



Curriculum and Instruction – Mathematics

Quarter 1

Applied Mathematical Concepts

Quarter 1	Quarter 2	Quarter 3	Quarter 4
Linear Programming, Organizing and Interpreting Data, Data Descriptions	Probability and Counting Rules, Probability Distributions	Normal Probability Distribution, Confidence Intervals, Financial Mathematics	Financial Mathematics (cont.), Logic, Boolean Algebra
August 12, 2019 – October 11, 2019	October 21, 2019 – December 20, 2019	January 6, 2020 – March 13, 2020	March 23, 2020 – May 22, 2020
AM.A.LP.A.1	AM.D.CR.A.1	AM.D.ND.A.1	AM.G.L.A.1
AM.A.LP.A.2	AM.D.CR.A.2	AM.D.ND.A.2	AM.G.L.A.2
AM.A.LP.B.3	AM.D.CR.A.3	AM.D.CI.A.1	AM.G.L.A.3
AM.A.LP.B.4	AM.D.CR.A.4	AM.D.CI.A.2	AM.G.L.A.4
AM.D.ID.A.1	AM.D.CR.A.5	AM.D.CI.A.3	AM.G.L.B.5
AM.D.ID.A.2	AM.D.CR.B.7	AM. A. PS. A.1	AM.G.L.B.6
AM.D.ID.A.3	AM.D.CR.B.8	AM.N.NQ.A.1	AM.G.L.B.7
AM.D.ID.A.4	AM.D.CR.B.9	AM.N.NQ.A.2	AM.G.L.B.8
AM. A. PS. A.1	AM.D.CR.B.10	AM.N.NQ.A.3	AM.A.LB.A.1
AM.D.CR.B.10	AM.D.ID.A.4	AM.N.NQ.A.4	AM.A.LB.A.2
	AM.D.ID.A.5	AM.N.NQ.B.5	AM.A.LB.B.3
	AM.D.ID.A.6	AM.N.NQ.B.6	AM.A.LB.B.4
	AM.D.ID.A.7	AM.N.NQ.B.7	AM.N.NQ.C.9
	AM. A. PS. A.1	AM.N.NQ.B.8	AM.N.NQ.C.10
		AM.N.NQ.C.9	AM.D.CI.A.1
		AM.N.NQ.C.10	AM.D.CI.A.2
			AM.D.CI.A.3



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### Introduction

Destination 2025, Shelby County Schools' 10-year strategic plan, is designed not only to improve the quality of public education, but also to create a more knowledgeable, productive workforce and ultimately benefit our entire community.

### What will success look like?



In order to achieve these ambitious goals, we must collectively work to provide our students with high quality, college and career ready aligned instruction. The Tennessee State Standards provide a common set of expectations for what students will know and be able to do at the end of a grade. The State of Tennessee provides two sets of standards, which include the Standards for Mathematical Content and The Standards for Mathematical Practice. The Content Standards set high expectations for all students to ensure that Tennessee graduates are prepared to meet the rigorous demands of mathematical understanding for college and career. The eight Standards for Mathematical Practice describe the varieties of expertise, habits of mind, and productive dispositions that educators seek to develop in all students. The Tennessee State Standards also represent three fundamental shifts in mathematics instruction: **focus, coherence and rigor**.

## Instructional Shifts for Mathematics



Throughout this curriculum map, you will see resources as well as links to tasks that will support you in ensuring that students are able to reach the demands of the standards in your classroom. In addition to the resources embedded in the map, there are some high-leverage resources around the content standards and mathematical practice standards that teachers should consistently access. For a full description of each, click on the links below.





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## How to Use the Maps

### Overview

An overview is provided for each quarter and includes the topics, focus standards, intended rigor of the standards and foundational skills needed for success of those standards.

**Your curriculum map contains four columns that each highlight specific instructional components. Use the details below as a guide for information included in each column.**

### Tennessee State Standards

TN State Standards are located in the left column. Each content standard is identified as Major Content or Supporting Content (for Algebra I, Algebra II & Geometry only). A key can be found at the bottom of the map.

### Content

This section contains learning objectives based upon the TN State Standards. Best practices tell us that clearly communicating measurable objectives lead to greater student understanding. Additionally, essential questions are provided to guide student exploration and inquiry.

