

<b>MA 8A</b>	<b>Mathematics Embedded Credit</b>
<b>Cape Career &amp; Technology Center</b>	<b>Last Update: January 2005</b>
<b>Topic: Units of Measure</b>	<b>Focus: Conversion within Systems</b>

Show-Me Standards: MA1, MA2	MO Grade Level Expectations: M1A5, M1B5, M2E5, M2E6, M2E7	NCTM Standards: 12A
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**OBJECTIVE:** Students will be able to use conversion information to solve problems within a system.

**Introduction:**

There are two primary systems that are used for measurement: U.S. Conventional and the Metric Systems. The following table describes the main units of measurement for the two systems.

Unit of Measure	U.S. Conventional Equivalent	Metric System Equivalent
<b>Length</b>	Inch, foot, yard, mile	Centimeter, meter, kilometer
<b>Area</b>	Square inch, square foot, acre	Square centimeter, square meter, square kilometer
<b>Volume</b>	Cubic inch, cubic feet	Cubic centimeter, cubic meter
<b>Capacity</b>	Fluid ounce, cup, pint, quart, gallon	Milliliter, liter, kiloliter
<b>Weight</b>	Once, pound, ton	Milligram, gram, kilogram

**LENGTH:** the base quantity of distance.

**AREA:** the 2-dimensional measurement of a region.

**VOLUME:** the measurement of space occupied by a 3-dimensional object, such as a closed cardboard box.

**CAPACITY:** the measure of what is contained within an object, such as a liquid in a bottle. Also, the measure of how much an object can hold. Capacity is a measure of volume, in reality. Some references do not split the two categories. In general, volume refers to dry measure and capacity to fluid measure.

**WEIGHT:** the measure of how heavy something is.

**CONVERSION FACTOR:** the relationship used to change from one unit to another (i.e., 1 foot = 12 inches).

**PROBLEMS:**

Convert the LEFT column to the units requested in the RIGHT column.

<b>Original Unit:</b>	<b>Convert To:</b>
2 miles	Feet
48 fluid ounces	Pint
18 inches	Feet
12 inches <sup>2</sup>	Feet <sup>2</sup>
6 yards	Inches
36 feet	Inches
12 cups	Quarts
128 cups	Gallons
8 cu. yd.	Cu. Ft.
5 pounds	Ounces
65 meters	Centimeters
15 grams	Decigrams
350 millimeters	Meters
3 kilometers	Meters
25 square meters	Square Decimeters
850 centimeters	Meters
5 liters	Milliliters
530 square decimeters	Square Meters
10 kilograms	Grams
5000 meters	Hectometers
3 weeks	Hours
90 hours	Minutes
6 days	Minutes
January	Hours
2 hours	Seconds
84 days	Weeks
2300 minutes	Hours
850 hours	Days
7200 seconds	Minutes
2 years	Hours