

Name: KEY Date: 1/23 Per 1/4

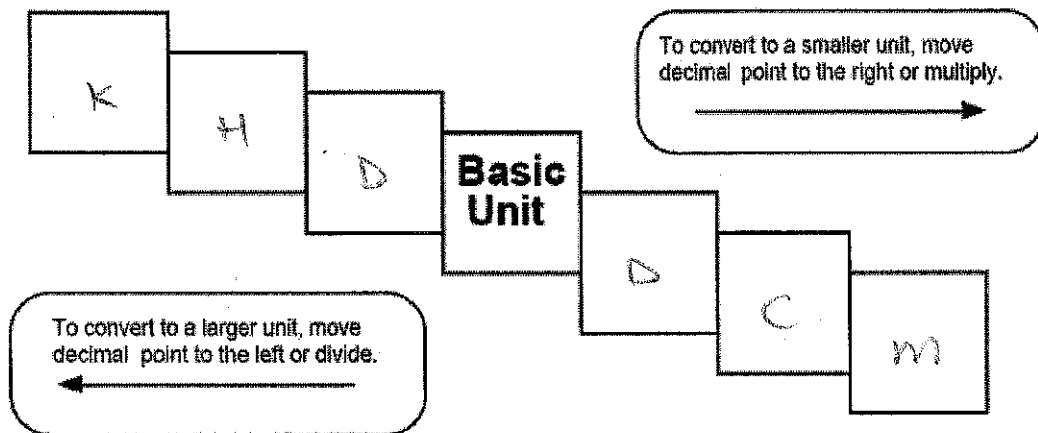
Metric Conversions

**Metric Conversion: Stair-Step Method**

The **Metric System** of measurement is based on multiples of 10.

The **3 base units** are: meters, liters, grams.

The **6 prefixes** are: kilo, hecto, deca, deci, cent, milli.



To use the **Stair-Step method**, you will move the decimal the direction you have to move on the stairs.

**Write the equivalent measurements:**

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1.  $5 \text{ dm} = \underline{.5} \text{ m} \div 10$

2.  $2 \text{ mL} = \underline{.002} \text{ L} \div 1000$

3.  $38.2 \text{ dkg} = \underline{38,200} \text{ cg} \times 10^3$

4.  $.03 \text{ km} = \underline{3,000} \text{ cm} \times 10^5$

5.  $6035 \text{ mg} = \underline{.006035} \text{ hg} \div 10^5$

6.  $75 \text{ mL} = \underline{.000075} \text{ kL} \div 10^6$

7.  $6.5 \text{ m} = \underline{6,500} \text{ cm} \times 10^3$

8.  $2007 \text{ mg} = \underline{2.007} \text{ g} \div 10^3$

9.  $480 \text{ cm} = \underline{.480} \text{ dkm} \div 10^3$

10.  $2500 \text{ dL} = \underline{.25} \text{ kL} \div 10^4$

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Dimensional Analysis Worksheet

Setup and solve the following using dimensional analysis.

- 1 mile = 5,280 ft
- 1 inch = 2.54 cm
- 3 feet = 1 yard
- 454 g = 1lb
- 946 mL = 1 qt
- 4 qt = 1 gal

★ 1. 5,400 inches to miles

$$54000 \text{ in} \xrightarrow{\div 12} 4500 \text{ ft} \xrightarrow{\div 5280} 0.85 \text{ mi}$$

0.085 mi

2. 16 weeks to hours

$$16 \text{ w} \xrightarrow{\times 7} 112 \text{ days} \xrightarrow{\times 24} 2688 \text{ hrs}$$

3. 54 yards to cm

$$54 \text{ yds} \xrightarrow{\times 3} 162 \text{ ft} \xrightarrow{\times 12} 1944 \text{ in} \xrightarrow{\times 2.54} 4937.76 \text{ cm}$$

4. 19 inches to feet

$$19 \text{ in} \xrightarrow{\div 12} 1.58\bar{3} \text{ ft}$$

5. 840 in. to cm.

$$840 \text{ in} \times 2.54 \rightarrow 2133.6 \text{ cm}$$

6. 36 cm/sec to feet/min

$$36 \text{ cm/sec} \xrightarrow{\div 2.54} 14.17 \text{ in/sec} \xrightarrow{\div 12} 1.18 \text{ ft/sec} \xrightarrow{\times 60} 70.966 \text{ ft/min}$$

7. 1.09 g/mL to lbs/qt

$$1.09 \text{ g/mL} \xrightarrow{\div 454} 0.0024 \text{ lbs/mL} \xrightarrow{\times 946} 2.27 \text{ lbs/qt}$$

★ 8. 32 ft/sec to meters/sec

$$\frac{32 \text{ ft}}{\text{sec}} \times \frac{12 \text{ in}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}} \times \frac{1 \text{ m}}{100 \text{ cm}} = 9.75 \text{ m/sec}$$