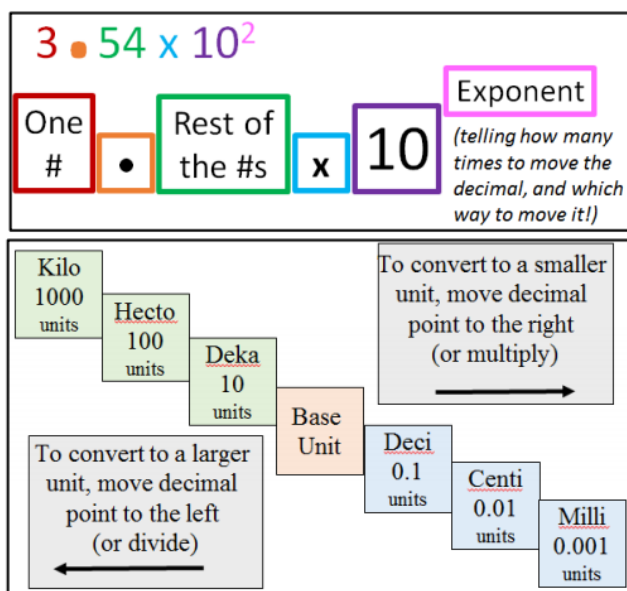


# Week 2 Packet – Honors Chem

This is *hopefully* all the handouts we will use this week in Honors Chem. Due to the challenging logistics of this year, please offer grace if I miss a handout or if things change during the week. **Please note** – You do not *have* to print. I am just providing the option to make things easier for those who want to print. All of these pages are on the class website, always! [www.mychemistryclass.net](http://www.mychemistryclass.net)

**\*I will put the glue ins for the notes on the front and/or back of the packet cover page like this – since you don't need the cover page for anything you can always just cut these out and glue them in. Trying to save some paper for those of you who are printing! ☺**

## N-1



## N-2

### Some Useful Conversion Factors

Metric to Metric	English to Metric	English to English
1 km = 1000 m	1 mile = 1.609 km	1 ft = 12 in
100 cm = 1 m	1 in = 2.54 cm	1 yd = 3 ft
1000 mm = 1 m	1 m = 39.37 in	1 mile = 5280 ft
1000 mg = 1 g	1 ft <sup>3</sup> = 28.32 L	1 gallon = 4 qt
1000 g = 1 kg	1 L = 1.057qt	1 lb = 16 oz
1000 ml = 1 L	1 lb = 453.6 g	1 quart = 4 cups
1 cm <sup>3</sup> = 1 ml	1 g = 0.03527 oz	1 pint = 2 cups



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

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1) Rearrange to solve for the variables using the expression below.

$$\frac{ab}{xyz} = 1$$

a = \_\_\_\_\_

x = \_\_\_\_\_

z = \_\_\_\_\_

b = \_\_\_\_\_

y = \_\_\_\_\_

Solve the problems. The "E" stands for "x10" so  $3E^6$  means  $3 \times 10^6$

2)  $3E^6 \times 2E^2 =$

6)  $\frac{5E^{11}}{6E^3} =$

3)  $6.4E^{15} \times 7.3E^{23} =$

4)  $9.1E^{-2} \times 4.4E^{-6} =$

7)  $\frac{1E^{20}}{1E^{10}} =$

5)  $\frac{4.8E^{-19}}{2.1E^{-5}} =$

8)  $1.01E^2 + 2.00E^7 =$

11)  $7.6E^4 - 3.6E^3 =$

9)  $3.27E^9 + 6.12E^{-7} =$

12)  $8.0E^5 - 6.4E^1 =$

10)  $2E^{-31} + 4E^{-60} =$

13)  $2.1E^{-23} - 2.1E^{-11} =$

Convert units then put the answer in scientific notation.

14) 75 mL = \_\_\_\_\_ L \_\_\_\_\_ L

15) 82 m = \_\_\_\_\_ cm \_\_\_\_\_ cm

16) 0.1298 km \_\_\_\_\_ mm \_\_\_\_\_ mm

Forgot how?

Metric Conversions:

<https://tinyurl.com/ydaxvea5>

Scientific Notation:

<https://tinyurl.com/m2vt3fw>

17) Use the internet to look up the equation to solve for the physical property of DENSITY.

**Density =**

18) Calculate the mass for an object with a density of 2 g/mL and a volume of 6 mL.

