

## Math DesCartes: Measurement

### Skills: Attributes, Units, Tools, Techniques

<b>Students:</b>	<b>DesCartes Skills:</b> (Highlight the skills related to your chosen standard/concept)
	<p><b>RIT 251-260:</b></p> <ul style="list-style-type: none"> <li>• Solves complex real-world problems involving capacity</li> <li>• Uses dimensional analysis for unit conversions (time)</li> <li>• Solves complex problems involving the measurement of angles</li> <li>• Uses fractional units appropriately as they relate to precision</li> </ul>
	<p><b>RIT 241-250:</b></p> <ul style="list-style-type: none"> <li>• Solves problems involving length in the metric system and converts to larger or smaller units</li> <li>• Solves problems involving weight in the customary system and converts to larger or smaller units</li> <li>• Solves problems involving capacity in the metric system and converts to larger or smaller units</li> <li>• Uses dimensional analysis for unit conversions (time)</li> <li>• Converts from Celsius to Fahrenheit, given conversion ratios</li> <li>• Solves problems involving measurement of angles</li> <li>• Solves complex problems involving the measurement of angles</li> <li>• Uses significant digits appropriately as they relate to precision</li> </ul>
	<p><b>RIT 231-240:</b></p> <ul style="list-style-type: none"> <li>• Measures length to nearest millimeter</li> <li>• Converts between feet, yards, and miles</li> <li>• Computes basic subtraction and multiplication with units of length</li> <li>• Converts between millimeters, centimeters, meters, and kilometers</li> <li>• Uses dimensional analysis for unit conversions (length)</li> <li>• Estimates difficult conversions involving length between the customary and metric system</li> <li>• Converts between the customary and metric system given conversion ratios (2-step, length)</li> <li>• Solves problems involving length in the customary system and converts to larger or smaller units</li> <li>• Solves problems involving length in the metric system and converts to larger or smaller units</li> <li>• Converts between grams and kilograms</li> <li>• Solves problems involving weight in the customary system and converts to larger or smaller units</li> <li>• Computes basic operations with units of capacity</li> <li>• Converts within the metric system</li> <li>• Solves problems involving capacity in the customary system and converts to larger or smaller units</li> <li>• Converts from Celsius to Fahrenheit, given conversion ratios</li> </ul>

	<p><b>RIT 221-230:</b></p> <ul style="list-style-type: none"> <li>• Uses appropriate unit of measure for length</li> <li>• Knows the approximate size of a meter</li> <li>• Measures length to nearest millimeter</li> <li>• Converts between inches, feet, yards</li> <li>• Converts between feet, yards, and miles</li> <li>• Computes basic addition with units of length</li> <li>• Computes basic subtraction and multiplication with units of length</li> <li>• Converts between millimeters, centimeters, meters, and kilometers</li> <li>• Apply dimensional analysis to simple real-world problems (length)</li> <li>• Solves problems involving length in the customary system and converts to larger or smaller units</li> <li>• Converts between ounces and pounds</li> <li>• Converts between ounces, pounds, tons</li> <li>• Computes basic operations with units of weight/mass</li> <li>• Converts between cups, pints, quarts, and gallons</li> <li>• Converts within the metric system</li> <li>• Solves problems involving capacity in the customary system and converts to larger or smaller units</li> <li>• Computes basic operations with units of time</li> <li>• Relates years, decades, centuries, and millenniums</li> <li>• Computes 2-step conversions between units of time</li> <li>• Applies dimensional analysis to simple real-world problems (time)</li> <li>• Solves difficult problems involving elapsed time, with the conversion of hours</li> </ul>
	<p><b>RIT 211-220:</b></p> <ul style="list-style-type: none"> <li>• Selects and uses the appropriate type and size of unit in metric system (length)</li> <li>• Selects and uses the appropriate type and size of unit in metric system (height)</li> <li>• Knows the approximate size of a millimeter</li> <li>• Knows the approximate size of kilometer</li> <li>• Measures length to the nearest half inch</li> <li>• Measures length to the nearest quarter of an inch</li> <li>• Measures length to the nearest eighth of an inch</li> <li>• Converts between inches and feet</li> <li>• Converts between inches, feet, yards</li> <li>• Converts between feet, yards, and miles</li> <li>• Computes basic addition with units of length</li> <li>• Solves simple problems involving measurement of length</li> <li>• Converts between the customary and metric system given conversion ratios (1-step, length)</li> <li>• Apply dimensional analysis to simple real-world problems (length)</li> <li>• Selects and uses the appropriate type and size of unit in metric system (mass)</li> <li>• Solves simple problems involving measurement of weight</li> <li>• Apply dimensional analysis to simple</li> </ul>

