

## Unit Seven Information

Curriculum Map: [Inferences and Conclusions from Data](#)

Content Descriptors:

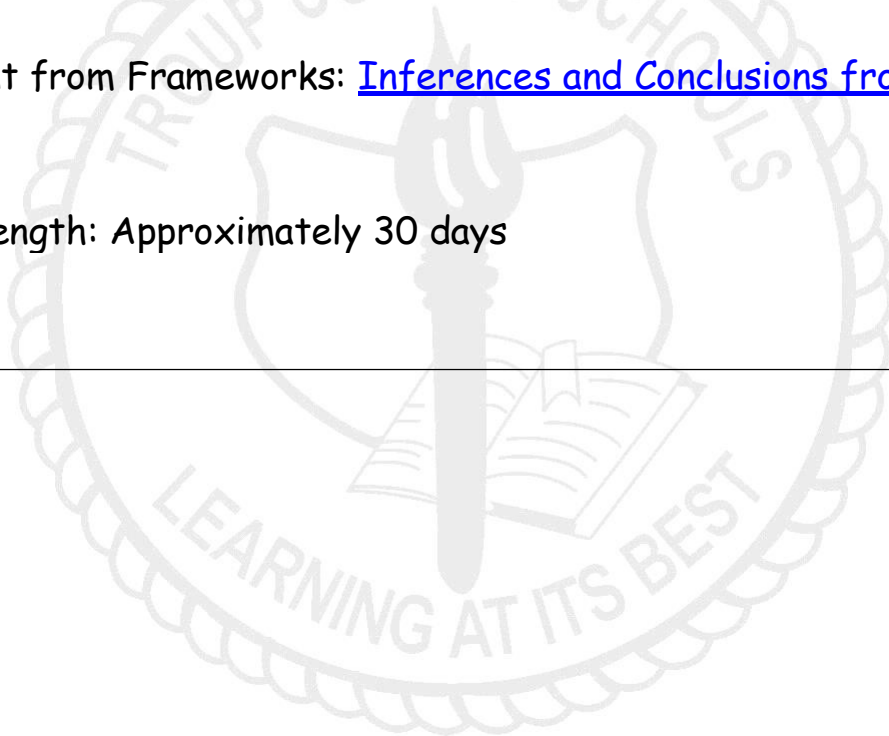
Concept 1: Mean and Standard Deviation

Concept 2: Comparing Data Sets

Concept 3: Exploring and Collecting Data

Content from Frameworks: [Inferences and Conclusions from Data](#)

Unit Length: Approximately 30 days



# TCSS – GSE Algebra 2 – Unit 7

## Curriculum Map

<p><b>Unit Rational:</b> In this unit, students see how the visual displays and summary statistics they learned in earlier grades relate to different types of data and to probability distributions. They identify different ways of collecting data— including sample surveys, experiments, and simulations—and the role that randomness and careful design play in the conclusions that can be drawn.</p>		
<p><b>Prerequisites:</b> As identified by the GSE Frameworks</p> <ul style="list-style-type: none"> <li>✓ Understand and be able to explain what a function is.</li> <li>✓ Determine if a table, graph or set of ordered pairs is a function.</li> <li>✓ Be able to express geometric properties with an equation.</li> <li>✓ Understand fractional relationships.</li> </ul>		<p>Length of Unit</p> <p>30 Days</p>
<b>Concept 1</b>	<b>Concept 2</b>	<b>Concept 3</b>
Mean and Standard Deviation	Comparing Data Sets	Exploring and Collecting Data
<b>GSE Standards</b>	<b>GSE Standards</b>	<b>GSE Standards</b>
<p><b>MGSE9-12.S.ID.1</b> Represent data with plots on the real number line (dot plots, histograms, and boxplots).</p> <p><b>MGSE9-12.S.ID.3</b> Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</p>	<p><b>MGSE9-12.S.ID.2</b> Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</p> <p><b>MGSE9-12.S.ID.4</b> Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.</p> <p><b>MGSE7.SP.4.</b> Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations Sp3?</p>	<p><b>MGSE9-12.S.IC.1</b> Understand statistics as a process for making inferences about population parameters based on a random sample from that population.</p> <p><b>MGSE9-12.S.IC.2</b> Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. <i>For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?</i></p> <p><b>MGSE9-12.S.IC.3</b> Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.</p> <p><b>MGSE9-12.S.IC.4</b> Use data from a sample survey to estimate a population mean or proportion develop a margin of error through the use of simulation models for random sampling.</p> <p><b>MGSE9-12.S.IC.5</b> Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.</p> <p><b>MGSE9-12.S.IC.6</b> Evaluate reports based on data.</p>

