

03_Data Analysis

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **3 Weeks**
Status: **Published**

General Overview, Course Description or Course Philosophy

The middle school Guided Study Program is a two-pronged program. It parallels the grade-level math curriculum to reinforce and/or preview concepts taught in the grade-level math class and prepares students for success on state-mandated assessments by targeting individual student mathematical deficiencies. Guided Study marking period grades are based upon participation/preparation, classwork, and summative assessments and are reported as: O (Outstanding), S (Satisfactory), or U (Unsatisfactory).

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Objectives:

- Develop skills in collecting, organizing, and representing data using appropriate methods and tools.
- Analyze and interpret various types of data representations, such as tables, graphs, and charts.
- Understand measures of central tendency (mean, median, mode) and spread (range, interquartile range) and apply them to real-world contexts.
- Explore the concept of probability and its application in predicting outcomes and making informed decisions.
- Apply data analysis skills to solve real-world problems and draw meaningful conclusions.

Essential Questions:

- How can data be collected, organized, and presented in a meaningful and visually informative way?
- What insights can be gained from analyzing and interpreting different types of data representations, and how do they help us make informed decisions?
- How do measures of central tendency and measures of spread provide valuable information about a data set?
- What is the probability, and how can it be used to predict outcomes and assess likelihood in various situations?
- In what ways can data analysis be applied to solve real-world problems and draw meaningful conclusions about the world around us?

Enduring Understandings:

- Data can be collected, organized, and represented using a variety of methods and tools, allowing us to communicate and understand information effectively.
- Different types of data representations, such as tables, graphs, and charts, offer insights into patterns, trends, and relationships within the data.
- Measures of central tendency (mean, median, mode) and measures of spread (range, interquartile range) provide a way to summarize and describe the characteristics of a data set.
- Probability is a mathematical concept that helps us quantify uncertainty and make predictions based on given information.

- Data analysis skills enable us to make informed decisions, solve real-world problems, and draw meaningful conclusions backed by evidence.

CONTENT AREA STANDARDS

MA.7.SP.A.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
MA.7.SP.A.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.
MA.7.SP.B.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

LA.K-12.NJSLSA.R7	Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
LA.RST.6-8.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
CS.K-12.2.d	Evaluate and select technological tools that can be used to collaborate on a project.
TECH.K-12.P.4	Demonstrate creativity and innovation.
TECH.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
TECH.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.

STUDENT LEARNING TARGETS

Refer to the 'Declarative Knowledge' and 'Procedural Knowledge' sections.

Declarative Knowledge

Students will understand that:

- Data provides perspective.
- Our society is data-driven.

- The ability to understand and interpret data allows us to make informed decisions.

Procedural Knowledge

Students will be able to:

- Construct graphs: circle graphs, stem-and-leaf graphs, box-and-whisker graphs.
- Calculate and interpret mean, median, mode, outliers, and range.
- Make inferences and evaluate arguments based on displays of data.

EVIDENCE OF LEARNING

Refer to the 'Formative Assessments' and 'Summative Assessments' sections.

Formative Assessments

- Do Now before each lesson
- Exit tickets at the end of each lesson and/or series of chunks of learning

Summative Assessments

This course allows students flexibility in the demonstration of their understanding at the conclusion of the unit:

- traditional/standardized assessment
- performance task
- project

RESOURCES (Instructional, Supplemental, Intervention Materials)

- [IXL](#)

- CMP3: Samples and Populations, What Do You Expect?

INTERDISCIPLINARY CONNECTIONS

- Data collection/analysis
- Statistics
- Financial/Economic/Business/Entrepreneurial Literacy

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.