

# Pre-Algebra Activity 1: Measures of Central Tendency

Kim Holden

CALCULATORS: Casio: *fx-300ES* • Casio: *fx-115ES*

## Teaching Notes/Lesson Plan Level: Pre-Algebra Middle School

### Objective

To familiarize students with the statistical capabilities of the Casio calculator. The students will be able to put pertinent information in a list and calculate the mean, median, mode and range of a set of data.

### Engage

Discuss with students where we see statistics in everyday life. Discuss with the students the different professions where statistics would be used.

### Explore

1. Students will set the calculator to STAT mode.
2. Students will put the set of data in order from least to greatest.
3. Students will calculate the median, mode, and range of the data.
4. Students will enter the data into the calculator.
5. Students will find the mean of the data.
6. Students will complete the worksheet.

### Explain

Students should explain to the necessity of statistics in our everyday life. The discussion should include an explanation of when statistics are used and how statistics are important.

### Elaborate

Students can share ideas and explanations with the class as we analyze scores of tests, and change in temperature over the course of a month.

### Evaluate

Give students additional examples to calculate. Students should write an explanation of mean, mode, median and range. Given each set of data, students should be able to explain which measure best represents the data.

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### Student Worksheet Activity 1

#### Objectives

The student will be able to:

1. Students will put data in order from least to greatest.
2. Students will calculate the median, mode and range of the data
3. Enter data into the calculator using the STAT mode,
4. Find the mean of the set of data,
5. Explain which measure best represents the data.

#### Example

A research group monitors the popularity of television programs and assigns a rating to each one. The ratings for programs airing at 9:00pm on two networks for each day of the week of June 4, 2001 are shown below. Find the mean, median, mode, and range of the ratings for each network.

Day	Network W	Network Y
Monday	7.1	6.2
Tuesday	5.4	5.8
Wednesday	7.0	4.2
Thursday	8.3	9.7
Friday	5.5	5.7
Saturday	5.0	5.4
Sunday	9.8	12.6

#### Procedure

1. Put each list of data in order from least to greatest.
2. Turn on calculator.
3. Set mode:
  - a. Press **MODE** key.
  - b. Press **2** for statistics.
  - c. Press **1** for 1-Variable statistics.
4. Enter the data for Network W.
  - a. Key in first piece of data.
  - b. Press = sign to enter data in table.
  - c. Continue this process for all pieces of data.
5. Once all data for Network W has been entered, press **SHIFT STAT**.
6. Press **5** for Variation.
7. Press **2** for  $\bar{x}$ , which will calculate the mean of the set of data.
8. Press = .
9. The mean for the set of data will appear.
10. Repeat steps 1 through 9 for Network Y.

**Student Worksheet Activity 1**

**Find the mean, mode, median, and range for each set of data. When necessary, round to the nearest tenth.**

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|---|--|
| <p>1. 78, 45, 32, 64, 22, 63, 45</p> <p>2. 22, 63, 53, 26, 41, 44, 12, 26</p> | <p>3. 3.6, 7.2, 9.0, 5.2, 7.2, 6.5, 3.6</p> <p>4. 0.6, 0.7, 1.4, 0.9, 0.2, 0.7, 0.7, 1.4</p> |
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**Use the following spreadsheet to answer the remaining questions. Round to the nearest tenth when necessary.**

Test Scores					
Student	Test 1	Test 2	Test 3	Test 4	Test 5
Helena	94	88	82	92	85
Shandea	83	87	91	78	86
Michael	88	94	71	78	86
Reshma	90	90	81	76	90
Luis	74	92	84	89	88

5. What is the mean of ALL the test scores? \_\_\_\_\_
6. What is the median of all the test scores? \_\_\_\_\_
7. What is the mode of all the test scores? \_\_\_\_\_
8. What is the range of all the test scores? \_\_\_\_\_
9. Look at Helena's scores.
  - a. What is Helena's mean of the five tests? \_\_\_\_\_
  - b. How does Helena's mean affect the class mean? \_\_\_\_\_
10. Look at Reshma's scores.
  - a. What is Reshma's mean on the five tests? \_\_\_\_\_
  - b. How does Reshma's mean affect the class mean? \_\_\_\_\_
  - c. Find Reshma's mode on the first five tests. \_\_\_\_\_
  - d. How does Reshma's mode affect the class mode? \_\_\_\_\_
11. If test 4 is removed, how will this change the mean of all the test scores? \_\_\_\_\_
12. If Michael wanted an 86 average after the sixth test, what grade does he need to earn on his sixth test? \_\_\_\_\_