

# Math DesCartes: Concepts and Principles of Measurement

## Skills: Length, Weight, Mass and Capacity

<b>Students:</b>	<b>DesCartes Skills:</b> (Highlight the skills related to your chosen standard/concept)
	<b>RIT 251-260:</b> • Solves complex real-world problems involving capacity
	<b>RIT 231-240:</b> • Measures length to the nearest millimeter
	<b>RIT 221-230:</b> • Knows the approximate size of a meter • Measures length to the nearest millimeter • Uses the appropriate unit of measure for length
	<b>RIT 211-220:</b> • Knows the approximate size of a millimeter • Knows the approximate size of a kilometer • Measures length to the nearest half inch • Measures length to the nearest quarter of an inch • Measures length to the nearest eighth of an inch • Knows the approximate size of an ounce • Knows the approximate size of a gallon • Solves simple problems involving capacity • Selects and uses the appropriate type and size of unit in metric system (length, height and mass)
	<b>RIT 201-210:</b> • Knows the approximate size of a centimeter • Knows the approximate size of a yard • Measures length to the nearest centimeter • Knows the approximate size of a gram • Knows the approximate size of a pound • Selects and uses balances for measuring weight or mass • Selects and uses the appropriate type and size of unit in metric system (length and height)
	<b>RIT 191-200:</b> • Knows the approximate size of a foot • Knows the approximate size of a mile • Measures length with non-standard units • Knows the approximate size of an ounce • Uses balance scale to measure weight of an unknown object • Knows the approximate size of a pint • Selects and uses the appropriate type and size of unit in customary system (length, height, weight, capacity)
	<b>RIT 181-190:</b> • Knows the approximate length of familiar objects • Knows the approximate size of an inch • Measures length with non-standard units • Measures length with customary measures to the half inch mark • Determines more capacity or less capacity • Identifies the appropriate instrument used to measure length • Selects and uses the appropriate type and size of unit in customary system (length, height, weight, capacity)
	<b>RIT 171-180:</b> • Estimates and measures length of an object to the nearest centimeter using a picture of a ruler • Measures length with customary measures to the inch mark • Knows the approximate weight of familiar objects
	<b>RIT 161-170:</b> • Compares objects (shorter, longer) • Estimates and measures length of an object to the nearest inch using a picture of a ruler • Measures length with metric measures to the centimeter mark • Measures length with customary measures to the inch mark

<b>RIT Below 161:</b> • Compares objects (wider, narrower) • Compares objects (taller, shorter)
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### Lesson Title: Measuring Capacity

<b>Standard/ Concept for All:</b> 3 <sup>rd</sup> , 4 <sup>th</sup> , 5 <sup>th</sup> Grades 2.1.2: Capacity is measured in cups, quarts, and gallons 6 <sup>th</sup> Grade 2.1.5: Convert capacity units - cups, pints, quarts, and gallons. 7 <sup>th</sup> , 8 <sup>th</sup> Grade 2.1.5: Convert fluid ounces, cups, pints, quarts, and gallons.
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<p><b>For Students Ready for a Challenge:</b></p> <p><u>Lesson/Activity:</u> - Provide a chart that shows conversion rates for fluid ounces, cups, pints, quarts and gallons. - Give students the 1 labeled cup and ask them, based on that measure, to determine which of the other containers is closest to 1 fluid ounce, 1 pint, 1 quart and 1 gallon; document results</p> <p><u>Resources:</u> Variety of cups (not labeled, different heights and widths), including 1 cup, 1 pint, 1 quart, 1 gallon; 1 cup, labeled; large container (at least 1 gallon) of dry rice</p> <p><u>Means of Assessment:</u> Classroom observation, grade results</p>
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<p><b>For Most Students:</b></p> <p><u>Lesson/Activity:</u> Students use cups to measure dry rice to answer: - How many cups are in 1 pint?      - How many cups are in 1 quart? - How many pints are in 1 quart?      - How many cups are in 1 gallon? - How many pints are in 1 gallon?      - How many quarts are in 1 gallon? Students answer on chart.</p> <p><u>Resources:</u> Variety of labeled measuring cups, including 1 cup, 1 pint, 1 quart, 1 gallon; large container (at least 1 gallon) of dry rice</p> <p><u>Means of Assessment:</u> Classroom observation, grade chart</p>
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<p><b>For Students Needing Extra Support:</b></p> <p><u>Lesson/Activity:</u> Students use cups to measure dry rice to answer: - How many cups are in 1 quart? - How many cups are in 1 gallon? - How many quarts are in 1 gallon? Students answer on chart.</p> <p><u>Resources:</u> Variety of labeled measuring cups, including 1 cup, 1 quart, 1 gallon; large container (at least 1 gallon) of dry rice</p> <p><u>Means of Assessment:</u> Classroom observation, grade chart</p>
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<p><b>Closure/Summary for All:</b> Discuss: What sorts of things might you measure with a cup? with a pint? with a quart? with a gallon?</p>
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