 **HIGH SCHOOL** Statistics and Probability

*Student Learning Objective: Students will summarize, represent and interpret data.*

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| **ABOVE STANDARD** | |
| *Students are working to solidify the following skills:* | *Educator-recommended next-steps and Digital Library resources* |
| * Understand how to create box plots and use data to calculate the 5-number summary * Calculate the probability of multiple independent events and understand inclusion/exclusion principal * Determine the effect of the addition of an outlier to the center and spread of data * Given a situation, determine data distribution based on standard deviation | Instructional next-steps include, helping students to:   * Display data in a box plot using real world scenarios and student-collected data. Digital Library Examples: [Representing Data with Box Plots](https://www.smarterbalancedlibrary.org/content/representing-data-box-plots), [Human Box and Whisker Plot](https://www.smarterbalancedlibrary.org/content/creating-human-box-plot-based-student-heights) * Use Venn diagrams and two-way tables to display data. Digital Library Example: [Displaying Bivariate Categorical Data](https://www.smarterbalancedlibrary.org/content/displaying-bivariate-categorical-data) * Discuss how outliers affect measures of central tendency. Digital Library Example: [Measures of Central Tendency](https://www.smarterbalancedlibrary.org/content/measures-central-tendency-and-data-distributions) |
| **AT/NEAR STANDARD** | |
| *Students are working to solidify the following skills:* | *Educator-recommended next-steps and Digital Library resources* |
| * Select or construct a histogram based on given data * Given a graphical representation: determine the *y* value for a given *x;* interpret the meaning of the slope in context; understand a line of best fit * Determine the effect of additional data to the measures of center * Conceptual understanding of standard deviation, IQR, 5-number summary, and skew * Calculate multiple types of probability | Instructional next-steps include, helping students to:   * Apply real-world scenarios to create histograms using class data. Digital Library Examples: [Height Histogram](https://www.smarterbalancedlibrary.org/content/height-histogram); [Comparing Data Sets in Jump Heights](https://www.smarterbalancedlibrary.org/content/comparing-data-sets-jump-heights) * Make connections and predictions using line of best fit. Digital Library Examples: [Breaking Spaghetti](https://www.smarterbalancedlibrary.org/content/breaking-spaghetti); [Cup Stacking](https://www.smarterbalancedlibrary.org/content/cup-stacking-activity-intercept-slope-and-line-best-fit) * Discuss how additional data affects measures of central tendency. Digital Library Example: [Measures of Central Tendency](https://www.smarterbalancedlibrary.org/content/measures-central-tendency-and-data-distributions) |
| **BELOW STANDARD** | |
| *Students are working to solidify the following skills:* | *Educator-recommended next-steps and Digital Library resources* |
| * Given a set of data, select the corresponding data display * Given a set of data, construct a line plot * Represent data using displays on a real number line | Instructional next-steps include, helping students to:   * Use real-world data to create a histogram. Digital Library Example: [Height Histogram](https://www.smarterbalancedlibrary.org/content/height-histogram) * Visualize data by using a real-life, physical representation to create a dot-plot. Digital Library Example: [Living Dot Plot](https://www.smarterbalancedlibrary.org/content/living-dot-plots) |