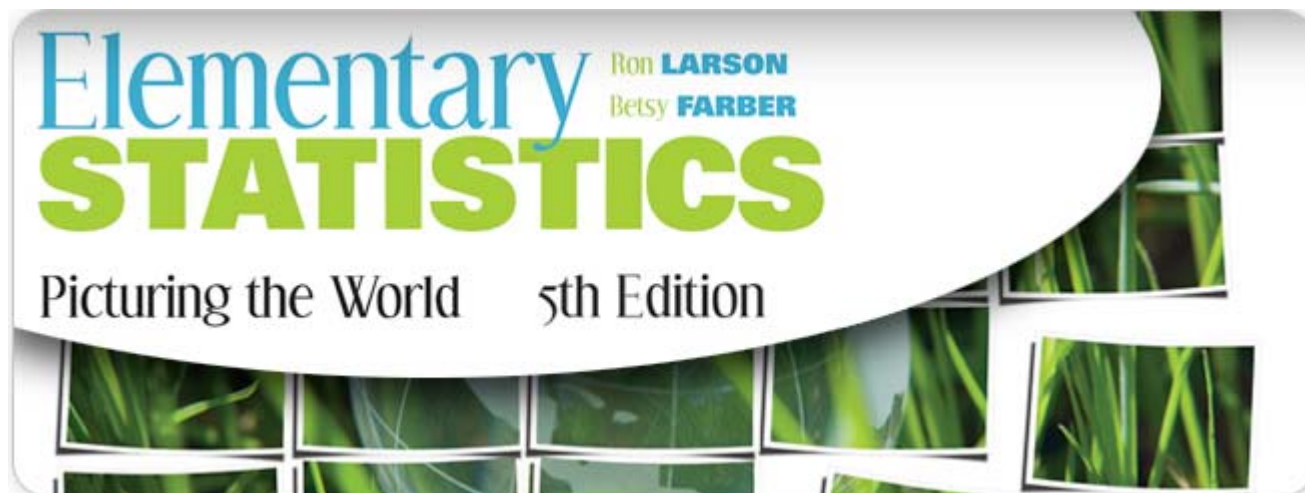


A Correlation of



to the

**South Carolina  
Data Analysis and Probability  
Standards  
for  
Mathematics for the Technologies 4**

## INTRODUCTION

This document demonstrates how *Elementary Statistics: Picturing the World* © 2012 meets the indicators of the South Carolina Data Analysis and Probability Standards. Correlation page references are to the Student and Annotated Instructor's Edition.

*Elementary Statistics: Picturing the World* is for algebra-based Introductory Statistics courses. The text takes a balanced approach between computation, decision making, and conceptual understanding (as endorsed by the GAISE recommendations). A large variety of real-world applications illustrate to students the relevance of the material they are learning and build the case for "statistical literacy".

### Program Features:

- **Highly graphical approach** incorporating more than 750 graphical displays to help students "picture" the story told by the data.
- **Updated Chapter Openers**, case studies, examples, and exercises focus on interpretation and include more varied applications.
- **New! Exercises and examples** from StatCrunch - powerful statistical software to help students develop data analysis skills.
- **Over 1,800 exercises** that help students build basic skills and vocabulary, use and interpret concepts, and extend concepts.
- **Activities** built into each chapter facilitate "hands-on" learning. These optional activities employ applets to help simulate statistical concepts.
- **Technology:** Each chapter concludes with a Technology Project using tools from Minitab, Excel®, and the TI-83/84 that gives students additional insight into the way technology is used to handle large data sets or complex, real-life questions.
- **Step-by-step examples** conclude with an "interpretation" step and are paired with a "Try It Yourself" problem to provide immediate practice and reinforcement.
- **Chapter Test Prep Videos on CD** included with every Student Edition.

This document demonstrates the success students will achieve by using *Elementary Statistics: Picturing the World*.