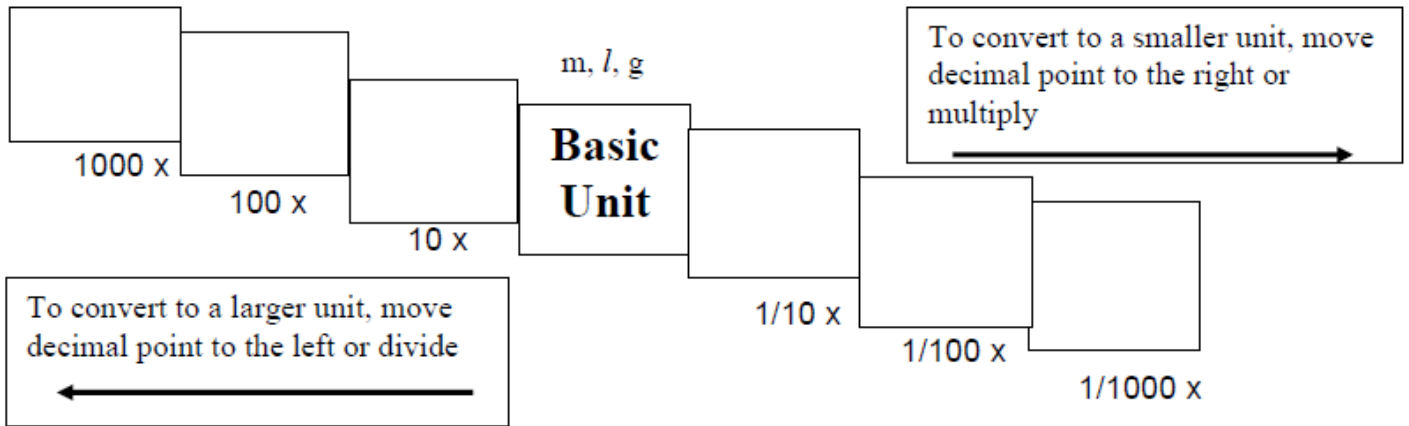


# Worksheet #2

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

Period: \_\_\_\_\_

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Try these conversions using the ladder method:

1) 1000mg = _____ g	2) 1L = _____ mL	3) 160cm = _____ mm
4) 14 km = _____ m	5) 109g = _____ kg	6) 250m = _____ km

Compare using <, >, or =:

7) 56cm ○ 6m

8) 7g ○ 698mg

Write the correct abbreviation for each metric unit.

9) Kilogram \_\_\_\_\_

10) Milliliter \_\_\_\_\_

11) Kilometer \_\_\_\_\_

12) Meter \_\_\_\_\_

13) Millimeter \_\_\_\_\_

14) Centimeter \_\_\_\_\_

15) Gram \_\_\_\_\_

16) Liter \_\_\_\_\_

17) Milligram \_\_\_\_\_

**Dougherty Valley HS Chemistry**  
**Metric Mania Metric Conversion Practice**

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Try these conversions, using the ladder method

18) 2000 mg = \_\_\_\_\_ g

25) 75 mL = \_\_\_\_\_ L

19) 104 km = \_\_\_\_\_ m

26) 50 cm = \_\_\_\_\_ m

20) 480 cm = \_\_\_\_\_ m

27) 5.6 m = \_\_\_\_\_ cm

21) 5.6 kg = \_\_\_\_\_ g

28) 16 cm = \_\_\_\_\_ mm

22) 8 mm = \_\_\_\_\_ cm

29) 2500 m = \_\_\_\_\_ km

23) 5 L = \_\_\_\_\_ mL

30) 65 g = \_\_\_\_\_ mg

24) 198 g = \_\_\_\_\_ kg

31) 6.3 cm = \_\_\_\_\_ mm

32) 120 mg = \_\_\_\_\_ g

Compare using <, >, or =:

33) 63 cm  6 m

34) 5 g  508 mg

35) 1,500 mL  1.5 L

36) 536 cm  53.6 dm

37) 43 mg  5 g

38) 3.6 m  36 cm

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

Period: \_\_\_\_\_

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These are practice problems. It is assumed that you have already been introduced to the method of "dimensional analysis." Answers are provided at the end of each problem. They are underlined. You should look at the question, work it out on paper (not in your head) before checking the answers at the end. The purpose of these problems is not merely to get the right answer, but to practice writing out the dimensional analysis setup. We will be using this method all semester and I will be asking for your setups, so don't just work out an answer on your calculator without writing out a setup.

In these practice problems, I am going to ask you to stick to ONLY the following conversions between the English and metric system (these are the only conversions that I will give you on exams). In some cases you can look up conversions elsewhere, but I would rather you didn't. I want you to learn how to make conversions that take more than one single step.

$$\begin{aligned} 1 \text{ inch} &= 2.54 \text{ cm exactly} \\ 1 \text{ mi} &= 5280 \text{ ft} \end{aligned}$$

$$\begin{aligned} 1 \text{ lb} &= 454 \text{ g} \\ 1 \text{ qt} &= 2 \text{ pt} \end{aligned}$$

$$\begin{aligned} 1 \text{ qt} &= 0.946 \text{ L} \\ 4 \text{ qt} &= 1 \text{ gal} \end{aligned}$$

$$1 \text{ g} = 1 \times 10^9 \text{ ng}$$

You should also remember that  $1 \text{ cc} = 1 \text{ cm}^3 = 1 \text{ mL}$  exactly. (This is a conversion you need to know.) For all problems, show your dimensional analysis setup. Remember you can use the conversions shown above. Even if it is a metric conversion please practice with Dimensional Analysis, don't use "King Henry."

1) Convert 3598 grams into pounds. 7.93

2) Convert 231 grams into ounces. 8.14

3) A beaker contains 578 mL of water. What is the volume in quarts? 0.611

4) How many ng are there in  $5.27 \times 10^{-13}$  kg? 0.527

