

[Click Here for District Rubric](#)  
**Statistics & Probability**

### Guiding Principle

*A student at the proficient level in Statistics & Probability will be able to demonstrate understanding of high school mathematics by solving problems, reasoning, communicating, representing, and making connections based on the following indicators:*

<b>Benchmark/Topics</b>	<b>As a result of studying Statistics &amp; Probability, I will be able to:</b>
(1) Exploring data <ul style="list-style-type: none"> <li>• Graphing Single Variables</li> <li>• Summary Statistics</li> <li>• Normal Distributions</li> <li>• Comparing Univariate Distributions</li> </ul>	6.6.1 Demonstrate my understanding of data analysis when I can <ul style="list-style-type: none"> <li><input type="checkbox"/> Graph single variables using               <ul style="list-style-type: none"> <li><input type="checkbox"/> histograms</li> <li><input type="checkbox"/> stemplots</li> <li><input type="checkbox"/> time plots</li> </ul> </li> <li><input type="checkbox"/> List summary statistics including               <ul style="list-style-type: none"> <li><input type="checkbox"/> mean and median</li> <li><input type="checkbox"/> five-number summaries</li> <li><input type="checkbox"/> boxplots</li> <li><input type="checkbox"/> standard deviation</li> </ul> </li> <li><input type="checkbox"/> Identify normal distributions and their applications</li> <li><input type="checkbox"/> Compare univariate distributions using               <ul style="list-style-type: none"> <li><input type="checkbox"/> stemplots and histograms</li> <li><input type="checkbox"/> side-by-side boxplots</li> <li><input type="checkbox"/> location and variability</li> <li><input type="checkbox"/> statistical graphs and summaries</li> </ul> </li> </ul>
(2) Examining Relationships <ul style="list-style-type: none"> <li>• Identifying X and Y</li> <li>• Scatterplots</li> <li>• Correlation Coefficient</li> <li>• Least-Squares Lines</li> <li>• Interpreting Correlation and Regression</li> <li>• Two-Way Tables</li> </ul>	6.2.2 Demonstrate understanding of data relationships when I can <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify X and Y</li> <li><input type="checkbox"/> Draw a scatterplot</li> <li><input type="checkbox"/> Calculate a correlation coefficient for linear relationships</li> <li><input type="checkbox"/> Calculate least-squares lines focusing on:               <ul style="list-style-type: none"> <li><input type="checkbox"/> measures of fit</li> <li><input type="checkbox"/> residuals and residual plots</li> <li><input type="checkbox"/> outliers and influential points</li> </ul> </li> <li><input type="checkbox"/> Interpret correlation and regression</li> <li><input type="checkbox"/> Construct and interpret two-way tables</li> </ul>

<p>(3) Producing Data</p> <ul style="list-style-type: none"> <li>• Sampling</li> <li>• Surveys</li> <li>• Designed Experiments</li> <li>• Observational Studies</li> </ul>	<p>6.3.3 Illustrate my knowledge of producing data through</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> sampling</li> <li><input type="checkbox"/> surveys</li> <li><input type="checkbox"/> designed experiments</li> <li><input type="checkbox"/> observational studies</li> </ul>
<p>(4) Sampling Distributions and Probability</p> <ul style="list-style-type: none"> <li>• Sampling Variability</li> <li>• Central Limit Theorem</li> </ul>	<p>6.4.4 Demonstrate my knowledge of sampling distributions and probability when I can</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> explain the concept of sampling variability</li> <li><input type="checkbox"/> apply the central limit theorem</li> </ul>
<p>(5) Introduction to Inference</p> <ul style="list-style-type: none"> <li>• Confidence Intervals</li> <li>• Significance Tests</li> </ul>	<p>6.5.5 Infer conclusions about a population based upon sample statistics by using</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> confidence intervals <ul style="list-style-type: none"> <li><input type="checkbox"/> proper interpretation</li> <li><input type="checkbox"/> choosing the sample size</li> </ul> </li> <li><input type="checkbox"/> significance tests <ul style="list-style-type: none"> <li><input type="checkbox"/> proper interpretation</li> <li><input type="checkbox"/> cautions about usage</li> </ul> </li> </ul>
<p>(6) Inference for Population Means</p> <ul style="list-style-type: none"> <li>• Inference for a single mean</li> <li>• Inference for comparing two means</li> </ul>	<p>6.0.6 Infer conclusions about a population based upon sample statistics by using</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Inference for a single mean <ul style="list-style-type: none"> <li><input type="checkbox"/> single population</li> <li><input type="checkbox"/> matched-pairs design</li> <li><input type="checkbox"/> robustness of t-procedures</li> </ul> </li> <li><input type="checkbox"/> Inference for comparing two means <ul style="list-style-type: none"> <li><input type="checkbox"/> two-sample t (unpooled version)</li> <li><input type="checkbox"/> robustness of two-sample t</li> </ul> </li> </ul>

<p>(7) Inference for Population Proportions</p> <ul style="list-style-type: none"> <li>• Inference for a single proportion</li> <li>• Inference for comparing two proportions</li> </ul>	<p>6.0.7 Infer conclusions about a population based upon sample statistics by using</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Inference for a single proportion (large sample)</li> <li><input type="checkbox"/> Inference for comparing two proportions (large samples)</li> </ul>
<p>(8) Inference for Two-Way Table</p> <ul style="list-style-type: none"> <li>• Describing two-way relationships</li> <li>• Chi-Square Test</li> </ul>	<p>6.0.8 Infer conclusions about a population based upon sample statistics when I can</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Describe two-way relationships</li> <li><input type="checkbox"/> Apply the chi-square test for two-way tables <ul style="list-style-type: none"> <li><input type="checkbox"/> testing for independence of variables</li> <li><input type="checkbox"/> testing for homogeneity of populations</li> </ul> </li> </ul>
<p>(9) Inference for the Slope of a Least-Squares Line</p> <ul style="list-style-type: none"> <li>• Model Assumptions</li> <li>• Residuals</li> </ul>	<p>6.0.9 Infer conclusions for the slope of a least-squares line when I can</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify model assumptions</li> <li><input type="checkbox"/> Calculate residuals</li> </ul>

\*Benchmark Key – State Content Standard . State Benchmark . District Benchmark