



Understanding Mean, Median, Mode & Range

Nutshell

In this lesson, students will measure the circumference of tree trunks to determine mean, median, mode, and range values for a group of trees.

Objectives

Students will be able to....

- Measure the circumference of a tree and record it in the proper units
- Use a ruler to gather measurement data
- Calculate mean, median, mode, and range values
- Analyze the tree circumference data collected
- Determine what factors influence the growth of the trees measured

WI State and Core Standards

Math Core: 6.SP.5c; 7.SP.1; 7.SP.2

Materials

- Clipboards
- Copies of the student worksheet
- Writing utensil
- Calculator
- Flexible tape measure (or use string to fit around tree trunk and match circumference to ruler)

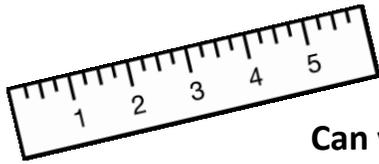
Teacher Preparation:

- notify the main office that you will be outside for a certain amount of time
- be sure students are appropriately dressed for the weather
- gather all needed materials so you don't have to run back inside
- classroom behavior guidelines are the same outdoors as they are in the classroom

Procedure

1. Students should know the terms mean, median, mode, range, and circumference before going outside
2. Each student or team needs a tape measure, copy of the worksheet, clipboard, and writing utensil
3. Students will measure 10 trees, preferably of the same species or type, and record each trees individual circumference in the table on the student worksheet.
4. After all trees are measured, students will calculate the mean, median, mode, and range for each tree species' circumference.
5. Compare the data and results for different types of trees.
6. Students should graph their results and answer the critical thinking questions.
7. Discuss with the class why different trees may have different size trunks based on the data collected...be sure to include age of the tree, light and water requirements, growing conditions, and species growth patterns.





Name: _____

School Forest Tree Measurement

Can you find the mean, median and mode of trees in your school forest?

1. Measure the circumference of one tree and record. Then find others of the same kind, and use the circumference measurements to find the median, mean, mode, and range of that species. Repeat the exercise with a different species.

Tree Species #1: _____

Tree Species #2: _____

<u>Tree #</u>	<u>Circumference</u>
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

<u>Tree #</u>	<u>Circumference</u>
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Mean: _____

Median: _____

Mode: _____

Range: _____

Mean: _____

Median: _____

Mode: _____

Range: _____

2. Graph your circumference measurement results for each tree on a separate piece of paper....but put both tree results on the same graph.

3. Answer the following questions by referring to the data (measurements) you collected above.

a. Describe what was similar about the two different tree species you measured.

b. Describe what was different about the two tree species you measured.

c. Compare just the circumference measurements you took off all ten trees in tree species #1. Take a look at your data. Where the measurements (trunk sizes) all the same? Explain and analyze your results. Here is a hint! Think about what a tree needs to survive and grow to be big and healthy!

- If the trunk sizes were all the same measurement, explain what growing conditions and requirements were provided to the trees to allow that to happen.
- If the trunk sizes were different measurements, explain what the trees may have individually been lacking that contributed to those different sized trees.