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| Lesson Overview: | |
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| For ALL Students: |
| * Look for ways to have all students responding to all questions, such as on mini white boards, by working in partners or on paper |

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| Related Common Core State Standards: |
| **6th Grade: Expressions and Equations:**  **6.EE.1.** Write and evaluate numerical expressions involving whole-number  exponents. |
| **5th Grade: Number and Operations in Base Ten:**  **5.NBT.2.** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the  placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. |
| **4th Grade: Operations and Algebraic Thinking:**  **4.OA.5.** - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. |
| **3rd Grade: Numbers and Operations in Base Ten:**  **3.NBT.1.** Use place value understanding to round whole numbers to the nearest 10 or 100. |
| **2nd Grade: Numbers and Operations in Base Ten:**  **2.NBT.1.** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:  **a.** 100 can be thought of as a bundle of ten tens — called a “hundred.”  **b.** The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to  one, two, three, four, five, six, seven, eight, or nine hundreds (and 0  tens and 0 ones).  **2.NBT.3.** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. |

Common Core State Standards  
Authors: National Governors Association Center for Best Practices, Council of Chief State School Officers  
Title: Common Core State Standards (insert specific content area if you are using only one)  
Publisher: National Governors Association Center for Best Practices, Council of Chief State School Officers, Washington D.C. - Copyright Date: 2010

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| DesCartes Statements: |  |
| RIT 231-240:   * Apply dimensional analysis to simple real-world problems (capacity) * Converts between cups, pints, quarts and gallons |  |
| RIT 221-230:   * Apply dimensional analysis to simple real-world problems (capacity) * Converts between cups, pints, quarts and gallons |  |
| RIT 211-220:   * Apply dimensional analysis to simple real-world problems (capacity) * Converts between cups, pints, quarts and gallons |  |
| RIT 201-210:   * Converts between cups and pints * Converts between cups, pints and quarts | **Students:** |
| RIT 191-200   * Converts between cups and pints * Converts between cups, pints and quarts | **Students:** |
| RIT 181-190   * Determines more capacity or less capacity * Interprets simple graphs or tables | **Students:** |

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| Higher-Level Lesson & Activity:  (One class period) | | Resources:   * Variety of cups (not labeled, different heights and widths), including 1 fluid ounce, 1 cup, 1 pint, 1 quart, 1 gallon; 1 cup, labeled; large container (at least 1 gallon) of dry rice |
| -  Gather materials and print conversion chart  have students create their own chart for documenting results   * Provide a chart that shows conversion rates for fluid ounces, cups, pints, quarts and gallons.   a  Students measure and compare   * 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 on their chart |  |
| Means of Assessment:   * Observation * Accuracy of results on chart |
| Mid-Level Lesson & Activity:  (One class period) | | Resources:   * Variety of labeled measuring cups, including 1 cup, 1 pint, 1 quart, 1 gallon; large container (at least 1 gallon) of dry rice |
| a  Gather materials and print conversion chart  have students create their own chart for documenting results   * Provide a chart that shows conversion rates for fluid ounces, cups, pints, quarts and gallons.   a  Students measure and compare   * Students use labeled measuring 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 document results on their chart |  |
| Means of Assessment:   * Same as above |

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| Lower-Level Lesson & Activity:  (One class period) | | Resources:   * Variety of labeled measuring cups, including 1 cup, 1 quart, 1 gallon; large container (at least 1 gallon) of dry rice |
| -  Gather materials and print conversion chart  have students create their own chart for documenting results   * Provide a chart that shows conversion rates for fluid ounces, cups, pints, quarts and gallons.   a  Students measure and compare   * Students use labeled measuring 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. |  |
| Means of Assessment:   * Same as above |

Higher Level

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| **1 gallon** | 4 quarts | 8 pints | 16 cups | 128 fluid ounces |
|  | **1 quart** | 2 pints | 4 cups | 32 fluid ounces |
|  |  | **1 pint** | 2 cups | 16 fluid ounces |
|  |  |  | **1 cup** | 8 fluid ounces |
|  |  |  |  | **1 fluid ounce** |

Mid Level

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| **1 gallon** | = \_\_\_\_\_\_ quarts | = \_\_\_\_\_\_ pints | = \_\_\_\_\_\_ cups |
|  | **1 quart** | = \_\_\_\_\_\_ pints | = \_\_\_\_\_\_ cups |
|  |  | **1 pint** | = \_\_\_\_\_\_ cups |
|  |  |  | **1 cup** |

Lower Level

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| --- | --- | --- |
| **1 gallon** | = \_\_\_\_\_\_ quarts | = \_\_\_\_\_\_ cups |
|  | **1 quart** | = \_\_\_\_\_\_ cups |
|  |  | **1 cup** |