# TCSS – GSE Advanced Algebra – Unit 7

<i>Lesson Essential Question</i>	<i>Lesson Essential Question</i>	<i>Lesson Essential Question</i>
<ul style="list-style-type: none"> <li>• How is mean calculated?</li> <li>• What is standard deviation and how is it calculated for a population?</li> </ul>	<ul style="list-style-type: none"> <li>• What is normal distribution?</li> <li>• How is the normal distribution used to estimate mean and standard deviation?</li> <li>• How is the empirical rule used to compare sets of data?</li> </ul>	<ul style="list-style-type: none"> <li>• What is the difference between a parameter and a statistic?</li> <li>• How is a survey designed and used to collect data from a population?</li> <li>• How do you assess survey results for validity?</li> <li>• What makes a good survey for research?</li> <li>• How do I interpret and use the margin of error of a confidence interval?</li> <li>• How do I compare treatments and find differences in parameter?</li> <li>• How do I evaluate reports based on data?</li> </ul>
<i>Vocabulary</i>	<i>Vocabulary</i>	<i>Vocabulary</i>
Center Mean absolute deviation Spread Standard deviation Variance outlier	Parameters Statistics Empirical Rule Shape Symmetry Peaks Direction of skew Uniformity Confidence interval Central Limit Theorem(CLT)	bias unbiased z-score simple random sample systematic sample stratified random sample cluster sample convenience sample Sampling distribution Sampling variability Sample mean Sample Sample proportion Population Random Margin of error
<i>Resources – Concept 1</i>	<i>Resources – Concept 2</i>	<i>Resources – Concept 3</i>
<ul style="list-style-type: none"> <li>❖ <a href="#">Statistics Overview – Power Point with practice</a></li> <li>❖ <a href="#">Variance and Standard Deviation – Power Point with practice</a></li> <li>❖ <a href="#">Math Award Task</a></li> </ul> <p><a href="#">Holt McDougal Advanced Algebra, Georgia Edition ©2014</a> – Explorations in Core Math workbook pages 4-28</p> <ul style="list-style-type: none"> <li>❖ <a href="#">Measures of Central Tendency Riddle KEY</a></li> </ul>	<ul style="list-style-type: none"> <li>❖ <a href="#">Creating Data Values</a></li> <li>❖ <a href="#">Group Task – Comparing data sets</a></li> <li>❖ <a href="#">Task 4 – Empirical Rule</a></li> </ul> <p><a href="#">Holt McDougal Advanced Algebra, Georgia Edition ©2014</a> – Explorations in Core Math workbook pages 37-50</p>	<ul style="list-style-type: none"> <li>❖ <a href="#">Survey Notes – Power Point with practice</a></li> <li>❖ <a href="#">Collecting Data – Power Point with practice</a></li> <li>❖ <a href="#">Task 8 – Collecting Data</a></li> </ul> <p><a href="#">Holt McDougal Advanced Algebra, Georgia Edition ©2014</a> – Explorations in Core Math workbook pages 51-58</p>

## TCSS – GSE Advanced Algebra – Unit 7

### At the end of Unit 7 student's should be able to say “I can...”

- ✓ construct graphical displays (dot plots, histogram, and box plot) to represent sets of data values.
- ✓ describe a distribution using shape, center and spread.
- ✓ compare two or more different data sets using center and spread.
- ✓ recognize data that is described well by a normal distribution.
- ✓ estimate probabilities for normal distributions using area under the normal curve.
- ✓ design a method to select a sample that represents a variable of interest from a population.
- ✓ design simulations of random sampling and explain the outcomes in context of population and know proportions or means.
- ✓ use sample means and proportions to estimate population values and calculate margins of error.

