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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-numberexponents. |
| **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 theplacement 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 toone, two, three, four, five, six, seven, eight, or nine hundreds (and 0tens 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
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| RIT 221-230:* Apply dimensional analysis to simple real-world problems (capacity)
* Converts between cups, pints, quarts and gallons
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| RIT 211-220:* Apply dimensional analysis to simple real-world problems (capacity)
* Converts between cups, pints, quarts and gallons
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| 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.

 aStudents 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
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| 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
 |
| aGather 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.

 aStudents 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
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| 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
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| -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.

 aStudents 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.
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| 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** |