

Name: _____

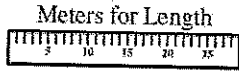
Period: _____

Metrics

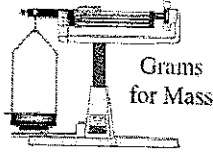
Metric System

For everyday measuring in the United States, we use the British system of pounds, gallons, and feet. The rest of the world and science uses the easier metric system.

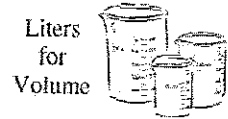
Basic Units



Meters for Length



Grams for Mass



Liters for Volume

7 Steps for Conversions

Examples

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

Most Common Prefixes

BASE

There are other prefixes, but these are the most common ones used in science.

Using Conversion Ratios

(M) Mega = 1,000,000	So, 1 Megaliter (ML) = 1,000,000 liters
(k) Kilo = 1000	So, 1 Kilogram (kg) = 1000 grams
(c) Centi = 1/100th	So, 100 Centimeter (cm) = 1 meter
(m) Milli = 1/1000th	So, 1000 Milliliter (ml) = 1 liter
(μ) Micro = 1/1,000,000th	So, 1,000,000 Micrometer (μm) = 1 meter

A Decimal System

Just move the decimal!

You can convert between metric units by simply moving the decimal the correct number of places.



REMEMBER:
"Left for Larger"

Larger Prefix: Move the Decimal Left.

Notice how many times the decimal moves between each prefix.

- 1 megameter (Mm) =
- 1000.0
- 1000000.0
- 100000000.0
- 1000000000.0
- 100000000000.0

How Big Are They?

Volume

1 liter = just bigger than a quart
1 mL = volume of a small marble



1 quart



1 liter

Mass

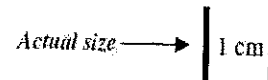
1 kg = 2.2 pounds
1 gram = 1 dollar bill

1 gram



LENGTH

1 mm = width of a fingernail
1 cm = width of your pinky
1 meter = 3.3 ft (just bigger than a yard)
1 kilometer = 0.6 miles



Name: _____

Period: _____

1. Liter <u>C</u>	A. Used by science and the rest of the world.
2. Metric System <u>A</u>	B. Basic metric unit of volume.
3. Gram <u>E</u>	C. Basic metric unit of length.
4. British System <u>D</u>	D. System of pounds, feet, and gallons.
5. Meter <u>C</u>	E. Basic metric unit of mass.

6. Centi- <u>a</u>	A. Means "one hundredth" (1/100).
7. Mega- <u>b</u>	B. Means "one million" (x 1,000,000).
8. Milli- <u>d</u>	C. Means "one millionth." (1/1,000,000).
9. Micro- <u>c</u>	D. Means "one thousandth" (1/1,000).
10. Kilo- <u>e</u>	E. Means "one thousand" (x 1,000).

Which would you Use: Meters, Liters, or Grams?

- 18. To measure how much water is in a pool? L
- 19. To measure the mass of an ice cream cone? G
- 20. To measure the width of a table? M
- 21. To measure the distance a car traveled? M
- 22. To measure how much acid to pour into a beaker? L
- 23. To measure how much powder to put into water? G

11. Liter <u>D</u>	A. Just bigger than a yard: 3.3 feet.
12. Gram <u>B</u>	B. Mass of a dollar bill
13. Centimeter <u>G</u>	C. 0.6 miles
14. Kilometer <u>C</u>	D. Just bigger than a quart
15. Meter <u>A</u>	E. 2.2 pounds
16. Kilogram <u>E</u>	F. Width of a fingernail.
17. Millimeter <u>f</u>	G. Width of your pinky.

Which Direction Does the Decimal Move? (L or R)

- 30. From centimeters to meters? L
- 31. From megameters to meters? R
- 32. From kilometers to millimeters? R
- 33. From micrometers to millimeters? L
- 34. From millimeters to kilometers? L

Which is bigger? (circle it)

- 24. A centimeter or a megameter? centimeter
- 25. A liter or a microliter? liter
- 26. A megagram or a kilogram? megagram
- 27. A megameter or a micrometer? megameter
- 28. A milliliter or a microliter? milliliter
- 29. A milligram or a centigram? milligram

How Far and What Direction Does the Decimal Move?

- 35. Ex: From kilometers to meters? Ans: Right 3 places
- 36. From meters to centimeters? R 3
- 37. From micrometers to millimeter? L 3
- 38. From centimeters to kilometers? L 5
- 39. From micrometers to megameters? L 12
- 40. From kilometers to centimeters? R 5

- 41. How many cents in a dollar? ¢100
- 42. How many years in a century? 100 yrs
- 43. How many years in a millennium? 1000 yrs
- 44. How many centimeters in a meter? 100 cm
- 45. How many millimeters in a meter? 1000 mm
- 46. How many microliter in a liter? 1000000 µl
- 47. How many meters in a kilometer? 1000 m
- 48. How many grams in a megagram? 1000000 Mg

M
-
K
-
D

D

C

M

M

M

Mi

- 49. Convert 3.5 cm to meters
0.035 m
- 50. Convert 487.3 km to meters
487,300 m
- 51. Convert 56.32 mm to Dm
0.0005632 Dm
- 52. Convert 765 cl to liters
7.65 L
- 53. Convert 6258.65 m to km
6.25865 km

- 54. 38 in to cm
2.54 cm = 1 in
$$\begin{array}{r|l} 38 \text{ in} & 2.54 \text{ cm} \\ \hline & 1 \text{ in} \end{array} = 96.52 \text{ cm}$$
- 55. 600 lb to kg
1 lb = 0.45 kg
$$\begin{array}{r|l} 600 \text{ lb} & 0.45 \text{ kg} \\ \hline & 1 \text{ lb} \end{array} = 270 \text{ kg}$$
- 56. 32 qt to L
1 qt = 0.95 L
$$\begin{array}{r|l} 32 \text{ qt} & 0.95 \text{ L} \\ \hline & 1 \text{ qt} \end{array} = 30.4 \text{ L}$$
- 57. 22 yd to m
1 yd = 0.9 m
$$\begin{array}{r|l} 22 \text{ yd} & 0.9 \text{ m} \\ \hline & 1 \text{ yd} \end{array} = 19.8 \text{ m}$$
- 58. 190 oz to g
1 oz = 28.35 g
$$\begin{array}{r|l} 190 \text{ oz} & 28.35 \text{ g} \\ \hline & 1 \text{ oz} \end{array} = 5,386.5 \text{ g}$$