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<b>South Carolina Data Analysis and Probability Standards for Mathematics for the Technologies 4</b>	<b>Elementary Statistics: Picturing the World © 2012</b>
Data Analysis and Probability	
DA-1: The student will use the mathematical processes of representation, connection, communication, reasoning and proof, and problem solving.	
DA-1.1: Execute procedures to conduct simple probability experiments and collect data using manipulatives including spinners, dice, cards, and coins	<b>SE/TE:</b> 128, 134, 137, 139, 140, 143, 146, 147, 181, 187
DA-1.2: Execute procedures to find measures of probability and statistics using tools such as hand-held computing devices, spreadsheets, and statistical software.	<b>SE/TE:</b> 206, 215, 223, 240, 251, 255, 257, 264
DA-1.3: Execute procedures to conduct a simulation using random number tables and/or technology including hand-held computing devices and computers.	<b>SE/TE:</b> 280 In addition, each chapter has a <i>Technology</i> project using MINITAB, Excel, and the TI-83/84 Plus that gives students insight into how technology is used to handle large data sets or real-life questions.
DA-1.4: Design and conduct a statistical research project, produce a report, and summarize the findings.	Although research questions are not independently generated by student, the <i>Exercises</i> at the end of each chapter include more than 2100 exercises, giving students practice in performing calculations, making decisions, providing explanations, and applying results to a real-life setting.
DA-1.5: Apply the principles of probability and statistics to solve problems in real world contexts.	<b>SE/TE:</b> 32, 120, 186, 232, 298, 350, 422, 476, 536, 594, 646
DA-1.6: C Communicate knowledge of data analysis and probability using mathematical terminology appropriately.	Opportunities presented throughout book but especially in <i>Applet Activities, Chapter Case-Studies, Putting It All Together: Real Statistics-Real Decisions, and Chapter Technology Projects</i> . All of these are found within each chapter.
DA-1.7: Judge the reasonableness of solutions based on the source of the data, the design of the study, the way the data displayed, and the way the data is analyzed.	Opportunities presented throughout book but especially in <i>Applet Activities, Chapter Case-Studies, Putting It All Together: Real Statistics-Real Decisions, and Chapter Technology Projects</i> . All of these are found within each chapter.

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DA-1.8: Compare data sets using graphs and summary statistics.	<b>SE/TE:</b> 38, 56, 58, 64
DA-2: Through the process standards the student will demonstrate an understanding of the design of a statistical study.	
DA-2.1: Classify a data collection procedure as a survey, an observational study, or a controlled experiment.	<b>SE/TE:</b> 16, 17, 18
DA-2.2: Compare various random sampling techniques including simple, stratified, cluster, and systematic.	<b>SE/TE:</b> 20, 21, 22, 71, 129
DA-2.3: Analyze a data collection procedure to classify the sampling technique used as simple cluster, systematic, or convenience.	<b>SE/TE:</b> 20, 22, 71, 129
DA-2.4: Critique data collection methods and describe how bias can be controlled or reduced	<b>SE/TE:</b> 16, 22, 24, 25, 30, 31, 32, 124, 177, 344, 422, 476, 646
DA-2.5: Judge which of two or more possible experimental designs will best answer a given research question.	<b>SE/TE:</b> 18, 19
DA-2.6: Generate a research question and design a statistical study to answer the research question.	Although research questions are not independently generated by student, the <i>Exercises</i> at the end of each chapter include more than 2100 exercises, giving students practice in performing calculations, making decisions, providing explanations, and applying results to a real-life setting.
DA-3: Through the process standards the student will demonstrate an understanding of how to collect, organize, display, and interpret data.	
DA-3.1: Use manipulatives, random number tables, and technology to collect data and conduct experiments and simulations.	<b>SE/TE:</b> 16-27 In addition, each chapter has a <i>Technology</i> project using MINITAB, Excel, and the TI-83/84 Plus that gives students insight into how technology is used to handle large data sets or real-life questions.
DA-3.2: Organize and represent data using pictographs, bar graphs, pie charts, dot plots, histograms, time-series plots, stem-and-leaf plots, box-and whiskers plots, and scatter plots.	<b>SE/TE:</b> 53-59, 102, 111, 484

