

# Metric Conversion Chart

1) 2000 mg = 2 g

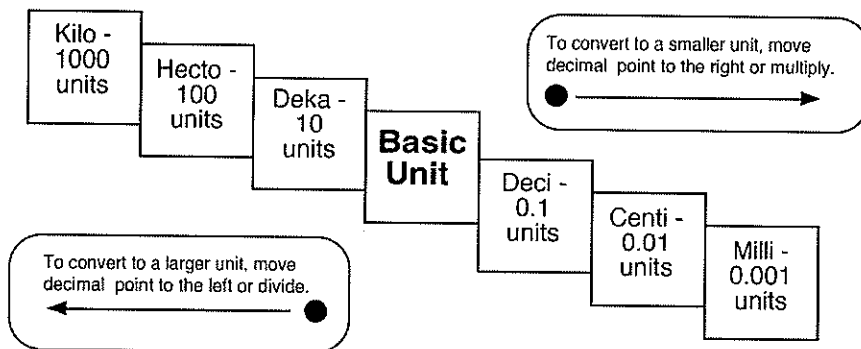
2) 104 km = 104,000 m

3) 480 cm = 4.8 m

4) 5.6 kg = 5600 g

5) 2500 m = 2.5 km

6) 120 mg = .12 g



**Steps to Solving Dimensional Analysis Problems:**

1. Look at what you started with. EX: How many inches are in 6 meters?
2. Identify the desired units. EX: How many inches are in 6 meters?
3. Find the conversion. EX: 2.54 cm = 1 inch
4. Decide which conversion factor will allow you to cancel the appropriate units. (See # 8)
5. Multiply and divide as needed. *Check sig figs!*

- 8) Circle the conversion factor you would choose to solve the following problems:
- a. How many inches are in 6 meters?  $\frac{6m}{1m} \times \frac{39.4 \text{ inches}}{1 \text{ meter}}$  OR  $\frac{39.4 \text{ inches}}{1 \text{ meter}}$
- b. How many liters are in 10 U.S. gallons?  $\frac{10 \text{ gal}}{1 \text{ gal}} \times \frac{3.79 \text{ L}}{1 \text{ gallon}}$  OR  $\frac{3.79 \text{ L}}{1 \text{ gallon}}$
- c. 100 kilometers is equal to how many miles?  $\frac{100 \text{ km}}{1 \text{ km}} \times \frac{0.624 \text{ miles}}{1 \text{ kilometer}}$  OR  $\frac{0.624 \text{ miles}}{1 \text{ kilometer}}$

9) The distance between Happyville and Giggelend is 60 miles. How far is this in kilometers?  
1 mile = 1.609 km

Show Work: $\frac{60 \text{ mi}}{1 \text{ mi}} \times \frac{1.609 \text{ km}}{1 \text{ mi}} = 97 \text{ km}$	Final Answer: 100 km
---	-------------------------

10) A cookie recipe calls for 1 pound of <sup>measure</sup> butter. How many grams of butter would be needed for 3 batches? 1 kg = 2.2 lb

Show Work: $\frac{3 \text{ batches}}{1 \text{ batch}} \times \frac{1 \text{ lb}}{2.2 \text{ lb}} \times \frac{1 \text{ kg}}{1 \text{ kg}} \times \frac{1000 \text{ g}}{1 \text{ kg}} = 1364 \text{ g}$	Final Answer: 1000g
---	------------------------

11) A recipe uses 1.0 cup of flour for every 3 eggs. The eggs are increased to 5. How much flour should be used?

Show Work: $\frac{5 \text{ eggs}}{3 \text{ eggs}} \times \frac{1.0 \text{ c}}{1 \text{ c}} = 1.67 \text{ c}$	Final Answer: 1.7 c
---	------------------------

12) How many tablespoons are there in 4 quarts of ice cream if there are 2 tablespoons to an ounce and 32 ounces to a quart?

Show Work: $\frac{4 \text{ qt} \times 32 \text{ oz} \times 2 \text{ Tbsp}}{1 \text{ qt} \times 1 \text{ oz}} = 300 \text{ Tbsp}$	Final Answer: 300 Tbsp
---	---------------------------

13) If there are 100.0 mg of Vitamin C per pill and 500 pills to a bottle, how many mg of Vit C are there in 3 cases of bottles (12 bottles to a case)?

Show Work: $\frac{3 \text{ cases} \times 12 \text{ bot} \times 500 \text{ pills} \times 100.0 \text{ mg}}{1 \text{ case} \times 1 \text{ bot} \times 1 \text{ pill}} = 1.8 \times 10^6 \text{ mg}$	Final Answer: $1.800 \times 10^6 \text{ mg}$
---	---

14) There are 14 oinks per pig and 18 grunts per pig. Each grunt requires 7 oops. Every oops need 2 umps. There are 9 slurps per ump. How many slurps are there per oink?

Show Work: $\frac{18 \text{ grunt} \times 7 \text{ oops} \times 2 \text{ ump} \times 9 \text{ slurp}}{14 \text{ oink} \times 1 \text{ grunt} \times 1 \text{ oops} \times 1 \text{ ump}} = 162 \text{ slurp/oink}$	Final Answer: $162 \text{ slurp/oink}$
---	---

15) How many miles will 300.0 gallons of gasoline take a car that gets 20.0 miles to the gallon?

Show Work: $\frac{300.0 \text{ gal} \times 20.0 \text{ mi}}{1 \text{ gal}} = 6000 \text{ mi}$	Final Answer: $6.00 \times 10^3 \text{ mi}$
--	--

16) The space shuttle travels at 17,500 miles/hour. How many meters/second is this? There are 39.37 inches in a meter, and 5280 feet/mile.

Show Work: $\frac{17,500 \text{ mi} \times 5280 \text{ ft} \times 12 \text{ in} \times 1 \text{ m}}{1 \text{ mi} \times 1 \text{ ft} \times 39.37 \text{ in} \times 3600 \text{ s}} = 7,820 \text{ m/s}$	Final Answer: 7,820 m/s
---	----------------------------

17) In the above question, how many miles per second is this? Use #9 ( $1 \text{ mi} = 1609 \text{ m}$ )

Show Work: $\frac{7820 \text{ m}}{1609 \text{ m}} = 4.86 \text{ mi/s}$	Final Answer: 4.86 mi/s
---	----------------------------

18) Denver is 500.0 miles from Lincoln. How many seconds does it take for the shuttle to travel to Denver? (See question # 16) or 17

Show Work: $\frac{500.0 \text{ mi}}{4.86 \text{ mi/s}} = 102.9 \text{ s}$	Final Answer: 103 s
--	------------------------

$s = \frac{d}{t}$  