Grade Level/Course: 2nd grade
Lesson/Unit Plan Name: Line Plots Using Measurement
Rationale/Lesson Abstract: Students will be introduced to representing measurement data on a line plot. This is a new concept for second graders that is developed in all subsequent grades. It is, therefore, very important that students are given a strong foundation in how to make line plots and why we use them.
Timeframe: 3 days

Common Core Standard(s):

2.MD.2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

2.MD.9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

Instructional Resources/Materials:

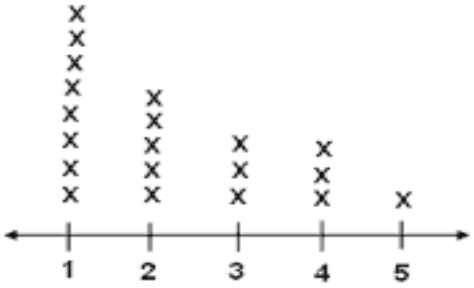
Linker cubes
Paper clips
Chart paper
Markers
Paper inches

Activity/Lesson:

Vocabulary:
Information
Data
Line plot

Day One
Warm-up:
Teacher will put problem on docucam. Students will discuss in pairs what information they can get from this

Items Measured in Inches



I do:
Teacher will have a line plot on a piece of chart paper (could be done on the docucam, but it might be a good idea to have line plots made during the week on chart paper as models) The teacher will introduce the line plot, using the vocabulary words data, line plot and information. As the teacher explains the line plot, s/he will make one explaining each step in making a line plot. The teacher will also explain how each axis gives different information by referring to the warm-up problem: the x axis shows the number of inches and the y axis shows the number of items that are that length.

- Line plot is a straight line where we will mark measurements of our feet. We are putting whole numbers on our line plot. Just like the warm-up problem, we will have the measurements on the x axis and the number of feet that have that measurement will be on the y axis.

Students will measure the length of their feet using linker cubes, to the nearest whole cube. Teacher will record this information on a line plot for the class.

- As each student says the length of his/her foot, the teacher puts an "x" above that whole number.
- The "x" s are all the same size and above each other in a straight line.

Students will analyze this whole class data to see what statements can be made about the length of their feet.

- What do you notice about the data on the line plot?
- How many more feet measure ___ linker cubes than ____ linker cubes?

- Most feet are how many linker cubes long?

Students are encouraged to reflect on why a line plot is such a great way to represent data.

- What kind of data is represented in a line plot?
- Why would you make a line plot?
- Is there another way that you could represent this information?

Day Two

Warm-up:

Using the line plot from yesterday, the teacher will create "2 Truths and a Lie", 3 statements that are either true or false.

For example, 7 more students' feet measure 9 linker cubes than 6 linker cubes; 14 students' feet measure 8 linker cubes and 7 linker cubes; there is a difference of 3 linker cubes between students' feet that measure 7 linker cubes and 10 linker cubes.

Students will talk in pairs to figure out which 2 statements are true and which one is not.

We do:

The teacher will have a blank line plot on chart paper in front of the room. Each student will get his own personal blank line plot, paper clips, and a post-it with a big X on it.

Students are given another nonstandard way to measure their feet- paper clips. The teacher will help students understand how to measure their feet using paper clips with no spaces in between clips. After they have all measured their feet, students will come up in groups of 4 to the new line plot in the front of the classroom and put the post-it with an X above the number that indicates the length of their feet in paper clips. Encourage students to focus on placing their same size "x"s on top of each other. At the same time, students will record on a personal line plot the measurements that each student records on the line plot in front of the class.

- How is this line plot similar to the line plot with the linker cube measurements?
- How does the unit of measurement relate to the actual measurement?

Day Three

Students will measure their feet again using inches that are paper units cut into one-inch size. These paper inches will be in a basket/bin placed at each table. Then students will line them up to measure their foot. (If students are already capable of using a ruler and understand that 12 inches make one foot, students can do the measuring using rulers.) This time, students will record the information of the measurement lengths of the students' feet at their table. Therefore, they will need to make the line plot, label the line plot, and plot the measurements of their peers. Each group will present their findings to the whole group.

Reflection questions:

- What information do you get from making a line plot?
- What information do you need to make a line plot?
- Why would you make a line plot instead of a graph?
- What difference does the unit of measurement have on the actual measurement?
- What unit of measurement would you choose to use to measure your foot? Why?

Students will write on the exit ticket below what information they can gather from the line plot they made.

Write sentences about what you notice about your line plot.

Assessment:

The second grade is growing bean plants in class. There are 24 students total. 7 students' plants grew to 4 inches, 3 students' plants died, 5 students' plants were 5 inches tall, 2 students' plants grew to 8 inches, and 7 students' plants were only 2 inches tall.

Create a line plot to display the data.