Statistical Reasoning

Unit title	Unit 5 & 6 (DOE Unit 5): Interpreting Results to Answer the Statistical Investigative Question	Unit duration (hours)	*12-15 hours*

Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GA DoE Standards

Standards

SR.DSR.5 Interpret the results of the analysis, making connections to the formulated statistical investigative question.
SR.MM.1 Apply mathematics to real-life situations; model real-life phenomena using mathematics.

SR.DSR.5
SR.MM.1 SR.MP.1-8

SR.DSR.5.1

SR.DSR.5.2

 SR.DSR.5.3

SR.DSR.5.4

SR.DSR.5.5

Concepts/Skills to support mastery of standards

Students will use statistical evidence from analyses to answer the formulated statistical investigative questions. • Students should continue to interpret the impact of outliers, missing values, or erroneous values on the results. • Students will use and interpret the p-value to determine whether the estimate for a population characteristic is plausible. • Students should continue to interpret a given margin of error associated with an estimate of a population characteristic. • Students will explain the impact of multiple variables on one another.

Students will perform significance tests based on sample means and proportions.

	Missing Values	
	Margin of Error	
Analysis	Multivariable Analysis	
Bias	Observational Studies	
Case Studies	Outliers	
Causation	p-value	
	Population	
Confounding Variables	Primary Data	
Data Exploration	Privacy Issues	
	Quantitative Variable	
Data Interpretation	Randomization	
Data Visualization	Sample	
Erroneous Values	Secondary Data	
Ethics of Data Use	Statistical Evidence	Survey Question
Experiments	Statistical Investigation	Variable

- **Vocabulary:** confidence intervals, statistic, sample mean, sample proportion, null hypothesis, alternative hypothesis

Notation - Margin of error written as an interval, hypothesis for null and alternative, writing significance tests as an interval.

Essential Questions

How can I interpret results of my analysis by connecting it to my investigation question?

How are outliers affecting my data? How are missing values and erroneous values affecting my results?

What is the p-value for my statistical investigation? How can I determine plausibility of my p-value? How are multiple variables affecting each other within my investigation?
What is the confidence intervals based on a sample proportion? What is the confidence intervals based on a sample proportion? What does the significance test tell me about my hypothesis?

Assessment Tasks
List of common formative and summative assessments.

Formative Assessment(s):

Unit quiz, Classwork

Summative Assessment(s):
Unit test(s)

Learning Experiences
Add additional rows below as needed.

Objective or Content	Learning Experiences	Personalized Learning and Differentiation

SR.DSR.5.2 SR.DSR.5.5 SR.MM.1.1 SR.MM.1.4 SR.DSR.5 SR.MM.1	Ice Cream/Star Wars tasks - guided chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://lor2.gadoe.org/gadoe/file/9c18-acc675eb4131/1/Ice%20Cream%20or%20Star%20WarsIce-Cream-or-Star-Wars-SR-U5-Stude	Group collaboration, pacing set by individual students and guided by teacher, chunked portions of task

Content Resources

Math Medic

Teacher created resources
Statistics and Probability Textbook

GA DOE