

Data Analysis, Statistics, and Probability

Essential Understandings	<ul style="list-style-type: none"> Data can be collected and organized using graphs and tables. Graphs and tables provide a concise way of displaying data, allowing for analysis. Graphs and tables are used to draw conclusions and make predictions. Both the theoretical and experimental probability of an event can be expressed using ratios.
Essential Questions	<ul style="list-style-type: none"> What are the appropriate tables and/or graphs to use for a given data set? How can data be organized and displayed using tables (T, stem and leaf, frequency) and graphs (single and double line and bar, picture, and pie/circle)? What predictions can be made from a given data set? What counting strategies can be used to solve problems? What is the counting principle? What is the median? How is the median determined? How can the mean, median, mode and range be used to interpret data? What is the best central tendency to use with a given set of data? What is a ratio? How can ratios be used to indicate the theoretical and experimental probability of an event? What is an outlier?
Essential Knowledge	<ul style="list-style-type: none"> Data is collected, organized in a table and/or graph, and analyzed. Collected data is used to make predictions. Counting strategies are used to make problem solving efficient and accurate. The counting principle is used to find the number of possible outcomes. If there are m possible outcomes for one event and n possible outcomes for another event, $m \times n =$ the total number of possible outcomes. The median represents the middle most value in a set of data arranged in numerical order. A ratio is the comparison of 2 quantities using division. It is written as : $2/3$, 2 to 3, and 2:3 Ratios are used to show probability values. An outlier is a value that is much greater or much less than the other values in a data set.
Vocabulary	<ul style="list-style-type: none"> <u>Terms:</u> <ul style="list-style-type: none"> stem and leaf plot, outlier, frequency table, counting principle, tree diagram, prediction, x- and y-axis, certain (outcomes), fair vs. unfair

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Grade 6
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<p style="text-align: center;">Essential Skills</p>	<ul style="list-style-type: none"> ▪ Read and interpret pie/circle graphs to make predictions and solve problems. (R, A) ▪ Use graphs (line, bar, picture, and pie/circle) and tables (T, stem and leaf (I), and frequency) to analyze data, to formulate or justify (I) conclusions and to make predictions. (R, A) ▪ Collect and organize own data using the above graphs and tables. R/A ▪ Analyze the mean, median, mode and dispersion (range) for a set of data to solve problems. (I) ▪ Write probabilities as ratios to describe positive outcomes compared to the total number of possible outcomes. (I, R) ▪ Determine the probability of an event using experimental and theoretical probability. (I) ▪ Use counting techniques (organized lists, tables, tree diagrams, and the counting principle) to solve problems. (I, R, A)
<p style="text-align: center;">Related Maine Learning Results</p>	<p>B. Data Data Analysis B2.Students read and interpret pie graphs. Data Analysis B3.Students find and compare the mean, median, mode, and range for sets of data.</p>
<p style="text-align: center;">NECAP</p>	<p>NECAP Data, Statistics, and Probability M (DSP) 6-1 Interprets...line graphs or stem and leaf plots...to analyze the data to formulate or justify conclusions, to make predictions... M (DSP) 6-2 M (DSP) 6-4 Use counting techniques to solve problems in context involving combinations or simple permutations using a variety of strategies (list, tables, tree diagrams, fundamental counting principle). M (DSP) 6-5 For a probability event...determine the experimental or theoretical probability.</p>