### Instructional Support & Resources

District and web-based resources have been provided in the Instructional Support & Resources columns. You will find a variety of instructional resources that align with the content standards. The additional resources provided should be used as needed for content support and scaffolding. The inclusion of vocabulary serves as a resource for teacher planning and for building a common language across K-12 mathematics. One of the goals for Tennessee State Standards is to create a common language, and the expectation is that teachers will embed this language throughout their daily lessons.



## Topics Addressed in Quarter

- Linear Programming
- Organizing and Interpreting Data
- Data Descriptions

### Overview

During quarter one students review solving systems of equations and inequalities using various methods including substitution, elimination, and matrices. Students are then introduced to applications of solving linear equations and inequalities. In particular, students use linear programming, a method for solving problems in which a particular quantity must be maximized or minimized based upon other constraints. Students solve problems using linear programming, a widely used tool in management science/business.

Students have encountered some statistics and probability in previous courses, however in this quarter students build upon previous standards by organizing and exploring data and making inferences and justifying conclusions. Students extend their work in statistics by applying statistics ideas to real-world situations. They link classroom mathematics and statistics to everyday life, work, and decision-making, by modeling real-world situations. They choose and use appropriate mathematics and statistics to analyze situations, to understand them better, and to improve decisions. Students distinguish between population and sample, parameter and statistic, and descriptive and inferential statistics; recognizing purpose and difference of sample surveys, experiments, and observational studies; interpreting differences in shape, center, and spread including effects of outliers and using shape, center, and spread of comparable data to decide on appropriate statistical measures. Student also graph and interpret quantitative data sets using a variety of graphs.



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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
<b>Systems of Equations and Inequalities</b> <b>Linear Programming</b> (Allow approximately 5 weeks for instruction, review, and assessment)			
<p>(Review – Algebra 2)*</p> <p><b>Domain:</b> Reasoning with Equations and Inequalities</p> <p><b>Cluster:</b> Solve systems of equations and nonlinear inequalities</p> <p><b>*A2.A.REI.C.4</b> Write and solve a system of linear equations in context.</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>What is a system of equations and inequalities and how can they be used to model real-life situations?</li> <li>How can a system of equations or inequalities be solved algebraically and graphically?</li> <li>What does it mean to look for a solution(s) of a system of equations or inequalities?</li> </ul> <p><b>Objective(s):</b></p> <p>Students will:</p> <ul style="list-style-type: none"> <li>verify ordered pair solutions</li> <li>solve linear systems by graphing</li> <li>solve linear systems by substitution</li> <li>solve linear systems by elimination</li> <li>recognize inconsistent systems and dependent systems</li> <li>use a system of equations to model and solve applications</li> <li>visualize a solution in three dimensions</li> <li>check ordered triple solutions</li> <li>solve linear systems in three variables</li> <li>recognize inconsistent and dependent systems</li> <li>use a system of three equations in three variables to solve applications</li> </ul>	<p><b>Adv. Alg. &amp; Trig. Textbooks</b></p> <p>8.1 Linear Systems in Two Variables with Applications (Coburn)</p> <p>8.2 Linear Systems in Three Variables with Applications (Coburn)</p> <p>8.1 Systems of Linear Equations in Two Variables (Blitzer)</p> <p>8.2 Systems of Linear Equations in Three Variables (Blitzer)</p> <p><b>Tennessee Finite Math (Maki &amp; Thompson)</b></p> <p>5.1 Review of Equations and Graphs of Lines            Calculator Exercises: Graph of a Linear Equation, p.154; Find Linear Models, p.158</p> <p>5.2 Formulation and Solution of Systems of Linear Equations in Two Variables            Calculator Exercise; Graph and Solve a System of Equations, p.170</p> <p>5.3 Formulation and Solution of Systems of Linear Equations in Three or More Variables            Math Lab: Use the Echelon Method to Solve Systems of Equations            Calculator Exercise: Reduce and Augmented Matrix, p.194</p> <p><b>Additional Resources:</b></p> <p><a href="#">Advanced Mathematical Concepts</a></p> <p><a href="#">2.1 Solving Systems of Equations in Two Variables</a></p> <p><a href="#">2.2 Solving Systems of Equations in Three Variables</a></p> <p><a href="#">1.3 Graphing Linear Equations</a></p>	<p><b>Vocabulary/ Important Terms and Concepts</b></p> <p>system of equations, simultaneous equations, standard form of a line, y-intercept, slope form, point of intersection, infinitely many solutions, no solution, solution set, parallel lines, perpendicular lines, linear system, solve by substitution, solve by elimination</p> <p><b>Tennessee Finite Math (Maki &amp; Thompson)</b></p> <p>Algorithm for solving a system of linear equations, augmented matrix, coefficient matrix, consistent system, coordinates in the plane and in three-dimensional space, echelon method, equation of a plane, function, function notation, Gaussian elimination, Gauss-Jordan elimination, general equation of a line, inconsistent system, intercept, line, linear extrapolation, linear interpolation, linear model, reduced row-echelon form, reduction method, row-echelon form, slope, slope-intercept equation of a line, solution of a system of linear equations, substitution method, system of linear equations, substitution method, system of linear equations, theorem on the solution set of a system of linear equations</p> <p><b>Section Exercise Sets</b>, pp.160-161; 172-174; 195-196</p> <p><b>Chapter Exercises</b>, pp.197-199</p> <p><b>Writing in Math/Discussion</b></p> <p>What is a system of linear equations? Provide an example with your description.</p>



