



Classroom Teacher Preparation

Statistics 11: Mean, Median, and Mode

Please use the following to prepare for the next SfS lesson.

Description:

In this lesson students explore different ways to analyze data including calculating the central tendencies of mean, median, and mode. Students will focus on correlating their data to real world applications.

Lesson Objectives – SWBAT (“Students Will Be Able To...”):

3rd-8th

- Understand the difference between the main types of central tendency: mean, median, and mode
- Analyze data to find measures of center and other summary statistics (minimum, maximum, and range)

Disciplinary Core Idea (DCI):

- No DCI applies

Science & Engineering Practice (SEP):

Analyzing and Interpreting Data

Preparation:

This lesson is structured to serve as an introduction to the topic.

Room Set Up for Activities:

Students will work individually, but should be seated in small groups of five so that they can share their data. If students don't break up evenly into fives, smaller groups are preferred over larger ones.

Students will likely want to use calculators to find the mean – please have a class set of calculators available, or let your instructor know if they should bring a set.

Safety:

There are no safety precautions with this lesson.

Related Modules:

This lesson may be taught as part of a sequence or group of related modules on *Statistics*. Modules include:

Scientific Practices 12: Normal Distribution in Measurements (with Plinko) - Students use a Plinko board and other tools to examine probability of a normally distributed data set.

For other module sequences and groups, look here: www.sciencefromscientists.org/sequences



Standards Covered:

Please click the following link to our website to review the standards covered by this lesson, listed by state:
<http://www.sciencefromscientists.org/standards/>

Lessons are matched to both national NGSS and local state standards.

After Our Visit:

Extend this lesson by using favorite sports teams to calculate the central tendencies of mean, median, mode, and more!

Access this Extension activity by visiting the Classroom Post found on our website at sciencefromscientists.org/cohorts. Use the name of your school/cohort and password to log in.

To help Evaluate, check out our Open Response questions online at sciencefromscientists.org/open-response-questions. They are freely available for all of our lessons for current teachers. Use the password supplied by your instructor to log in.

Additional Resources:

- “The Mean, Median and Mode Toads”. Quirky but catchy short video for young students (3:46):
<https://www.youtube.com/watch?v=5C9LBF3b65s>
- “3M’s- Mean, Median and Mode by Mister C” rap version (3:13):
<https://www.youtube.com/watch?v=A7MxGyEaN64>
- “7 Billion: Are You Typical?” National Geographic Magazine (2:55). Shows who the typical person on Earth is right now!
<https://www.youtube.com/watch?v=4B2xOvKFFz4>
- “Cool Jobs: Data Detectives” Science News for Students: <https://student.societyforscience.org/article/cool-jobs-data-detectives>
- NY Times article Playing Smart With Data: Using Sports Analytics to Teach Math.
http://learning.blogs.nytimes.com/2015/10/07/playing-smart-with-data-using-sports-analytics-to-teach-math/?_r=0
- Actuarial Foundation’s Math Academy: Play Ball! Lessons on using sports data in math class:
<http://www.actuarialfoundation.org/pdf/math-academy-play-ball.pdf>