

MA 8A	Mathematics Embedded Credit
Cape Career & Technology Center	Last Update: April 2017
Topic: Units of Measure	Focus: Conversion within Systems

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
Length	Inch, foot, yard, mile	Centimeter, meter, kilometer
Area	Square inch, square foot, acre	Square centimeter, square meter, square kilometer
Volume	Cubic inch, cubic feet	Cubic centimeter, cubic meter
Capacity	Fluid ounce, cup, pint, quart, gallon	Milliliter, liter, kiloliter
Weight	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.

Original Unit:	Convert To:
2 miles	Feet
48 fluid ounces	Pint
18 inches	Feet
12 inches²	Feet ²
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