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<p>real-world problems (weight/mass)</p> <ul style="list-style-type: none"> <li>• Knows the approximate size of an ounce</li> <li>• Knows the approximate size of a gallon</li> <li>• Converts between cups, pints, quarts, and gallons</li> <li>• Estimates conversions between customary and metric system</li> <li>• Apply dimensional analysis to simple real-world problems (capacity)</li> <li>• Solves simple problems involving capacity</li> <li>• Computes basic operations with units of time</li> <li>• Relates years, decades, centuries, and millenniums</li> <li>• Applies dimensional analysis to simple real-world problems (time)</li> <li>• Solves difficult problems involving elapsed time, with the conversion of hours</li> <li>• Reads Celsius thermometers to 0.1 degrees</li> <li>• Selects and uses protractors for measuring angles</li> <li>• Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents</li> <li>• Selects and uses the appropriate units depending on degree of accuracy required to solve problems</li> <li>• Determines an appropriate scale for representing a distance on a map</li> </ul>	<p>and obtuse angles using 45 and 90 degrees as referents</p>
<p><b>RIT 201-210:</b></p> <ul style="list-style-type: none"> <li>• Selects and uses the appropriate type and size of unit in metric system (length)</li> <li>• Selects and uses the appropriate type and size of unit in metric system (height)</li> <li>• Knows the approximate size of a yard</li> <li>• Knows the approximate size of a centimeter</li> <li>• Measures length to the nearest centimeter</li> <li>• Converts between inches and feet</li> <li>• Solves simple problems involving measurement of length</li> <li>• Estimates simple conversions involving length between the customary and metric system</li> <li>• Selects and uses balances for measuring weight or mass</li> <li>• Knows the approximate size of a pound</li> <li>• Knows the approximate size of a gram</li> <li>• Converts between milligrams and grams</li> <li>• Converts between cups and pints</li> <li>• Converts between cups, pints, quarts</li> <li>• Computes simple conversions among units of time (hours, days)</li> <li>• Computes more difficult conversions among units of time</li> <li>• Solves problems involving measurement of time</li> <li>• Applies dimensional analysis to simple real-world problems (time)</li> <li>• Solves problems using a calendar</li> <li>• Solves simple problems involving elapsed time, with the conversion of hours</li> <li>• Knows common referents (boiling or freezing point, room temperature)</li> <li>• Estimates the measure of acute, right,</li> </ul>	<p><b>RIT 191-200:</b></p> <ul style="list-style-type: none"> <li>• Selects and uses the appropriate type and size of unit in customary system (length)</li> <li>• Selects and uses the appropriate type and size of unit in customary system (height)</li> <li>• Knows the approximate size of a foot</li> <li>• Knows the approximate size of a mile</li> <li>• Measures length with non-standard units</li> <li>• Selects and uses the appropriate type and size of unit in customary system (weight)</li> <li>• Knows the approximate size of an ounce</li> <li>• Uses balance scale to measure weight of an unknown object</li> <li>• Selects and uses the appropriate type and size of unit in customary system (capacity)</li> <li>• Knows the approximate size of a pint</li> <li>• Converts between cups and pints</li> <li>• Converts between cups, pints, and quarts</li> <li>• Identifies the correct time, given the words, and vice versa</li> <li>• Orders years</li> <li>• Selects and uses the appropriate type, size of unit in customary system (time)</li> <li>• Determines elapsed clock time</li> <li>• Tells time to the nearest quarter hour</li> <li>• Determines elapsed time involving whole hours, whole days, whole years</li> <li>• Tells time to the nearest 1 minute</li> <li>• Computes simple conversions among units of time (minutes, hours)</li> <li>• Computes simple conversions among units of time (hours, days)</li> <li>• Solves simple problems involving elapsed time, with the conversion of hours</li> <li>• Reads Celsius thermometers to the nearest degree</li> <li>• Solves problems involving measurement of temperature</li> <li>• Explores maps and relates them to measurements of real distances, using the scale</li> </ul>
	<p><b>RIT 181-190:</b></p> <ul style="list-style-type: none"> <li>• Identifies the appropriate instrument used to measure length</li> <li>• Selects and uses the appropriate type and size of unit in customary system (length)</li> <li>• Selects and uses the appropriate type and size of unit in customary system (height)</li> <li>• Knows the approximate size of an inch</li> <li>• Knows the approximate length of familiar objects</li> <li>• Measures length with non-standard units</li> <li>• Measures length with customary measures to the half-inch mark</li> <li>• Selects and uses the appropriate type and size of unit in customary system (weight)</li> <li>• Determines more capacity or less capacity</li> </ul>