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		<p>1.6 Real-world Data with Linear Functions</p> <p><a href="#">Khan Academy: Systems of Equations</a>  <a href="#">Khan Academy: Systems of Inequalities</a></p> <p><b>Task(s)</b>            Mathematics Vision Project; Module 1- Systems of Equations &amp; Inequalities            (Choose from the twelve tasks)</p> <p><a href="#">Supply and Demand</a>  <i>Systems of Equations &amp; Inequalities Problems</i></p> <p><a href="#">Battleships &amp; Mines Lab Activity</a>  <a href="#">Cell Phone Problem</a>  <a href="#">Road Rage Activity</a>  <a href="#">Poster Questions</a>  <a href="#">System of Equations Word Problems Wkst</a>  <a href="#">System of Inequalities Wkst</a>  <a href="#">System of Equations Wkst</a>  <a href="#">WackyWaterWorld Activity</a></p> <p><a href="#">Desmos: Linear Systems Bundle of 7 review Activities</a> (designed to help students develop a conceptual understanding of systems of linear equations, with an emphasis on the graphical, numerical, and algebraic meaning of the solutions to those systems)</p>	<p>When is it easier to use the addition method rather than the substitution method to solve a system of equations?</p> <p>When using the addition or substitution method, how can you tell if a system of linear equations has no solution?</p> <p>What are some of the real life applications of two-variable linear systems?</p>
<p>(Review – Algebra 2)*</p> <p><b>Domain:</b> Reasoning with Equations and Inequalities</p> <p><b>Cluster:</b> Solve systems of equations and nonlinear inequalities</p> <p><b>*A2.A.REI.C.4</b> Write and solve a system of linear equations in context.</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>How would you apply what you have learned in systems of inequalities to linear programming?</li> <li>What are some real-world situations that can be solved using linear programming?</li> </ul> <p><b>Objective(s):</b></p>	<p><b>Adv. Alg. &amp; Trig. Textbooks</b></p> <p>8.4 Systems of Inequalities and Linear Programming (Coburn)</p> <p>8.5 Systems of Inequalities (Blitzer)</p> <p>8.6 Linear Programming (Blitzer)</p> <p><b>Tennessee Finite Math Textbook</b></p> <p>7-1 Formulation of Linear Programming Problems</p>	<p><b>Vocabulary</b></p> <p>Bounded (unbounded) set, constraint, corner point, decision variables, feasible set, graphical solution method for linear programming problems, linear programming problem, objective function, optimization problem, solution method for linear programming problems, theorem on solutions</p>



