Lesson Plan—Kindergarten Measurement

Context: This lesson is designed for a kindergarten class at Matthew Whaley elementary school. The class has 20 students. It is an inclusion class, and there are students with behavioral problems and students that are developmentally delayed. This is an introductory lesson on measurement of length.

Objective: Students will measure the lengths of common classroom objects using standard and nonstandard measures. Students will compare lengths using the terms “longer” and “shorter.”

SOLs:
K.8 The student will identify the instruments used to measure length (ruler), weight (scale), time (clock: digital and analog; calendar; day, month, and season), and temperature (thermometer).
K.10 The student will compare two objects or events, using direct comparisons or nonstandard units of measure, according to one or more of the following attributes: length (shorter, longer), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder). Examples of nonstandard units include foot length, hand span, new pencil, paper clip, block.

Materials/Resources:
- Rulers (one for each child)
- Yardstick
- Tape measure
- Pieces of string
- Blocks
- Unifix cubes
- Paper clips
- Twelve Snails to One Lizard: A Tale of Mischief and Measurement by Susan Hightower

Content and Instructional Strategies:
1. Introduce the concept of measurement by reading the story Twelve Snails to One Lizard.
2. Ask students to think of situations like the one in the book where they need to know how long something is. Examples: getting a new floor/carpet in a room; seeing whether a picture will fit inside a picture frame; lining up by height when taking a class picture… Also ask what we would normally use to measure these things? Examples: ruler, yardstick, tape measure (show examples to students)
3. Explain that we want to measure objects in our classroom, but we aren’t allowed to use any “standard” measurement tools (just like in the story)
4. Demonstrate by measuring the length of some easily accessible object (like the overhead projector) using unifix cubes. Place the cubes side by side, have the children help you count them, and record the number.
5. Split children into groups of about four (use already designated table groups to save time). Tell children that each group must measure three different objects. They can be any objects
(height of children, books, wall of classroom, etc.) and they can use any units they want (blocks, paper clips, shoes, hands, pieces of string, etc.) as long as each unit is the same size.

6. Help students with measuring and record their measurements for them. Ideally, each group would have an adult helper.

7. Have each group tell the others what they measured and how big it was (help them read what you wrote).

8. Call on students to compare the lengths of objects. Stress that they cannot just say which number is bigger if different units were used (for example, the wall might be 20 steps long, and a piece of paper might be 21 unifix cubes long, but the wall is still longer). So how can we compare? Answer: most objects are clearly longer or shorter than other objects (the wall is obviously longer than the paper), so we can tell by estimating. Practice as a group guessing whether various objects in the room are longer or shorter than other objects—have students give a thumbs-up if the object is longer, thumbs-down if shorter.

9. Ask what might happen if objects are very close to the same length? We won’t be able to tell which is longer/shorter just by looking. Have students think about how to solve this problem. Solution: use the same units when comparing both. This is why we have standardized measures, like inches/feet, because they’re always the same. Demonstrate by measuring two students who are similar in height—have them lie down on the floor, place rulers next to one another, and have students help count to determine how long each child is.

10. Students return to tables. Pass out worksheets. Read directions out loud so every student understands. Collect the worksheet.

11. Homework: have students measure something in their house with the help of a family member.

**Evaluation:** Informally assess for understanding during whole-group discussion and while students are measuring objects in the room. The worksheet (attached) is used as summative assessment.

**Differentiation and Adaptations:** Students have already been divided into groups for regular class activities. These groups are heterogeneous, with students of all ability levels working together. This should enable the non-special education students to assist the special education students. The teachers and teaching assistants should provide more scaffolding for the special education students. This is an introductory lesson in measurement, so students should be able to handle the assignments with help from the teacher. Most kindergarten students cannot read, so teachers should be willing to reiterate the directions for the worksheet for any student who does not remember.

**Reflection:** By giving the children a chance to measure what they want using whatever nonstandard unit they want, this lesson gives students autonomy over their own learning. It is also very hands-on, so that students have plenty of opportunities to make sense of the concept of measurement.
Directions:
Use a ruler to measure the picture. Write how long the picture is in inches. Circle the picture that is longer.

How many inches? ______

How many inches? ______

How many inches? ______

How many inches? ______