

Grade 1 Clarifying Lessons: Measuring Real Stuff

OLD Resources. These resources have NOT yet been updated to align with the revised elementary mathematics TEKS. These revised TEKS were adopted by the Texas State Board of Education in 2005, with full implementation scheduled for 2006–07. These resources align with the original TEKS that were adopted in 1998 and should be used as a starting point only.

What is a Clarifying Lesson?

A model lesson teachers can implement in their classroom. Clarifying Lessons combine multiple TEKS statements and may use several Clarifying Activities in one lesson. Clarifying Lessons help to answer the question "What does a complete lesson look like that addresses a set of related TEKS statements, and how can these TEKS statements be connected to other parts of the TEKS?"

TEKS Addressed in This Lesson

Measurement: 1.7A, B

Underlying processes and mathematical tools: 1.11A, B, C, D; 1.12A, B; 1.13

Materials

- a collection of non-standard measurement units (cubes, cups, bottles, toothpicks, paper clips interlocking cubes, links, balances)
- a variety of objects to be measured (school supplies, desks, books, shelves, colored tiles, blocks)

Lesson Overview

Amelia Bedelia by Peggy Parish

Lesson Overview

Students select and use appropriate nonstandard units to measure and compare lengths and weights of real-life objects.

Mathematics Overview

Students use problem-solving skills to design a process to measure length and weight of objects using non-standard units and describe the relationship between the size of the unit and the number of units needed in a measurement.

Set-up (to set the stage and motivate the students to participate)

1. Read *Amelia Bedelia* by Peggy Parish and have students discuss some of the inappropriate ways Amelia tried to measure things (e.g. measuring "cups" with the heights of the cups rather than with how much they contained). (1.7A; 1.13) Lead into a discussion of the importance of choosing appropriate measuring instruments, units, and procedures. (1.11B, C, D)
2. Provide students with real-life objects with attributes of length and weight that can be measured. (1.11A)
3. Have students choose two different units of measure to use to measure an object (e.g. marbles and pennies to measure the weight of a small book) and record the two measurements. (1.7A; 1.11B, C, D) Discussion may be needed here on the importance of a measurement containing both a number and a unit (e.g. 15 marbles, 40 pennies). (1.12A, B)
4. Have students measure several objects, organize their data, and look for patterns or possible conjectures about the measurements and the units. (1.7B, 1.13)

Teacher Notes (to personalize the lesson for your classroom)**Guiding Questions (to engage students in mathematical thinking during the lesson)**

- Why did you choose the unit of measure that you used? (1.7A, 1.13)
- What could you use the paper clips to measure? (1.7A, 1.11D)
- What other units could be used to measure the same thing as the paper clips? (1.7A, 1.11D)
- What kinds of measurements could you make of the scissors? (1.7A; 1.11A, B, C)
- Why did you need more (paper clips) than (toothpicks) to measure that object? (1.7B; 1.12A, B; 1.13)
- Which of your measurements was the heaviest? The lightest? (1.7A, 1.11A, 1.12B) How do you know? (1.13)
- What do the numbers in the measurements tell you? (1.12A, B)
- Why are the unit words in the measurement important? (1.12A, B)

Teacher Notes (to personalize the lesson for your classroom)**Summary Questions (to direct students' attention to the key mathematics in the lesson)**

To focus students' attention on the process of measurement that they used, ask questions such as:

- What were some of the characteristics of the objects that you chose to measure? (1.7A, 1.11A)
- Why did you choose the unit of measure that you used? (1.7A; 1.11B,C,D)

To focus students' attention on the reasonableness of their measurements, ask questions such as:

- About how many tiles did the notebook weigh? (1.7A, 1.12A) About how many blocks did the notebook weigh? (1.7A, 1.12A) Why did you use more tiles than blocks to measure the weight of the notebook? (1.7B, 1.13)
- How did you decide if your measurements were reasonable or not? (1.7A) How did you use estimation? (1.11B, 1.13)

To lead students to the observation that if the units are larger, it requires fewer of them to describe the measurement, and vice versa, ask questions such as:

- If a book is 25 paper clips long, about how many pens long do you think it is? (1.7B, 1.12A) Why? (1.13)
- What conjectures could you make about the result of using different measurement units to measure the same object? (1.7A, 1.7B)

Teacher Notes (to personalize the lesson for your classroom)**Assessment Task(s) (to identify the mathematics students have learned in the lesson)**

- Give students some non-standard units and ask them to estimate measurements of objects. They should explain why they think their estimate is reasonable.
- Have students write in their math journals an explanation of what could be happening in situations like, "I measured the desk and it is 15 pencils long, but my partner says it is 20

pencils long. Which one of us is right?" Have students make up a situation where two people could measure the same object correctly, but get what sound like different measurements.

Teacher Notes (to personalize the lesson for your classroom)