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<p><b>Domain:</b> Linear Programming</p> <p><b>Cluster:</b> Use linear programming techniques to solve real-world problems.</p> <p><b>AM.A.LP.A.1</b> Use mathematical models involving equations and systems of equations to represent, interpret, and analyze quantitative relationships, change in various contexts, and other real-world phenomena.</p> <p><b>AM.A.LP.A.2</b> Read, interpret, and solve linear programming problems graphically and by computational methods.</p> <p><b>Domain:</b> Linear Programming</p> <p><b>Cluster:</b> Solve real-world optimization problems.</p> <p><b>AM.A.LP.B.3</b> Use linear programming to solve optimization problems.</p> <p><b>AM.A.LP.B.4</b> Interpret the meaning of the maximum or minimum value in terms of the objective function.</p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• solve a linear inequality in two variables</li> <li>• solve a system of linear inequalities</li> <li>• solve applications using a system of linear inequalities</li> <li>• solve applications using linear programming</li> <li>• represent, interpret, analyze, and model linear programming problems</li> </ul>	<p>7-3 Graphical Solution of Linear Programming</p> <p><b>Tennessee Finite Math (Maki &amp; Thompson)</b></p> <p>7.1 Formulation of Linear Programming Problems</p> <p>7.2 Systems of Linear Inequalities in Two Variables</p> <p>Calculator Exercise: Explore Systems of Inequalities, p.254</p> <p>7.3 Graphical Solution of Linear Programming Problems in Two Variables</p> <p><b>Additional Resource(s)</b></p> <p><a href="#">Advanced Mathematical Concepts</a></p> <p>2.6 Solving Systems of Linear Inequalities</p> <p>2.7 Linear Programming</p> <p><a href="#">engage<sup>ny</sup>: Systems of Inequalities Lesson 17</a></p> <p><a href="#">Khan Academy: Modeling with Systems of Inequalities</a></p> <p><a href="#">Math Vision Project: Systems of Equations and Inequalities pp.123-131</a></p> <p><a href="#">FiniteHelp Lecture Video- 7.1</a></p> <p><a href="#">FiniteHelp Practice Problems Ch. 7</a></p> <p><a href="#">Linear Programming Problem Video Part 1</a></p> <p><a href="#">Linear Programming Problem Video Part 2</a></p> <p><a href="#">Linear Programming</a></p> <p><a href="#">Linear Programming (Chapter 2)</a></p> <p><a href="#">Linear Programming Module</a></p>	<p>of linear programming problems, vertex of feasible region</p> <p><b>Tennessee Finite Math Textbook</b></p> <p>Bounded (unbounded) set, constraint, corner point, decision variables, feasible set, graphical solution method for linear programming problems, linear programming problem, objective function, optimization problem, solution method for linear programming problems, theorem on solutions of linear programming problems, vertex of feasible region</p> <p><b>Writing in Math/Discussion</b></p> <p>Explain how to graph <math>2x - 3y &lt; 6</math>.</p> <p>What does it mean if a system of linear inequalities has no solution?</p> <p>What kinds of problems are solved using the linear programming method?</p> <p>In your own words, describe what a linear programming problem is and how it can be solved.</p>



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		<p style="text-align: center;"><i>Linear Programming Problems</i></p> <p> <a href="#">A Course In Graphic Design</a>  <a href="#">Building Lego Furniture</a>  <a href="#">Christmas Tree Class Project</a>  <a href="#">Comparing Pay Structures</a>  <a href="#">High Step Shoes</a>  <a href="#">Helping Hurricane Victims</a>  <a href="#">Key Club</a>  <a href="#">Pump Up</a> </p>	
<p><b>Organizing and Interpreting Data; Data Descriptions</b></p> <p><i>(Allow approximately 4 weeks for instruction, review, and assessment)</i></p>			
<p><b>Domain:</b> Organize and Interpret Data</p> <p><b>Cluster:</b> Analyze data from multiple viewpoints and perspectives.</p> <p><b>AM.D.ID.A.1</b> Organize data for problem solving.</p> <p><b>AM.D.ID.A.2.</b> Use a variety of counting methods to organize information, determine probabilities, and solve problems.</p> <p><b>AM.D.ID.A.3</b> Translate from one representation of data to another, e.g., a bar graph to a circle graph.</p> <p><b>AM.D.ID.A.4</b> Calculate and interpret statistical problems using measures of central tendency and graphs.</p> <p><b>Domain:</b> Problem Solving</p> <p><b>Cluster:</b> Apply problem solving techniques to real-world situations.</p> <p><b>AM.A. PS.A.1</b> Apply problem solving strategies to real-world situations. <i>Strategies include, but are not limited to: making orderly lists or tables, drawing diagrams, considering simpler problems, looking for patterns, working</i></p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>How can the study of Statistics be used in real life scenarios?</li> <li>What are the benefits of interpreting data?</li> <li>How do we study data?</li> </ul> <p><b>Objective(s)</b> The student will:</p> <ul style="list-style-type: none"> <li>Demonstrate knowledge of statistical terms.</li> <li>Differentiate between the two branches of statistics.</li> <li>Identify the measurement level for each variable.</li> <li>Demonstrate knowledge of the four basic sampling methods.</li> <li>Explain the difference between an observational study and an experimental study.</li> <li>Describe the role of randomization in surveys and experiments.</li> </ul>	<p><b><a href="#">Elementary Statistics Textbook (Bluman)</a></b></p> <p>1-1 Descriptive and Inferential Statistics 1-2 Variables and Types of Data 1-3 Data Collection and Sampling Techniques 1-4 Observational and Experimental Studies 1-5 Uses and Misuses of Statistics</p> <p><b>Additional Resource(s)</b></p> <p><a href="#">Against All Odds Video, Unit 1 What is Statistics?</a> (Against All Odds is a Video Series that introduces a statistical topic and illustrates it with a real-world example. There is a Student Guide that provides guiding questions as students view the video.)</p> <p><a href="#">Stat Trek</a></p> <p><a href="#">Stats Modeling the World</a> Part I – Exploring &amp; Understanding Data (Chapters 1- 6)</p> <p>Khan Academy Videos</p> <p><a href="#">Statistics overview</a> <a href="#">Categorical data displays</a> <a href="#">Two-way tables for categorical data</a></p>	<p><b>Vocabulary</b> (Chapter 1) cluster sample, confounding variable, continuous variables, control group, convenience sample data, data set, data value or datum, dependent variable, descriptive statistics, discrete variables experimental study, explanatory variable Hawthorne effect, hypothesis testing, independent variable, inferential statistics interval level of measurement, measurement scales, nominal level of measurement observational study ordinal level of measurement, outcome variable, population, probability, qualitative variables, quantitative variables, quasi-experimental study, random sample, random variable, ratio level of measurement, sample, statistics, stratified sample, systematic sample, treatment group, variable</p> <p><b><a href="#">Elementary Statistics Textbook (Bluman)</a></b></p> <p><i>Statistics Today</i>, pp. 2, 29 <i>Critical Thinking Challenges</i>, p. 31 <i>Speaking of Statistics</i>, p. 11</p>





