

Mathematics
Statistics
Grade 6AB



Lesson Plans

“Statistical Measurements”

Subject:

Mathematics: Statistics

Level:

Grade 6

Abstract:

Students will compute the range, mean, median, and mode of a data set. They will collect a data set and use PowerPoint to present the data set and its range, mean, median and mode. They will also include in their PowerPoint presentation a descriptive paragraph about the range, mean, median, and mode within the data set’s context.

Invitation:

Pedro, Marta, Felix, Adriana, and Saul are members of a club. They took jobs to raise funds to purchase a sound system for their club. They report their hourly wages to the club using statistical measurements: range, mean, median, and mode. How would you report their total earnings? How can you explain who has earned more or less money? How would you explain how much has the group contributed as a team vs. each individual?

Situations:

Where: The activities will take place in school. The activities will occur in the classroom, and a location where students will have access to PowerPoint.

When: The lesson will take place during Mathematics, Statistics class. Before this lesson, students have mastered multi-digit addition, subtraction, multiplication, and division of whole numbers and decimals. Students are able to compare numbers and order them from least to greatest and vice-versa.

How Long: The lesson will take between three to five class periods, depending on the complexity of the student’s data set.

Tasks:**Task 1:**

The teacher will present the invitation to the whole class. The teacher will then present the concept and calculation of range, mean, median, and mode as measurements of central tendencies using the "Statistical Measurements" PowerPoint presentation attachment (slides 1 to 5).

Task 2:

The teacher will model for the whole class the calculation and description of the range, mean, median, and mode of a given data set using slides 6 to 10. Students will learn that they will be forming groups to collect data and will use Microsoft Excel worksheets to calculate measures of central tendencies. They will then create PowerPoint presentations similar to the one being shown.

Task 3:

The teacher will lead a discussion around the different types of data that can be collected. They will divide into small groups of three or four to determine which data is to be collected. They will then collect the data.

Task 4:

Each group will collect and record their data in Microsoft Word using the "Worksheet: Statistical Measurements" attachment. Each group will create a total of four worksheets, one for each measure of central tendency: range, mean, median, and mode.

Task 5:

After students have collected and recorded their raw data, they will transfer the data to a Microsoft Excel worksheet using the "Step Sheet: Calculating Statistical Measurements" attachment as a guide. (See the "Sample: Statistical Measurements in Excel" attachment.) They will build a data table, sort their data, and build a central tendencies table using the statistical functions of Microsoft Excel.

Task 6:

Students will use the final section in the "Step Sheet: Calculating Statistical Measurements in Excel" attachment to build appropriate charts of their results to include in their PowerPoint presentations.

Task 7:

After completing their calculations and charts, students will continue to work in small groups to create a PowerPoint presentation they will use to submit their findings to the class. Students will model their presentations after the initial presentation provided by the teacher, including their statistical calculations, importing charts from Microsoft Excel to Microsoft PowerPoint, and a descriptive paragraph of their results.

Task 8:

Groups will select a reporter to share their PowerPoint presentations with the class.

Interactions:

Full Class: At the beginning of the unit, the teacher will present to the class the meaning and calculation of range, mean, median, and mode. The teacher will also present to the class an example of these calculations with a given data set, using a PowerPoint presentation.

At the end of the unit, students will show their PowerPoint presentation to the full class.

Small Groups: Students will work in small groups to collect their data set, calculate range, mean, median and mode; and to write a descriptive paragraph explaining each measurement result within the data set's context. Students will also collaborate in small groups to create the slides for their PowerPoint presentation for the whole class.

Individual: Students will work individually as necessary to contribute to their group's progress, and/or as assigned by the teacher.

Standards:

Mathematics: Statistics, Data Analysis, and Probability

1.1 Compute the range, mean, median, and mode of data sets.

1.4 Know why a specific measure of central tendency (mean, median, mode) provides the most useful information in a given context.

Assessment:

- "Worksheet: Statistical Measurements:" Each group of students must present a set of four complete worksheets, one for each statistical measurement (range, mean, median, mode).
- "Slides and Presentation Rubric:" Filled out by teacher, assesses the final products of the lesson (slide contents and PowerPoint presentation) for each group of students.

Tools:

- Microsoft PowerPoint
- Handheld Calculator (optional)
- Microsoft Excel (optional)

Project Tips and Alternatives:**Tip #1:**

Enhance the template provided with a background containing images related to the data set.

Tip #2:

Use a handheld calculator to calculate the range, mean, and median of the data set.

Tip #3:

Examples of data sets are number of objects student's have. CD's for instance. Another useful data set would be attendance per classroom on a given day.

Tip #4:

Allow students to create their own template for their PowerPoint presentation.

Attachments:

- "Statistical Measurements" PowerPoint presentation for Teacher Use
- "Worksheet: Statistical Measurements"
- "Sample Worksheet: Statistical Measurements"
- "Sample: Statistical Measurements in Excel"
- "Slides and Presentation Rubric"
- "Step Sheet: Creating a PowerPoint Presentation"
- "Step Sheet: Inserting Text, ClipArt or Graphics"
- "Step Sheet: Gathering and Inserting Electronic Images"
- "Step Sheet: Putting the Slide Show Together"
- "Step Sheet: Using a Projection Device"
- "Step Sheet: Calculating Statistical Measurements in Excel"

Web Resources – Content:

A list of [linked web resources](#) related to the content of this lesson can be found on the Lesson Page.

Web Resources – PowerPoint:

A list of linked web [resources for PowerPoint](#) can be found on the PowerPoint Resources page.

Assistive Technology:

Please refer to the [Assistive Technology section](#) for information on methods and devices to help ensure that all students have access to the curricula in the least restrictive environment.