

Unit 6: Data Analysis and Statistics

Algebra 1 Honors

8 Class Meetings

Revised May 2026

Essential Questions

- How can collecting and analyzing data help you make decisions or predictions?
- How can you make and interpret different representations of data?

Enduring Understandings with Unit Goals

EU 1: Scatterplots are one way to compare and find relationships between two variables.

- Construct a scatterplot to represent a set of two-variable data.
- Analyze the trends that are displayed on a scatterplot.
- Create and analyze two-way frequency tables

EU 2: Measures of center and spread can be used to understand a set of one-variable data.

- Calculate the mean, median, and mode of a set of data.
- Determine the quartiles, interquartile range, and outliers of a set of data to analyze the range of the data points.
- Create and analyze a boxplot from the measures of spread and center.

EU 3: Statisticians use several methods to represent a set of one-variable data.

- Display a set of one-variable data in a frequency table and histogram
- Analyze a set of data by looking at a frequency table and histograms.

Standards

Common Core State Standards:

- **HS.S.ID.1:** Represent data with plots on the real number line (dot plots, histograms, and box plots).
- **HS.S.ID.2:** Use statistics appropriate to the shape of the data distribution to compare the center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
- **HS.S.ID.3:** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
- **HS.S.ID.4:** 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 a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.
- **HS.S.ID.5:** Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.
- **HS.S.ID.6:** Represent data on two quantitative variables on a scatterplot, and describe how the variables are related.

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- **HS.S.ID.7:** Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
- **HS.S.ID.8:** Compute (using technology) and interpret the correlation coefficient of a linear fit.
- **HS.S.ID.9:** Distinguish between correlation and causation

ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.

Competency 2: Speak to diverse audiences in an accountable manner.

Competency 3: Develop the behaviors needed to interact and contribute with others on a team.

Competency 4: Analyze and solve problems independently and collaboratively.

Competency 5: Be responsible, creative, and empathetic members of the community.

Unit Content Overview

1. Scatterplots

- Compare two variables using a scatterplot
- Describe how the variables are related

2. Data Collection and Analysis

- Finding the mean, median, mode, and range
- Finding outliers, IQR, Q1, and Q3
- Using statistics to create and analyze a boxplot

3. Data Representation

- Using data to create frequency tables and histograms

Interdisciplinary Connection:

- Language Arts - Word Problems, Claim-Evidence Reasoning (CER), and Think-Write-Pair Share (TWPS)
- Science – Word Problems

Daily Learning Objectives with *TWPS Activities*

Students will be able to...

- Create and analyze scatter plots
 - *TWPS – How could you graphically represent the relationship between ice cream sales and temperature outside?*
- Create and analyze two-way frequency tables
 - *TWPS – Can the same information found in a two-way frequency table be represented on a scatter plot? Explain.*
- Create a Box and Whisker Plot
 - *TWPS – Which of these scatter plots does not belong with the rest? Why?*
- Create a histogram

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- TWPS – *What does a histogram do? How is the data represented?*
- Analyze a histogram
 - TWPS – *What are the three most common characteristics of a histogram?*

Instructional Strategies/Differentiated Instruction

- Whole-Group Instruction
- Creating Authentic Connections for Students
- Rephrasing and Restatement of Information and Concepts
- Guided Notes
- Interactive Notebooks
- Spiral Review
- Math Stations (Rotations)
- Student-Led Instruction
- Small Group Instruction
- Independent Problem-Solving
- Collaborative Problem-Solving
- Cross-Curricular Problem Solving (Independent and Collaborative)
- Accountable Talk
- Cumulative Homework

EL DIFFERENTIATED INSTRUCTION:

- Word Walls with Visuals
- Anchor Charts
- TWPS (Think, Write, Pair, Share)
- Pre-Reading Strategies
- Culturally Responsive Teaching
- Explicit Modeling
- Key Vocabulary
- Graphic Organizers
- Strategic Grouping
- Non-Verbal Assessments

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Assessments

FORMATIVE ASSESSMENTS:

- Accountable Talk Discussions
- Daily Think-Write-Pair Share (TWPS)
- Claim-Evidence Reasoning (CER)
- Whiteboards
- Mid-Class Check-Ins
- Exit Slips
- Student-Led Instruction
- Cumulative Homework
- Performance Task – Height of Debate
 - Summative Performance Task Assessment Rubric

SUMMATIVE ASSESSMENTS:

- Unit 12 Quiz (EU 1, EU 2)
- Unit 12 Test (EU 1, EU 2, EU 3)
- Performance Task - Height of Debate

Unit Task

Unit Task Name: Height of Debate

Description: Students will use information learned in this unit about how to create and analyze frequency tables (EU 3), how to calculate and describe the measure of the center of a set of one variable data (EU 2), and how to represent a set of two-variable data on a scatterplot to compare the data points (EU 1) to analyze a set of data that they collect. Students will measure each other's height to compare with other body attributes such as the length of an arm, length of one foot, and length of the tip of the thumb to the tip of the index finger and use the data to find statistics about each variable independently as well as compare the variables and determine if there is a trend. Students will first create a separate histogram for height and wingspan and analyze the trend of the class. Students will then find the mean, median, mode, range, Q1, Q3, IQR, and outliers of each set of data separately to further analyze the trend of the class. They will also create a scatterplot of both variables to see if there is a linear relationship between the data. The students will write a well-developed reflection describing their findings and any trend that there may be within their class.

Evaluation: Summative Performance Task Assessment Rubric

Unit Resources

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- Worksheets
- Calculator
- Laptops
- SBAC Prep Online
- Pear Assessment
- Blooket
- Quizizz
- Jeopardy Labs
- Task Cards
- Partner/Group Games
- Online Resources: Math Stations