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<p><i>backwards, guess and check, using logical reasoning, etc.</i></p> <p><b>Domain:</b> Counting and Combinatorial Reasoning</p> <p><b>Cluster:</b> Use combinatorial reasoning to solve real-world problems.</p>	<ul style="list-style-type: none"> <li>Recognize faulty questions on a survey and other factors that can bias responses.</li> <li>Know the characteristics of well-designed studies.</li> <li>Explain how statistics can be used and misused.</li> </ul>	<p><b>Tasks</b></p> <p><a href="#">Interpreting Quantitative &amp; Categorical Data</a></p> <p><i>Applying the Concepts</i>, pp. 13, 16  <i>Extending the Concepts</i>, p.28  <i>Data Projects</i>, p.32  <i>TI-83/84 Step by Step</i>, pp. 21-22</p>	
<p><b>AM.D.CR.B.10</b> Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>How do you construct a frequency distribution?</li> <li>How can frequency tables help us to find trends in real life scenarios?</li> <li>How do you use and interpret stem and leaf plots?</li> <li>How do you represent data in frequency distributions using histograms, frequency polygons, and ogives?</li> </ul> <p><b>Objective(s):</b> The student will:</p> <ul style="list-style-type: none"> <li>Organize univariate data using a frequency distribution.</li> <li>Represent quantitative data graphically using histograms, dot plots, and orgives.</li> <li>Represent data using bar graphs, Pareto charts, time series graphs, and pie graphs.</li> <li>Draw and interpret a stem and leaf plot.</li> </ul>	<p><b>Elementary Statistics Textbook (Bluman)</b></p> <p>2-1 Organizing Data            2-2 Histograms, Frequency Polygons, and Orgives            2-3 Other Types of Graphs</p> <p><b>Additional Resource(s)</b></p> <p><a href="#">Against All Odds Video, Unit 3 Histograms</a>  <a href="#">Against All Odds Video, Unit 5 Boxplots</a>  <a href="#">Against All Odds Video, Unit 10 Scatterplots</a></p> <p>(Against All Odds is a Video Series that introduces a statistical topic and illustrates it with a real-world example. There is a Student Guide that has guiding questions as students view the video.)</p> <p><a href="#">Stat Trek</a>  <a href="#">Stats Modeling the World</a></p> <p>Part II – Exploring Relationships Between Variables (Chapters 7- 10)</p> <p><b>Khan Academy Videos</b></p> <p><a href="#">Histograms</a>  <a href="#">Comparing features of distributions</a>  <a href="#">Stem-and-leaf plots</a></p> <p><b>Vocabulary</b> (Chapter 2):            bar graph, categorical frequency distribution, class, class boundaries, class midpoint, class width, cumulative frequency, cumulative frequency distribution, frequency, frequency distribution, frequency polygon, grouped frequency distribution, histogram, lower class limit, ogive, open-ended distribution, Pareto chart, pie graph, raw data, relative frequency graph, stem and leaf plot, time series graph, ungrouped frequency distribution, upper class limit</p> <p><b>Elementary Statistics Textbook (Bluman)</b></p> <p><i>Statistics Today</i>, pp. 36, 97  <i>Critical Thinking Challenges</i>, pp.99-100  <i>Speaking of Statistics</i>, pp.74, 81  <i>Applying the Concepts</i>, pp. 45-46, 60, 83-84  <i>Extending the Concepts</i>, pp. 48, 63, 86-87  <i>Data Projects</i>, pp.100-101  <i>TI-83/84 Step by Step</i>, pp. 64-65, 91</p>	



