

## Grade 4

<b>Unit</b>  4.4	<b>Unit Title</b>  Problem Solving with Measurement	<b>Lesson</b>  1 of 3	<b>Day</b>  1
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### Lesson Focus

1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
<b>4.MD.5</b> 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 a number line.	Solve problems by using the strategy <i>act it out</i> .	<b>SMP1</b> Make sense of problems and persevere in solving them.  <b>SMP2</b> Reason abstractly and quantitatively.	How can you use the strategy <i>act it out</i> to solve problems that use money?
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
<ul style="list-style-type: none"> <li>• Know the value of a penny, a nickel, a dime, a quarter, and a \$1 bill.</li> <li>• Understand the relationship among the values of coins and a \$1 bill.</li> <li>• Make a collection of coins and bills for a given value.</li> </ul>			<b>OnCore</b> Lessons 84 Student pp. 167 -168  Play money

### Instruction

9. Instruction Practices (What are the teachers doing)	10. Learning Practices (What are the students doing)
Teachers will guide children to solve problems by using the strategy <i>act it out</i> following the lesson guidelines in OnCore lessons 58-60 (TM p. 61-63), teachers will:  Introduce the lesson by recalling the value of the coins and a \$1 bill and that they understand the relationship among the coins and the \$1 bill. Have students read the sample problem and ask them to identify the operation suggested by the situation. Lead them to see that making equal groups can solve the problem and therefore, the operation of division can be used. Ask if there is another way to solve the problem. Students should recognize there are alternate solutions, such as trading the dollar and quarters for dimes and placing 5 dimes in each group. Have students complete the pages and remind them there may be more than one combination of coins for a given amount of money.	In Lesson 84 students will: <ul style="list-style-type: none"> <li>• Use the strategy <i>act it out</i> to solve problems with money.</li> <li>• Use money notation.</li> <li>• Complete student pp.167 - 168</li> </ul>

## Grade 4

<b>Unit</b> 4.4	<b>Unit Title</b> Problem Solving with Measurement	<b>Lesson</b> 2 of 3	<b>Day</b> 2 - 5
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### Lesson Focus

<b>1. Standards Addressed</b>	<b>2. Content to be Learned</b>	<b>3. Mathematical Practices</b>	<b>4. Essential Question</b>														
<b>4.MD.5</b> 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 a number line.	<ul style="list-style-type: none"> <li>•Converting measurements in larger units to smaller units.</li> <li>•Making tables of equivalent measurements.</li> <li>•Converting weights and masses.</li> <li>•Converting capacities.</li> <li>•Converting times.</li> </ul>	<p><b>SMP2</b> Reason abstractly and quantitatively.</p> <p><b>SMP6</b> Attend to precision.</p>	How can you convert measurements in larger units to smaller units?														
<b>5. Prerequisite Knowledge</b>	<b>6. Essential Vocabulary</b>	<b>7. Possible Misconceptions</b>	<b>8. Necessary Materials</b>														
Understand linear measurements. Know what units to use to measure weight, mass, capacity, and time.	<table style="width: 100%; border: none;"> <tr> <td>Pounds</td> <td>Ounces</td> </tr> <tr> <td>Kilograms</td> <td>Grams</td> </tr> <tr> <td>Gallons</td> <td>Quarts</td> </tr> <tr> <td>Pints</td> <td>Cups</td> </tr> <tr> <td>Hour</td> <td></td> </tr> <tr> <td>Minutes</td> <td></td> </tr> <tr> <td>Seconds</td> <td></td> </tr> </table>	Pounds	Ounces	Kilograms	Grams	Gallons	Quarts	Pints	Cups	Hour		Minutes		Seconds		Students often confuse when switching from a larger unit to a smaller one that there will be more and visa versa when going from a smaller unit to a larger one there will be less. Students often think mass and weight are the same thing. Mass is a measurement of how much matter is in an object; weight is a measurement of how hard gravity is pulling on that object. Your mass is the same wherever you are--on Earth, on the moon, floating in space--because the amount of <i>stuff</i> you're made of doesn't change. But your weight depends on how much gravity is acting on you at the moment; you'd weigh less on the moon than on Earth, and in interstellar space you'd weigh almost nothing at all.	Investigations Unit 7 Snap-In Session 3.5A Resource Book pp. CC49 - CC51  Mass Vs Weight video: <a href="http://www.youtube.com/watch?v=IwhMAIGNq7E&amp;safe=active">http://www.youtube.com/watch?v=IwhMAIGNq7E&amp;safe=active</a>
Pounds	Ounces																
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### Instruction

<b>9. Instruction Practices (What are the teachers doing)</b>	<b>10. Learning Practices (What are the students doing)</b>
Teachers will be following lesson activities from Investigations Unit 7 session 3.5A materials. (TM pp. CC73-CC77) In the activities teachers will: Remind the class of the work they did with linear measurements and tell them that they will learn how to convert measurements of weight, mass, capacity, and time. Guide students through the 3 activities of converting measurements. Students should be given some problems with fractions and decimals of a unit. (i.e. 4 ½ pounds = ___ ounces and 2.5 kg = __ grams.) NOTE: You may choose to show the mass vs. weight video for students to understand the difference between the two terms.	In Investigations Unit 7 Session 3.5A students will: <ul style="list-style-type: none"> <li>• Convert measurements in larger units to smaller units.</li> <li>•Making tables of equivalent measurements.</li> <li>•Complete Resource Book pp. CC49 – CC51.</li> </ul>

## Grade 4

<b>Unit</b>  4.4	<b>Unit Title</b>  Problem Solving with Measurement	<b>Lesson</b>  3 of 4	<b>Day</b>  6 -10
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### Lesson Focus

1. Standards Addressed	2. Content to be Learned	3. Mathematical Practices	4. Essential Question
<b>4.MD.5</b> 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 a number line.	How to calculate intervals of times (elapsed time).	<b>SMP1</b> Make sense of problems and persevere in solving them.  <b>SMP2</b> Look for and make use of structure.	How do you use an Elapsed time ruler to measure intervals of time?
5. Prerequisite Knowledge	6. Essential Vocabulary	7. Possible Misconceptions	8. Necessary Materials
<ul style="list-style-type: none"> <li>• Know the value of a penny, a nickel, a dime, a quarter, and a \$1 bill.</li> <li>• Understand the relationship among the values of coins and a \$1 bill.</li> <li>• Make a collection of coins and bills for a given value.</li> </ul>			<b>K-5 Math Resources for 4.MD.5</b> <a href="#">Measurement Word Problems</a> <input type="checkbox"/> <a href="#">Elapsed Time Ruler 1</a> <input type="checkbox"/> <a href="#">Elapsed Time Ruler 2</a> <input type="checkbox"/> <a href="#">24 Hour Number Line (4 per page)</a>

### Instruction

9. Instruction Practices (What are the teachers doing)	10. Learning Practices (What are the students doing)
Using K-5 Math Resources Measurement Word Problems teachers will: Review converting measurements from the previous lessons and supply the word problems for students to solve. When students have completed the problems, go over how they were solved and strategies used to solve them.	In K-5 Math Resources students will: <ul style="list-style-type: none"> <li>• Solve word problems involving intervals of time, length, distance, mass, weight, and capacity.</li> </ul>