Core Content

Cluster Title: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Standard 2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

MASTERY Patterns of Reasoning:

Conceptual:

Students will understand how to use the four operations to solve word problems using measurement units.
Students will understand how simple fractions and decimals relate to measurement.
Students will understand how to use the simple fractions and decimals to solve word problems using measurement units and money.
Students will understand how measurement quantities fit into a number line.
Students will understand how to convert between larger and smaller units of measurement.
Students will understand how to use measurement diagrams.

Procedural:

Students can identify correct placement of measurement on the number line.
Students can convert between units of measurement within one system.
Students can use the four operations to solve word problems requiring measurement.

Representational:

Students can use models, pictures, manipulatives, number lines and diagrams to solve problems.
Students can use models, pictures, manipulatives, number lines and diagrams to show measurement conversions.

Supports for Teachers

Critical Background Knowledge
Conceptual: Students will understand the different types of measurement (systems and units). Students will understand larger units versus smaller units. Students will understand the use of a number line. Students will understand how decimals and fractions represent measurements. Students will understand when to use each operation. **Procedural:** Students can identify the appropriate units of measure for the given item (e.g., small spider versus tractor) and what is being measured (length, mass, capacity). Students can record data on two-column table. Students can record numbers on a number line. Students can convert between units of measurements within one system. Students can solve equations using the four operations. **Representational:** Students can use models to show conversions. Students can use diagrams to record measurements.
Academic Vocabulary and Notation
distance, time, interval, volume, mass, number line, scale, diagram

Instructional Strategies Used	Resources Used
Have students identify the operation(s) required in word problems by giving students five problems involving measurement. Read the problems with students to determine	http://www.thatquiz.org/tq/previewtest?A/O/Z/P/83711291417153 http://www.helpingwithmath.com/by_subject/word_problems/wor_measurement01_4md2.htm

which ones require conversions. Using the conversion problems, students will identify operation(s) needed to solve each problem.	
Assessment Tasks Used	
Skill-Based Task: Give students word problems to solve. Require students to show work, including any diagrams.	**Problem Task:** Gina decides to figure out how long her class spends actually studying and learning in one day. She arrives at school at 8:30 a.m. The class goes to recess from 9:30 a.m. to 9:45 a.m., and then works in literature circles and writing until 11:30 a.m., when the class goes to lunch. Students are at lunch for 40 minutes. After they return to class, they work on math until their ten-minute afternoon break at 1:30 p.m. After break, they work on science and social studies until school dismisses at 3:10 p.m. How much time are the students in school? How much time are they learning and studying? Give your answer in hours and minutes.