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	<ul style="list-style-type: none"> <li>• Selects and uses the appropriate type and size of unit in customary system (capacity)</li> <li>• Identifies the correct time, given the words, and vice versa</li> <li>• Selects, uses the appropriate type and size of unit in customary system (time)</li> <li>• Determines elapsed clock time</li> <li>• Determines elapsed time under 1 hour or to the hour</li> <li>• Determines elapsed time involving whole hours, whole days, whole years</li> <li>• Tells time to the nearest 5 minutes</li> <li>• Interprets a calendar - some computation required</li> <li>• Computes simple conversions among units of time (days, weeks)</li> <li>• Reads Fahrenheit thermometers to the nearest degree</li> </ul>
	<p><b>RIT 171-180:</b></p> <ul style="list-style-type: none"> <li>• Estimates and measures length of an object to the nearest centimeter using a picture of a ruler</li> <li>• Measures length with customary measures to the inch mark</li> <li>• Knows the approximate weight of familiar objects</li> <li>• Orders periods of time (months of the year, seasons)</li> <li>• Tells time to the nearest hour</li> <li>• Tells time to the nearest half hour</li> <li>• Tells time to the nearest 5 minutes</li> <li>• Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour)</li> <li>• Reads Fahrenheit thermometers to the nearest degree</li> <li>• Uses cent sign and dollar sign when appropriate</li> <li>• Connects money with place value</li> </ul>
	<p><b>RIT 161-170:</b></p> <ul style="list-style-type: none"> <li>• Compares objects (shorter, longer)</li> <li>• Estimates and measures length of an object to the nearest inch using a picture of a ruler</li> <li>• Measures length with customary measures to the inch mark</li> <li>• Measures length with metric measures to the centimeter mark</li> <li>• Orders periods of time (days of the week)</li> <li>• Tells time to the nearest hour</li> <li>• Tells time to the nearest half hour</li> <li>• Reads a calendar - no computation required</li> </ul>
	<p><b>Below RT 161:</b></p> <ul style="list-style-type: none"> <li>• Compares objects (wider, narrower)</li> <li>• Compares objects (taller, shorter)</li> <li>• Identifies time of day (e.g., morning, afternoon)</li> </ul>

**Lesson Title:**

**Standard/Concept for All:**

**Introduction:** (Get Attention; Connect to Prior Knowledge)

**For Students Ready for a Challenge:**

Lesson/Activity:

Resources:

Means of Assessment:

**For Most Students:**

Lesson/Activity:

Resources:

Means of Assessment:

**For Students Needing Extra Support:**

Lesson/Activity:

Resources:

Means of Assessment:

**Closure/Summary for All:**

