

Unit 5: Descriptive Statistics

A. Representing and Analyzing Data

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Represent data (S.ID.1*)	Can extend thinking beyond the standard, including tasks that may involve one of the following:	Represent data with plots on the real number line using all of the following models: <ul style="list-style-type: none"> • Dot plot • Histograms • Box plots 	Represent data with plots on the real number line using two of the following models: <ul style="list-style-type: none"> • Dot plot • Histograms • Box plots 	Represent data with plots on the real number line using one of the following models: <ul style="list-style-type: none"> • Dot plot • Histograms • Box plots 	Little evidence of reasoning or application to solve the problem
Compare center and spread (S.ID.2*)	<ul style="list-style-type: none"> • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving 	Use statistics appropriate to the data to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more data sets.	Calculates the center (median, mean) and spread (interquartile range, standard deviation) of two or more data sets.	Calculates center (median, mode) or spread (interquartile range, standard deviation) of two or more data sets.	Does not meet the criteria in a level 1
Interpret data (S.ID.3*)		Interpret differences in shape, center and spread in the context of the data sets accounting for possible effects of extreme data points (outliers)	Interpret differences in shape, center and spread accounting for possible effects of extreme data points (outliers)	Interpret differences in shape, center and spread.	
Interpreting and analyzing frequency (S.ID.5*)		Can do all of the following: <p>Summarize categorical data for two categories in two-way frequency tables</p> <p>Interpret relative frequencies in the context (joint, marginal, and conditional relative frequencies)</p> <p>Recognize possible associations and trends</p>	Can do two of the following: <p>Summarize categorical data for two categories in two-way frequency tables</p> <p>Interpret relative frequencies in the context (joint, marginal, and conditional relative frequencies)</p> <p>Recognize possible associations and trends</p>	Can do one of the following: <p>Summarize categorical data for two categories in two-way frequency tables</p> <p>Interpret relative frequencies in the context (joint, marginal, and conditional relative frequencies)</p> <p>Recognize possible associations and trends</p>	

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 sets, accounting for possible effects of extreme data points (outliers).

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.

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B. Interpret Linear Models

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Create and analyze scatter plots (S.ID.6)	Can extend thinking beyond the standard, including tasks that may involve one of the following:	Represent data on two quantitative variables on a scatter plot, fit a function to the data and use the function to solve problems in context of the data	Represent data on a scatter plot and fit a function to the data	Represent data on a scatter plot by hand and by technology	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1
Create and analyze scatter plots (S.ID.7, S.ID.8, S.ID.9)	<ul style="list-style-type: none"> • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving 	<p>Interpret the slope and intercept of a linear model in context of the data</p> <p>Compute and interpret the correlation coefficient of a linear fit in context of the data</p> <p>Determine whether correlation implies causation in data</p>	<p>Identify the slope and intercept of a linear model</p> <p>Compute the correlation coefficient of a linear fit.</p> <p>Determine if there is correlation in data</p>	Represent data on a scatter plot by hand and by technology	

- S.ID.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
- a. 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, quadratic, and exponential models.
 - b. Informally assess the fit of a function by plotting and analyzing residuals.
 - c. 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.