CONSTRUCTING TASK- MEASURE AND PLOT!

STANDARDS FOR MATHEMATICAL CONTENT

MCC.3.MD.4. Generate measurement data by measuring lengths
using rulers marked with halves and fourths of an inch. Show the data
by making a line plot, where the horizontal scale is marked off in appropriate units— whole
numbers, halves, or quarters.

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE & MISCONCEPTIONS

Bar graphs and picture graphs are useful for illustrating categorical data.   A line plot is used for
counts of things along a numerical scale. It is essentially a number line with an X placed above
the corresponding data. The advantage to a line plot graphs is that all data is displayed.

ESSENTIAL QUESTIONS

How is a line plot similar to a bar graph?
How are they very different?

MATERIALS

- Rulers, tape measures, yard sticks
- math journals/learning logs
- http://www.youtube.com/watch?v=G6eTMRXHhmE

GROUPING

partner

TASK DESCRIPTION, DEVELOPMENT & DISCUSSION

In this task, students will measure in to nearest whole inch and create a class line plot graph.

Comments

The teacher will review the purpose of a bar graph through an open-ended discussion. She will explain that there are many different types of graphs and the one they will be studying today was called a line plot graph.

The teacher would then show them the video below which will explain the purpose of a line plot and how to create the graph. http://www.youtube.com/watch?v=G6eTMRXHhmE

Following the video, the teacher will display a Venn diagram and have the students compare and contrast a bar graph and a line plot graph. The teacher would then display the following numbers on the board and have them work as a whole group to create a line plot. She would be sure to give it a title to reinforce the connection between bar graphs, tell them the numbers they were using were grades from a spelling test from last year's class which means that is the data, and go on to model creating the plot.

(85, 90, 75, 100, 100, 80, 60, 100, 90, 90, 100, 65, 60, 85, 90, 75, 85, 65, 100, 90)

Task

The teacher will explain (distribute the recording sheet) the following task to the students:

> The custodians will be adjusting the height of the swings on the play ground. They have decided to take data from the third grade classes. The custodians will need to know the sitting height of a majority of the third grade students. They will use this data to adjust the swings.

Students are to work in pairs to determine their sitting height to the nearest inch. Students should record their height on their task recording sheet.

When the measuring is complete, the students should work together to create a class line plot graph. There should be discussion around the first and last number in the line plot and how this will be determined.

FORMATIVE ASSESSMENT QUESTIONS

- What makes a bar graph different from a line plot?
- Give examples and explain when would be the most appropriate time to use each and why.

DIFFERENTIATION
Intervention-
- Students may struggle with measuring. Provide assistance. Using a tape measure may be easier than a ruler or yard stick. Also, notice where students begin their measurement. Are they starting at one or zero?

Extension-
- Students can collect data from the other third grad classrooms for a grade level line plot.

Name _____ Date_____

Measure and Plot

The custodians will be adjusting the height of the swings on the play ground. They have decided to take data from the third grade classes. The custodians will need to know the sitting height of a majority of the third grade students. They will use this data to adjust the swings.

My sitting height_____

What are three things the data tells me about the sitting height of my classmates?

Do you think that it was wise to use the third grade to determine the swing height? Explain your answer.