

| Bud Carlson Academy Probability |
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| <p>Collecting, organizing, and displaying data, as well as interpreting and analyzing the information to make decisions and predictions, have become very important in our society. Statistical instruction should be carried out in a spirit of investigation and exploration so students can answer and formulate questions about data. Probability should be studied in familiar contexts. Students need to investigate fairness, chances of winning, and uncertainty. Technology should be used as a tool throughout the investigation process.</p> |
| <ul style="list-style-type: none"> ➤ Box-and-whisker plots ➤ Scatter plots ➤ Bar graphs ➤ Line graphs ➤ Circle graphs ➤ Histograms ➤ Frequency charts ➤ Mean, median, or mode |
| <p>Probability COURSE CONTENT COMPETENCIES</p> <ol style="list-style-type: none"> 1. Interprets a given representation 2. Analyzes patterns, trends, or distributions in data in a variety of contexts 3. Identifies or describes representations or elements of representations that best display a given set of data or situation, 4. Solves problems involving experimental or theoretical probability. |
| <p>Probability COURSE PROCESS COMPETENCIES</p> <ol style="list-style-type: none"> 1. Students will understand that a variety of problem-solving strategies can be used to investigate everyday as well as increasingly complex mathematical situations. 2. Students will understand that exploring, justifying, and synthesizing mathematical conjectures are part of systemic reasoning which is common to all content areas and a defining feature of mathematics. 3. Students will understand that actively exploring, investigating, describing, and explaining mathematical ideas promotes communication which leads to a greater comprehension of mathematical concepts. 4. Students will understand that mathematical connections will help them become aware of the usefulness of mathematics, serve to bridge the concrete and the abstract, and enable deeper understanding of important ideas. 5. Students will understand that representing ideas and connecting the representations lies at the heart of understanding mathematics. 6. [Students will understand that progress is made by asking relevant questions, conducting careful investigations evaluating the validity of results and developing models to explain what has been found.] 7. [Students will understand that when analyzing data to draw conclusions about the questions or hypotheses being tested, limitations of the data must be considered that could affect interpretations.] 8. [Students will understand that appropriate representations and mathematical language is used to present ideas clearly and logically for a given situation.] |

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| <p>Topics</p> | <ul style="list-style-type: none"> ➤ Box-and-whisker plots ➤ Scatter plots ➤ Bar graphs ➤ Line graphs ➤ Circle graphs ➤ Histograms ➤ Frequency charts ➤ Mean, median, or mode |
| <p>Competencies</p> | <ol style="list-style-type: none"> 1. Interprets a given representation 2. Analyzes patterns, trends, or distributions in data in a variety of contexts 3. Identifies or describes representations or elements of representations that best display a given set of data or situation, 4. Solves problems involving experimental or theoretical probability. |

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| <p>Knowledge/Skills</p> | <p>M:DSP:10:1 Interprets a given representation(s) (e.g., box-and-whisker plots, scatter plots, bar graphs, line graphs, circle graphs, histograms, frequency charts) to make observations, to answer questions, to analyze the data to formulate or justify conclusions, critique conclusions, make predictions, or to solve problems within mathematics or across disciplines or contexts (e.g., media, workplace, social and environmental situations).</p> <p>M:DSP:10:2 Analyzes patterns, trends, or distributions in data in a variety of contexts by determining, using, or analyzing measures of central tendency (mean, median, or mode), dispersion (range or variation), outliers, quartile values, estimated line of best fit, regression line, or correlation (strong positive, strong negative, or no correlation) to solve problems; and solve problems involving conceptual understanding of the sample from which the statistics were developed.</p> <p>M:DSP:10:3 Identifies or describes representations or elements of representations that best display a given set of data or situation, consistent with the representations required in M:DSP:10:1.</p> <p>M:DSP:10:4 Uses counting techniques to solve problems in context involving combinations or permutations using a variety of strategies (e.g., organized lists, tables, tree diagrams, models, Fundamental Counting Principle, or^{sc} others).</p> <p>M:DSP:10:5 Solves problems involving experimental or theoretical probability.</p> |
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| <p>Process Skills</p> | <p>Students will understand that a variety of problem-solving strategies can be used to investigate everyday as well as increasingly complex mathematical situations.</p> <p>Students will understand that exploring, justifying, and synthesizing mathematical conjectures are part of systemic reasoning which is common to all content areas and a defining feature of mathematics.</p> <p>Students will understand that actively exploring, investigating, describing, and explaining mathematical ideas promotes communication which leads to a greater comprehension of mathematical concepts.</p> <p>Students will understand that mathematical connections will help them become aware of the usefulness of mathematics, serve to bridge the concrete and the abstract, and enable deeper understanding of important ideas.</p> <p>Students will understand that representing ideas and connecting the representations lies at the heart of understanding mathematics.</p> |
| <p>Performance Assessment</p> | <p>Student evidence will demonstrate mastery of concepts, broad themes, and individual proficiency standards. Student assessment is based on progress of individual mastery of set lesson objectives, research projects, and power point presentations and in depth student response journals and student portfolios.</p> |