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Mathematics: The Language of STEM
"Measurement Mayhem"
Day 2

CONTENT AND TASK DECISIONS

Grade Level(s): 1st

Description of the Task: Students will explore ways to measure an object using nonstandard and standard tools. Students will understand that the length measurement of an object is the number of same length units it spans without overlapping or gaps.

Indiana Mathematics Content Standards: 1.M.1 (Measurement) Students will use nonstandard units to measure length or height.

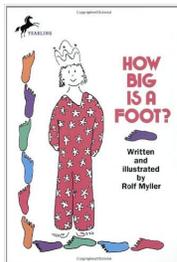
Indiana Mathematics Process Standards: (PS.3) Students will construct viable arguments and critique the reasoning of others.

Mathematics Content Goals: Students will measure objects using nonstandard units of measurement.

Language Objectives: Students will verbally explain (and show) how they measured objects, the unit that was used for the measurement, and the measurement in units that they came to.

Materials: paper clips, counting cubes and rods, snap cubes, pennies, counting bears, additional units of nonstandard measurement

How Big is a Foot by Rolf Myller



THE LESSON

Before:

- **Student Actions**

Students will listen to a book, How Big is a Foot? by Rolf Myller.

Students will listen and watch during the mini-lesson as steps for measuring are explained and modeled by the teacher.

Students will ask questions for clarification of how to proceed with group work.

- **Teacher Actions**

Activate prior knowledge by saying, "Think about yesterday? What did you do in your groups during our math exploration yesterday?"

Listen as they describe yesterday's activity and what they did to show/tell how "big" an object is.

Ask, "What were some of the units that you used to measure?"

With an object (same object as yesterday) in hand ask, "How big is this?" Allow students to tell and demonstrate (with unit of choice) how big the object is.

Read How Big is a Foot?

Discuss the book, How Big is a Foot? Questions you might ask: "What did you notice as I read this book? Why was the bed too small the first time the carpenter made it? What do you think is important when measuring?"

Begin Mini-lesson. Explain the important steps for measuring (begin at one end and measure to the other end; units should be placed right up next to the other with no space in between).

Model measuring incorrectly (not starting at the end and with spaces between units).

Ask students to explain if it is correct or incorrect and why.

Model measuring correctly.

Say: Today, you will again work with your group to measure different objects. The items (ex: scissors, pencil, glue bottle, composition notebook, crayon box, etc.) that you will measure are in your Math Tub. You will also find four different units that you may choose to measure with (ex: bears, pennies, paper clips, and linking cubes). As a group, choose your unit of measure, and measure your objects. You will then circle the unit that you used and graph (show the paper for graphing) the number of units used to measure.

During:

- **Student Actions**

Students will cooperate as a team to measure the items in their Math Tool Box, using the units available to them. Each student will play a role in measuring and graphing.

- **Teacher Actions**

Walk around, noticing students thinking and interactions.

Ask questions to encourage verbalization of thinking and their process, as well as take note of students that you would like to share and in what order their sharing should take place.

After:

- **Student Actions**

Students will return to the carpet for Math Congress. Students (chosen as you walked around and noticed learning and discoveries) will share with the class the unit they chose to measure with, model with one object they measured, and the total number of units it measured.

Students not sharing will show respect by looking at the person talking and listen quietly as their peers verbalize their thinking and process.

Students may ask questions of the peer that shared and modeled, or verbalize thinking that is in contrast to that shared.

- **Teacher Actions**

Encourage respect and listening as peers present their thinking and learning.

Ask questions to extend thinking and promote discussion.

Summarize thinking/main ideas/connections.

ASSESSMENT

Observe: As I circulate around the room, I will be watching and listening to the process(es) students go through to find the measurement of an object..

Assess: I will provide an exit ticket for the students to show their understanding of using nonstandard units to measure an object. The exit ticket will have 2 objects that students are to measure with a unit of my choosing. They will write the measurements in the number of units of nonstandard measurement used.