them.

Mathematical Practices:

- make sense of problems and persevere in solving them.
- reason abstractly and quantitatively.
- construct viable arguments and critique the reasoning of others.
- model with mathematics.
- use appropriate tools strategically.
- attend to precision.
- look for and make use of structure.
- look for and express regularity in repeated reasoning.