



Bridging for Math Strength Resources

[Standards of Learning Curriculum Framework \(SOL\)](#)

Standard of Learning (SOL) 5.17d Determine the mean, median, mode, and range of a set of data



Student Strengths	Bridging Concepts	Standard of Learning
Students can put numbers in order from least to greatest; identify the greatest and least value out of a set of numbers; and identify the whole numbers and decimals that appear the most in a group of numbers.	Students can find the middle whole number and/or decimal in a set of numbers with an even or odd amount and can find the average or mean of a set of numbers.	Students can determine the mean, median, mode, and range of a set of data.

Understanding the Learning Trajectory

Big Ideas:

- In Mathematics, the context of data is important. As the Guidelines for Assessment and Instruction in Statistics Education Report notes, “data are not just numbers, they are numbers with a context. In mathematics, context obscures structure. In data analysis, context provides meaning.” (Common Core Writing team, 2019 K–3, Categorical Data; Grades 2–5, Measurement Data*, pg. 3)
- Statistics is the science of conducting studies to collect, organize, summarize, analyze, and draw conclusions from data.
- Students need to learn more than how to identify the mean, median, mode, and range of a set of data. They need to build an understanding of what the measure tells them about the data, and see those values in the context of other characteristics of the data in order to best describe the results.

Formative Assessment:

- [Just in Time Mathematics Quick Check 5.17d PDF](#)
- [Just in Time Mathematics Quick Check 5.17d Desmos](#)

Important Assessment Look Fors:

- The student can determine the mean of a group of numbers representing data from a given context as a measure of center. Students will notice a relationship between outliers and how they change or shift the mean and begin to see that mean is a balance point.
- The student can determine the median of a group of numbers representing data from a given context as a

measure of center including when there is an even number of data points.

- The student can determine the mode of a group of numbers representing data from a given context as a measure of center.
- The student can determine the range of a group of numbers and discuss why spread is important to the data's larger picture.

Purposeful Questions:

- How did you determine the mean/median? What does the mean/median tell you about the data?
- When does your data have or not have a mode? When does it have more than one mode?
- What does the range tell us about your data?
- Which measure of center (median, mode, or mean) represents this data best? Why?
- Do you have any outliers? Why or why not? If so, how does including or removing the outlier from the data affect the mean?

Bridging Activity to Support Standard	Instructional Tips
Routines Would you rather have set one or set two? Why?	Teachers can use this to see if students can tell that even though set two has two grades in the 90s, set one gives a student a slightly higher average.
Rich Tasks What's the Weather? (Continuation of task 5.16b with Stem and leaf plot)	Students correctly create a stem-and-leaf plot and line plot using the data. Then find the mean, median, mode, and range to analyze the temperatures of each range. Pick a region of the United States and have the students research the current temperatures of the capitals of each state of that region on Weather Central. Use 2 different line plots to graph the high and low temperatures within the region for that day. Have students create and label a line plot using the data. Now have students find the mean, median, mode, and range to help analyze the temperatures of each range.
Games/Tech Mean, Median, Mode, or Range Mean, Median, Mode, and Range-Save the Princess Desmos 5.17d Calculating Mean, Median, Mode, and Range	Students practice mean, median, mode, and range using 5 data points from a deck of cards. Each round they pick which measure they want to play in order to get the most points. Mean, median, mode and range practice. In this activity, students calculate the mean, median, mode, and range for a given set of data. Following the matching activity, students discuss how graphs and lists make it easier or more challenging to calculate central tendencies.
Other Resources: • Find the Mean (IXL): Have students add and divide to find the mean of the set of numbers. • Mean Median Mode and Range (Video and Various Activities) Brainpop: Various activities including movie, Quiz, Make-a-Movie, etc. • Choose your Average • VDOE Mathematics Instructional Plans (MIPS) ○ 5.17 What's the Data All About? (Word) / PDF Version	

- VDOE Word Wall Cards: Grade 5 ([Word](#) / [PDF](#))
 - Mean
 - Median
 - Mode
 - Range: Measure of Spread
- VDOE Instructional Videos for Teachers
 - [Mean as Fair Share](#)
 - [Mean as Balance Point](#)
- Desmos Activity
 - [Calculating Mean, Median, Mode and Range](#)

Learning Trajectory Resources:

Charles, R. (2005), [Big ideas and understandings as the foundation for elementary and middle school mathematics](#). *Journal of Mathematics Education Leadership*, 7(3), NCSM.

Common Core Standards Writing Team. (2019). [Progressions for the Common Core State Standards for Mathematics](#). Tucson, AZ: Institute for Mathematics and Education, University of Arizona.

Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2018). *Elementary and Middle School Mathematics: Teaching Developmentally*. (10th edition) New York: Pearson (2019:9780134802084)

VDOE Curriculum Framework for All Grades - [Standard of Learning Curriculum Framework \(SOL\)](#)