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		<p><a href="#">Line graphs</a>  <a href="#">Box and whisker plots</a></p> <p><b>Task(s)</b>  <a href="#">Texting By the Numbers- A Solidify Understanding Task, pp. 3-7</a>  <a href="#">Accuracy of Carbon 14 Dating I</a>  <a href="#">Haircut Costs</a>  <a href="#">Speed Trap</a>  <a href="#">Other Illustrative Statistics &amp; Probability Tasks</a></p>	
<p><b>Domain:</b> Organize and Interpret Data  <b>Cluster:</b> Analyze data from multiple viewpoints and perspectives.  <b>AM.D.ID.A.1</b> Organize data for problem solving.  <b>AM.D.ID.A.2.</b> Use a variety of counting methods to organize information, determine probabilities, and solve problems.  <b>AM.D.ID.A.3</b> Translate from one representation of data to another, e.g., a bar graph to a circle graph.  <b>AM.D.ID.A.4</b> Calculate and interpret statistical problems using measures of central tendency and graphs.</p> <p><b>Domain:</b> Normal Probability distribution  <b>Cluster:</b> Work with the normal distribution in real-world situations.  <b>AM.D.ND.A.1</b> Calculate the mean (expected value) and standard deviation of both a random variable and a linear transformation of a random variable.</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>How do we organize, display, and describe data?</li> <li>How does mean, median, and mode describe data?</li> <li>How can percentiles be used when comparing an individual to the norm?</li> <li>How does exploratory data analysis help us to better understand our data?</li> </ul> <p><b>Objective(s):</b>  The student will:</p> <ul style="list-style-type: none"> <li>Use a variety of numerical techniques to describe the central tendency of a distribution including mean, median, mode, and midrange</li> <li>Use a variety of numerical techniques to describe the variation in a distribution. These should include variance, standard deviation, and range.</li> <li>Identify the position of a data set using various measures of position. These</li> </ul>	<p><a href="#">Elementary Statistics Textbook (Bluman)</a>  3-1 Measures of Center  3-2 Measures of Variation  3-3 Measures of Position  3-4 Exploratory Data Analysis</p> <p><b>Additional Resource(s)</b>  <a href="#">Against All Odds Video, Unit 4 Measures of Center</a>  <a href="#">Against All Odds Video, Unit 6 Standard Deviation</a>  <a href="#">Stats Modeling the World</a>  Part III – Gathering Data (Chapters 11-13)  <a href="#">Stat Trek</a></p> <p><b>Khan Academy Videos</b>  <a href="#">Measures of Central Tendency</a>  <a href="#">Variance and Standard Deviation</a>  <a href="#">Mean and median: The basics</a>  <a href="#">More on mean and median</a></p>	<p><b>Vocabulary:</b> (Chapter 3)  bimodal, boxplot, Chebyshev’s theorem, coefficient of variation, data array, decile, empirical rule, exploratory data, analysis (EDA), five-number summary, interquartile range (IQR), mean, median, midrange, modal class, mode, multimodal, negatively skewed or leftskewed distribution, outlier, parameter, percentile, positively skewed or rightskewed distribution, quartile range, range rule of thumb, resistant statistic, standard deviation, statistic, symmetric distribution, unimodal, variance, weighted mean, z score or standard score</p> <p><a href="#">Elementary Statistics Textbook (Bluman)</a>  <i>Statistics Today</i>, pp. 104, 175  <i>Critical Thinking Challenges</i>, pp.178-180  <i>Speaking of Statistics</i>, p.109  <i>Applying the Concepts</i>, pp. 118, 137, 166  <i>Extending the Concepts</i>, pp. 121-122, 140-141, 168  <i>Data Projects</i>, pp.179-180</p>