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DA-3.3: Given a data set or problem situation, select appropriate graphical display(s) from among pictographs, bar graphs, pie charts, dot plots, histograms, time-series plots, stem-and-leaf plots, box-and-whiskers plots, and scatter plots.	<b>SE/TE:</b> 53-59, 102, 111, 484
DA-3.4: Represent frequency distributions using displays such as categorical frequency distributions/pareto charts, histograms, frequency polygons, cumulative frequency distributions/ogives.	<b>SE/TE:</b> 42, 43, 44, 57
DA-3.5: Classify the shape of a scatterplot (including linear, quadratic, or exponential).	<b>SE/TE:</b> 484
DA-3.6: Classify graphically and analytically the correlation between two variables as positive, negative, or no correlation.	<b>SE/TE:</b> 483-487
DA-3.7: Carry out a procedure to determine an equation for a trend line for a scatterplot exhibiting a linear pattern by using visual approximation.	<b>SE/TE:</b> 8, 484
DA-3.8: Carry out a procedure to determine a line of best fit for a scatterplot exhibiting a linear pattern by using technology.	<b>SE/TE:</b> 486 In addition, each chapter has a <i>Technology</i> project using MINITAB, Excel, and the TI-83/84 Plus that gives students insight into how technology is used to handle large data sets or real-life questions.
DA-3.9: Explain the meaning of the correlation coefficient, $r$ .	<b>SE/TE:</b> 487
DA-3.10: Use interpolation or extrapolation to predict values based on relationship between two variables.	<b>SE/TE:</b> 483-534
DA-4: Through the process standards the student will demonstrate an understanding of basic statistical methods of analyzing data.	
DA-4.1: Classify a variable as a statistic or a parameter.	<b>SE/TE:</b> 4
DA-4.2: Compare descriptive and inferential statistics.	<b>SE/TE:</b> 5
DA-4.3: Classify a variable as discrete or continuous and categorical or quantitative.	<b>SE/TE:</b> 9, 190, 236

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DA-4.4: Use procedures and/or technology to find measures of central tendency (mean, median, mode) for given data.	<b>SE/TE:</b> 65, 66, 67 In addition, each chapter has a <i>Technology</i> project using MINITAB, Excel, and the TI-83/84 Plus that gives students insight into how technology is used to handle large data sets or real-life questions.
DA-4.5: Predict the effect of transformations of data on measures of central tendency, variability, and the shape of the distribution.	<b>SE/TE:</b> 38, 510
DA-4.6: Use procedures and/or technology to find measures of spread (range, variance, standard deviation, interquartile range) and outliers for give data.	<b>SE/TE:</b> 38, 80, 82, 83, 102, 195, 210, 224, 337, 339, 405, 415, 416, 442 In addition, each chapter has a <i>Technology</i> project using MINITAB, Excel, and the TI-83/84 Plus that gives students insight into how technology is used to handle large data sets or real-life questions.
DA-4.7: Use procedures and/or technology to find measures of position (including median, quartiles, percentiles, standard scores) for given data.	<b>SE/TE:</b> 66, 100, 105 In addition, each chapter has a <i>Technology</i> project using MINITAB, Excel, and the TI-83/84 Plus that gives students insight into how technology is used to handle large data sets or real-life questions.
DA-4.8: Classify a distribution as symmetric, positively skewed, or negatively skewed.	<b>SE/TE:</b> 65, 71, 103
DA-4.9: Explain the significance of the shape of a distribution.	<b>SE/TE:</b> 38
DA-4.10: Use knowledge of the Empirical Rule to solve problems involving data that is distributed normally.	<b>SE/TE:</b> 133, 160
DA-4.11: Use control charts to determine if a process is in control.	<b>SE/TE:</b> 256
DA-5: Through the process standards the student will demonstrate an understanding of the basic concepts of probability.	
DA-5.1: Construct a sample space for an experiment and represent it as a list, chart, picture, or tree diagram.	<b>SE/TE:</b> 128
DA-5.2: Use counting techniques to determine the number of possible outcomes of an event.	<b>SE/TE:</b> 130, 171
DA-5.3: Classify events as dependent or independent.	<b>SE/TE:</b> 146, 160

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DA-5.4: Categorize two events as mutually exclusive or not mutually exclusive.	<b>SE/TE:</b> 145, 160
DA-5.5: Use the concept of complementary sets to compute probabilities.	<b>SE/TE:</b> 160
DA-5.6: Use the binomial probability distribution to solve problems.	<b>SE/TE:</b> 205, 221
DA-5.7: Carry out a procedure to compute simple probabilities and compound probabilities including conditional probabilities.	<b>SE/TE:</b> 145
DA-5.8: Use a procedure to find geometric probability in real world contexts.	<b>SE/TE:</b> 218, 221
DA-5.9: Compare theoretical and experimental probabilities.	<b>SE/TE:</b> 128, 132
DA-5.10: Construct and compare theoretical and experimental probability distributions.	<b>SE/TE:</b> 128, 132
DA-5.11: Use procedures to find the expected value of discrete random variables and construct meaning within contexts.	<b>SE/TE:</b> 190-195
DA-5.12: Understand the law of large numbers.	<b>SE/TE:</b> 134
DA-5.13: Carry out a procedure to compute conditional probability using two-way tables.	<b>SE/TE:</b> 580