Unit Map 2010-2011

Curriculum Designers
Collaboration / Math ES* / Elementary (Sample-NYC)

June 25, 2011, 11:02AM

Unit: Graphs - Representing Data - Grade 3 (Week 8, 3 Weeks)

Standards

CCLS:Mathematics, 3rd Grade , Mathematical Practice
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 3. Construct viable arguments and critique the reasoning of others.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.

CCLS:Mathematics, 3rd Grade , Measurement & Data
3.MD Represent and interpret data.

- 3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.
- 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.

Big Ideas

- Mathematicians can identify and explain all possible outcomes of a given situation or event.
- Some questions can be answered by collecting, representing, and analyzing data, and the question to be answered determines the data to be collected, how best to collect it, and how best to represent it.

Essential Questions

- How can I recognize the possible outcomes of a situation or event?
- How can using graphs help us solve problems and describe data we collect?

Content

- Variety of Data
- Probability and Chance
- Graphs
- Charts
- Frequency table

Skills

- A1. Identify parts of a bar graph
- A2. Collect data for a graph
- Record data on a graph
- Create a bar graph
- Find the mean, median, mode
- Compare two sets of data
- Compare the median and mean
- Read charts and graphs
- Use data in problem solving scenario

	• Summarize and interpret data

Key Terms / Vocabulary

Mean, average, median, frequency table, mode, coordinate grid, coordinate, plotting the point, ordered pair

Assessments

Create a Graph - Partners
Formative: Performance: Authentic Task
With a partner, collect data, create a graph, and explain the process including mean, median, and mode.
• Give each pair of students a sticky bug (or something of this nature) and a stopwatch or timer. The students put a piece of tape on the wall as high as they can reach. Have them place their bug on the wall and measure how far it travels down the wall in ten seconds. Have students run five heats collecting the data of the distance their bug traveled in ten seconds. They can find the mean, median, and mode of their data if time allows. Have groups of students record the data on a classroom table or chart. Work with this data to find the mean, median, and mode of this classroom information. As students are working, check for understanding of the children in groups, examining the information on their papers. (See attached)

Story Problem Collaborative Project
Summative: Performance: Skill Demonstration
The students work cooperatively in groups but at separate locations to write explanations for a story problem involving data and the use of a table or graph. The students use www.titanpad.com to work on the solution and explanation of their assigned problem. Each student has a color of type assigned to them and everyone contributes to the explanation making changes and revisions. Students have to intentionally read what others have written rather than verbally. This could be adapted to address comparing pieces of data or writing all types of explanations as well.

Graph Story Problem
Diagnostic: Performance: Authentic Task
Create a graph and have students create a story problem that would use the graph and the information given in the graph. Students should be prepared to share the strategies and reasoning accompanying the graphs.

Learning Activities	Resources
Class survey to practice data collection strategies • Begin teaching bar graphs by making a human graph. Have students rank different things they like on a five point scale. Five is "I REALLY like this" down to one which is "I REALLY don't like this". To expedite, have these questions on paper and have students circle their answers for each question ahead of time. Have one through five	Lesson resource website http://illuminations.nctm.org Math resource – includes videos http://www.mathplayground.com/mathtv.html

marked on the floor and have students line up in single file behind the number for each question to form a human bar graph. Use a flip camera to video it from an elevated position immediately showing it to the class. Then to make it easier for students to visualize a graph, have the students hold a piece of paper on the top of their heads and videotape so they will see the bars of a bar graph. • Either this information can then be transferred to this next exercise or design new criteria. For example, have students measure their arm span or the number of heel to toe steps from the classroom door to the teacher's desk through the use of partners. Have them record it on a sticky note. Then on the wall or board, have the distance or measurement listed on the bottom line of a bar graph. Have the students post their sticky notes on the appropriate measurement forming the bar graph. Remove the sticky notes alternating opposite ends of the graph to demonstrate how to find the median. Also write it as this is done. Look for any measurements that are very different than the rest to check for understanding and to review. • Go to http://nces.ed.gov/nceskids/createagraph/ to demonstrate how graphs are made and how data is inserted and used in them. Have information available for students to put into a graph as a class. Create graphs and differentiate between types of graphs and which would show the desired information in the best way. Allow students to work in pairs or small groups to try this on their own. On this site, the students could go to the *Dare to Compare* section to find information to graph using different tables or graphs.	

Updated: 06/01/2011

 Atlas Version 7.2.4