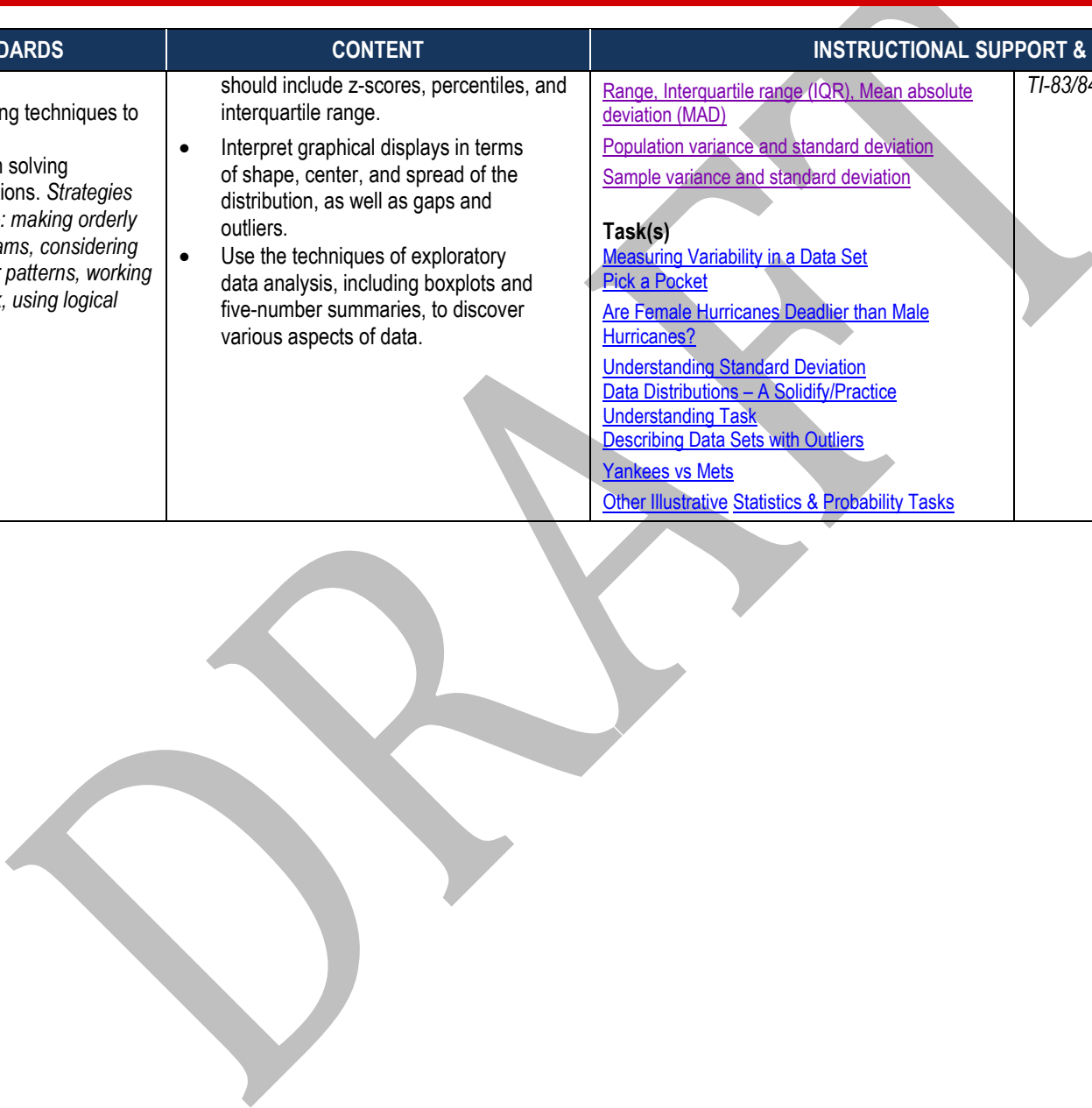


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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
<p><b>Domain:</b> Problem Solving  <b>Cluster:</b> Apply problem solving techniques to real-world situations.  <b>AM.A. PS.A.1</b> Apply problem solving strategies to real-world situations. <i>Strategies include, but are not limited to: making orderly lists or tables, drawing diagrams, considering simpler problems, looking for patterns, working backwards, guess and check, using logical reasoning, etc.</i></p>	<p>should include z-scores, percentiles, and interquartile range.</p> <ul style="list-style-type: none"> <li>Interpret graphical displays in terms of shape, center, and spread of the distribution, as well as gaps and outliers.</li> <li>Use the techniques of exploratory data analysis, including boxplots and five-number summaries, to discover various aspects of data.</li> </ul>	<p><a href="#">Range, Interquartile range (IQR), Mean absolute deviation (MAD)</a>  <a href="#">Population variance and standard deviation</a>  <a href="#">Sample variance and standard deviation</a></p> <p><b>Task(s)</b>  <a href="#">Measuring Variability in a Data Set</a>  <a href="#">Pick a Pocket</a>  <a href="#">Are Female Hurricanes Deadlier than Male Hurricanes?</a>  <a href="#">Understanding Standard Deviation</a>  <a href="#">Data Distributions – A Solidify/Practice</a>  <a href="#">Understanding Task</a>  <a href="#">Describing Data Sets with Outliers</a>  <a href="#">Yankees vs Mets</a>  <a href="#">Other Illustrative Statistics &amp; Probability Tasks</a></p>	<p>TI-83/84 Step by Step, pp. 158-159, 169-170</p>





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RESOURCE TOOLKIT

<p><b>Textbook Resources</b></p> <p>Advanced Algebra &amp; Trigonometry (Coburn)</p> <p>Algebra &amp; Trigonometry (Blitzer)</p> <p><a href="#">Advanced Mathematical Concepts</a></p> <p><a href="#">Elementary Statistics Textbook (Bluman)</a></p> <p><a href="#">Stats Modeling the World</a></p> <p>Tennessee Finite Math (Maki &amp; Thompson)</p>	<p><b>Standards</b></p> <p><a href="#">Common