Grade 3 - Unit E - For Good Measure

Unit Focus

This unit focuses on measurement concepts and skills. Students tell time to the minute and solve elapsed time problems. Then, the class explores measuring mass/ weight and volume using metric units of measurement. Students estimate, measure, and compare the masses of different objects and work with volume. The unit builds upon the strategies to add and subtract 3-digit numbers that were introduced in Unit 3 as students solve measurement-related story problems. Perimeter problems are also solved while addition strategies are further refined.

Stage 1: Desired Results - Key Understandings

Standard(s)

Standards

- Common Core
  - *Mathematics: 3*
    - Solve problems involving the four operations, and identify and explain patterns in arithmetic.
    - Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *(CCSS.MATH.CONTENT.3.OA.D.8)*
    - Use place value understanding and properties of operations to perform multi-digit arithmetic.
    - Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(CCSS.MATH.CONTENT.3.NBT.A.2)*
    - Solve problems involving measurement and estimation.
    - Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. *(CCSS.MATH.CONTENT.3.MD.A.1)*
    - Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).1 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. *(CCSS.MATH.CONTENT.3.MD.A.2)*
    - Relate area to the operations of multiplication and addition. *(CCSS.MATH.CONTENT.3.MD.C.7)*
    - Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and

Transfer

Students will be able to independently use their learning to...

T1 Choose appropriate tools to make reaching solutions more efficient, accessible and accurate.

T2 Demonstrate fluency with mathematical computations and definitions.

Meaning

Understanding(s)

Students will understand that...

U1 Mathematicians calculate efficiently and accurately while using appropriate symbols and labels.

U2 Mathematicians strategically use different tools to build conceptual knowledge or solve problems.

Essential Question(s)

Students will keep considering...

Q1 What are the strengths and weaknesses of the tools at hand?

Q2 How do I check my work for accuracy and completeness?

Acquisition of Knowledge and Skill

Knowledge

Students will know...

K1 matter is the amount of mass an object contains and can be measured in grams using a pan balance scale

K2 volume is the amount of space an object takes up and can be measured in (milli)liters

Skill(s)

Students will be skilled at...

S1 solving story problems involving addition or subtraction of lengths, mass or liquid volume

S2 telling time to the nearest minute

S3 solving elapsed time story problems

Stage 1: Desired Results - Key Understandings		
represent whole-number products as rectangular areas in mathematical reasoning. *(CCSS.MATH.CONTENT.3.MD.C.7B)* ▪ Geometric measurement: recognize perimeter. ▪ Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. *(CCSS.MATH.CONTENT.3.MD.D.8)* ▪ Mathematical Practices ▪ Use appropriate tools strategically. *(CCSS.MATH.MP.5)* ▪ Attend to precision. *(CCSS.MATH.MP.6)* **Madison Public Schools Profile of a Graduate** Analyzing: Examining information/data/evidence from multiple sources to identify possible underlying assumptions, patterns, and relationships in order to make inferences. *(POG.1.2)*	**K3** a number line can be used to measure the amount of time that has passed (elapsed time) **K4** time is measured in seconds, minutes, hours, days, weeks and years **K5** metric units measure mass, volume and length. **K6** perimeter is a measurement of the length around the outside of a shape **K7** Vocabulary: centimeter, kilogram, gram, liquid volume, liter, mass, meter, volume, elapsed time, gram, metric system, millimeter, pan balance scale	**S4** estimating and then measuring mass, liquid volume and linear objects using the appropriate tools and units **S5** calculating perimeter **S6** reading a pan balance