

Algebra I: Data Analysis

Stage 1 Desired Results		
ESTABLISHED GOALS: <u>Competencies:</u> - Students will demonstrate the ability to apply statistical methods in order to summarize, represent and interpret categorical and quantitative data. - Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials. - Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. - Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style. <u>Content Standards:</u> - S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots). - S.ID.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. - S.ID.3 Interpret differences in shape, center, and spread in the context of the data - S.ID.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. - S.ID.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. - Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear and exponential models. - Informally assess the fit of a function by plotting and analyzing residuals. - Fit a linear function for a scatter plot that suggests a linear association. - S.ID.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. - S.ID.8 Compute (using technology) and interpret the correlation coefficient of a linear fit. - S.ID.9 Distinguish between correlation and causation.	Transfer	
	Students will be able to independently use their learning to construct and defend a well thought out conclusion.	
	Meaning	
	ENDURING UNDERSTANDINGS Students will understand that... - data may be represented in a variety of ways, and there are advantages and disadvantages associated with each statistical method. - how data is represented influences how it may be interpreted.	ESSENTIAL QUESTIONS Can you ever be sure that a conclusion is correct?
	Acquisition	
	Students will know... - that, when data plots are examined, a correlation can often be seen which might be modeled by a linear or exponential function. - that a correlation between quantities does not always imply causation. - that the mode should be used when the data are non-numeric or when choosing the most popular item. - that histograms can demonstrate if the data's distribution is uniform, symmetric, or skewed. - that the mean should be used to describe the middle of a set of data that does not have an outlier. - that the median should be used to describe the middle of a set of data that does have an outlier. - that separating data into subsets is a useful way to summarize and compare data sets. <u>vocabulary:</u> line of best fit, causation, scatter plot, direct correlation, frequency, histogram, interval, cumulative frequency table, measure of central tendency, outlier, mean, median, mode, measure of dispersion, range, quartile, interquartile range	Students will be skilled at... - creating scatterplots. - determining the line of best fit. - determining if either a linear or exponential function can be used to model data. - building a function based on data plots and using the function to make predictions. - making and interpreting frequency tables and histograms. - determining appropriate intervals when constructing data representations. - calculating measures of central tendency, including mean, median, and mode. - creating line plots. - comparing measures of central tendency. - creating and interpreting a box and whisker plot to summarize a set of data.

- F.LE.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). - MP2 Reason abstractly and quantitatively. - MP3 Construct viable arguments and critique the reasoning of others. - MP6 Attend to precision. - MP7 Look for and make use of structure. - MP8 Look for and express regularity in repeated reasoning.		
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Content Area Literacy Standards	21st Century Skills
- RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text. - RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. - RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 9-10 texts and topics</i>. - RST.9-10.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., <i>force</i>, <i>friction</i>, <i>reaction force</i>, <i>energy</i>). - RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words. - RST.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem. - RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.	<i>reason effectively</i> <i>make judgments and decisions</i> <i>access and evaluate information</i>

Stage 2 - Evidence	
Evaluative Criteria	Assessment Evidence
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan
<i>Summary of Key Learning Events and Instruction</i>

<i>Science Integration</i>	<i>College, Career, and Civic Life Integration</i>	<i>Technology Integration</i>
<i>District Materials</i>	<i>Distance Learning/Field Trips</i>	<i>Technology Resources</i>