Core Standards - Mathematics</a></p> <p><a href="#">Common Core Standards - Mathematics Appendix A</a></p> <p><a href="http://www.ccsstoolbox.org/">http://www.ccsstoolbox.org/</a></p> <p><a href="#">Common Core Lessons</a></p> <p><a href="#">Tennessee Mathematics Standards</a></p>	<p><b>Videos</b></p> <p><a href="#">Khan Academy</a></p> <p><a href="#">Illuminations (NCTM)</a></p> <p><a href="#">Discovery Education</a></p> <p><a href="#">The Futures Channel</a></p> <p><a href="#">The Teaching Channel</a></p> <p><a href="#">Teachertube.com</a></p> <p><a href="#">FiniteHelp Lecture Videos</a></p> <p><a href="#">Against All Odds Videos (with Study Guides)</a> (A Video Series that introduces a statistical topic and illustrates it with a real-world example)</p>
<p><b>Calculator</b></p> <p><a href="#">Texas Instruments Education</a></p> <p><a href="#">TI-Nspired</a></p> <p><a href="#">TICommonCore.com</a></p> <p><a href="http://www.casioeducation.com/educators">http://www.casioeducation.com/educators</a></p> <p><a href="#">Desmos</a></p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>SEL Resources</b></p> <p><a href="#">SEL Connections with Math Practices</a></p> <p><a href="#">SEL Core Competencies</a></p> <p><a href="#">The Collaborative for Academic, Social, and Emotional Learning (CASEL)</a></p> </div>	<p><b>Interactive Manipulatives</b></p> <p><a href="#">Stat Trek</a></p> <p><a href="#">Rossmanchance.com</a></p> <p><b>ACT &amp; SAT</b></p> <p><a href="#">TN ACT Information &amp; Resources</a></p> <p><a href="#">ACT College &amp; Career Readiness Mathematics Standards</a></p> <p><a href="#">SAT Connections</a></p> <p><a href="#">SAT Practice from Khan Academy</a></p>	<p><b>Additional Sites</b></p> <p><a href="#">MathBits (scroll down for Statistics 1 &amp; 2)</a></p> <p><a href="#">NCTM Math Illuminations</a></p> <p><a href="#">Wolfram Math World</a></p> <p><a href="#">Statistics Education Web</a></p> <p><a href="#">Stat Trek</a></p> <p><a href="http://www.edutoolbox.org/tntools">http://www.edutoolbox.org/tntools</a> (formerly tncore.org)</p>



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