

<p>Grade:</p> <p>Unit 5- Solving Problems using Real-World Measurement and Data</p>	<p>Subject: Math</p> <ul style="list-style-type: none"> • Time Frame: 16 days • Domains: Measurement and Data 	
<p>Standards</p>	<p>Content Standards: 4.MD.1, 4.MD.2, 4.MD.3, 4.MD.4 http://www.corestandards.org/wp-content/uploads/Math_Standards.pdf</p>	<p>Practice Standards: MP 1, 2, 3, 4, 5, 6, 7, 8</p>
<p>Enduring Understandings</p>	<ol style="list-style-type: none"> 1. There are different measurement systems in the world, and units in the same measurement system are related. 2. Units can be converted within the same measurement system. 3. Area and perimeter can be found with a formula. 4. Line plots can be used to represent data. 	
<p>Essential Questions</p>	<ol style="list-style-type: none"> 1. Which units of measurement make up the metric system? 2. How can we measure liquid using volume and mass? 3. How can we solve problems involving units of time? 4. How can we use our knowledge of customary units of length to solve problems? 5. How do we measure liquid in customary units? 6. What is the formula for finding perimeter and area of rectangles? 7. How do we solve real world measurement word problems using all four operations? 	
<p>Vocabulary</p>	<p>millimeter, centimeter, decimeter, meter, mass, gram, kilogram, milligram, line plot, inch, foot, yard, mile, pound, ounce, ton, cup, fluid ounce, quart, pint, gallon, perimeter, length, width, formula</p>	

Priority and Supporting CCSS	Explanations and Examples*																								
<p>4.MD.1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</p>	<p>4.MD.1. The units of measure that have not been addressed in prior years are pounds, ounces, kilometers, milliliters, and seconds. Students’ prior experiences were limited to measuring length, mass, liquid volume, and elapsed time. Students did not convert measurements. Students need ample opportunities to become familiar with these new units of measure.</p> <p>Students may use a two-column chart to convert from larger to smaller units and record equivalent measurements. They make statements such as, if one foot is 12 inches, then 3 feet has to be 36 inches because there are 3 groups of 12.</p> <p>Example:</p> <table border="1" data-bbox="1102 743 1879 898"> <thead> <tr> <th>kg</th> <th>g</th> <th>ft</th> <th>in</th> <th>lb</th> <th>oz</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1000</td> <td>1</td> <td>12</td> <td>1</td> <td>16</td> </tr> <tr> <td>2</td> <td>2000</td> <td>2</td> <td>24</td> <td>2</td> <td>32</td> </tr> <tr> <td>3</td> <td>3000</td> <td>3</td> <td>36</td> <td>3</td> <td>48</td> </tr> </tbody> </table>	kg	g	ft	in	lb	oz	1	1000	1	12	1	16	2	2000	2	24	2	32	3	3000	3	36	3	48
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*Source – Connecticut Core Standards for Mathematics as adapted from the Arizona Academic Content Standards

Priority and Supporting CCSS	Explanations and Examples*
<p>4.MD.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.</p>	<p>4.MD.2. Examples:</p> <p><u>Division/fractions</u>: Susan has 2 feet of ribbon. She wants to give her ribbon to her 3 best friends so each friend gets the same amount. How much ribbon will each friend get?</p> <p>Students may record their solutions using fractions or inches. (The answer would be $\frac{2}{3}$ of a foot or 8 inches. Students are able to express the answer in inches because they understand that $\frac{1}{3}$ of a foot is 4 inches and $\frac{2}{3}$ of a foot is 2 groups of $\frac{1}{3}$.)</p> <p><u>Addition</u>: Mason ran for an hour and 15 minutes on Monday, 25 minutes on Tuesday, and 40 minutes on Wednesday. What was the total number of minutes Mason ran?</p> <p><u>Subtraction</u>: A pound of apples costs \$1.20. Rachel bought a pound and a half of apples. If she gave the clerk a \$5.00 bill, how much change will she get back?</p> <p><u>Multiplication</u>: Mario and his 2 brothers are selling lemonade. Mario brought one and a half liters, Javier brought 2 liters, and Ernesto brought 450 milliliters. How many total milliliters of lemonade did the boys have?</p> <p>Number line diagrams that feature a measurement scale can represent measurement quantities. Examples include: ruler, diagram marking off distance along a road with cities at various points, a timetable showing hours throughout the day, or a volume measure on the side of a container.</p>

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<p>4.MD.3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. <i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i></p>	<p>4.MD.3. Students developed understanding of area and perimeter in 3rd grade by using visual models.</p> <p>While students are expected to use formulas to calculate area and perimeter of rectangles, they need to understand and be able to communicate their understanding of why the formulas work.</p> <p>The formula for area is $l \times w$ and the answer will always be in square units.</p> <p>The formula for perimeter can be $2l + 2w$ or $2(l + w)$ and the answer will be in linear units.</p>

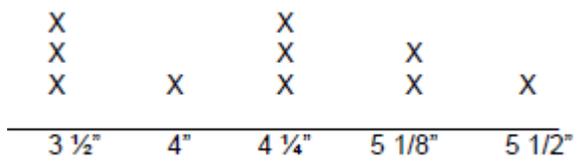
Priority and Supporting CCSS	Explanations and Examples*
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4.MD.4. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

4.MD.4.

Example:

Ten students in Room 31 measured their pencils at the end of the day. They recorded their results on the line plot below.



Possible questions:

- What is the difference in length from the longest to the shortest pencil?
- If you were to line up all the pencils, what would the total length be?
- If the $5\frac{1}{8}''$ pencils are placed end to end, what would be their total length?

Resources

Math Expressions – Unit 5, Lessons 1-8
Soar to Success Math Intervention
Mega Math
Destination Math
Common Core Mathematics-Newmark Learning- Units-20-23
Xtramath.org
MobyMax.com
Learnzillion
Texts: *How Big is a Foot*
Spaghetti and Meatballs for All

Unit Assessments

Unit Test
Quick Quizzes
Formative Assessments
Performance Task

Assessments from other sources:

<https://grade4commoncoremath.wikispaces.hcpss.org/Assessing+4.MD.1>

<https://grade4commoncoremath.wikispaces.hcpss.org/4.MD.2>

<https://grade4commoncoremath.wikispaces.hcpss.org/Assessing+4.MD.3>

<https://grade4commoncoremath.wikispaces.hcpss.org/Assessing+4.MD.4>

Technology: Videos, Websites, Links

<http://elemmath.jordandistrict.org/homework-help-third/>

<https://grade4commoncoremath.wikispaces.hcpss.org/4.MD.1>

<https://grade4commoncoremath.wikispaces.hcpss.org/4.MD.2>

<https://grade4commoncoremath.wikispaces.hcpss.org/4.MD.3>

<https://grade4commoncoremath.wikispaces.hcpss.org/4.MD.4>

<http://www.mathworksheetland.com/>