

# Week 4 Packet – Regular Chem

This is *hopefully* all the handouts we will use this week in Regular 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)

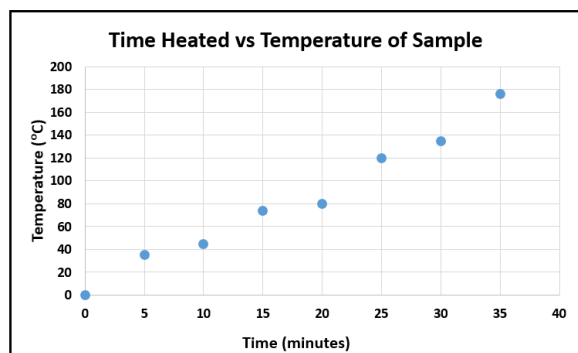
\*I will put the glue ins for the notes on the front and/or back of the packet cover page like this – since you don't need the cover page for anything you can always just cut these out and glue them in. Trying to save some paper for those of you who are printing! 😊

## Page 27

Mass and Temperature Data for Heat Transfer  
from Unknown Metal Block to Water

Sample	Mass of Metal Block (g)	Mass of Water (g)	Starting Temp of Water (°C)	Ending Temp of Water (°C)
1	15.25	100	22.4	45.3
2	25.61	102	21.8	50.1
3	22.88	100	22.1	29.6

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**Convert to new unit**

#1 27500 mg → g

#2 0.15 DL → mL

**Convert into Std. Form**

#3  $1.0 \times 10^1$

#4  $1.0 \times 10^0$

#5  $1.0 \times 10^{-1}$

#6  $2.5 \times 10^4$

#7  $3.8 \times 10^{-2}$

**Convert into Sci. Not.**

#8 541

#9 9.5

#10 0.025

To convert to a smaller unit, move decimal point to the right (or multiply)

To convert to a larger unit, move decimal point to the left (or divide)

**Exponent** (telling how many times to move the decimal, and which way to move it!)

One # • Rest of the #s x 10

3 • 54 × 10<sup>2</sup>

Kilo 1000 units

Hecto 100 units

Deka 10 units

Base Unit

Deci 0.1 units

Centi 0.01 units

Milli 0.001 units

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### CONVERTING AND SCIENTIFIC NOTATION

Show work on notebook paper!

Convert:

- 1) 1000mg → g
- 2) 1L → mL
- 3) 160cm → mm
- 4) 1.4 km → m
- 5) 80 cm → m
- 6) 75 mL → L
- 7) 5.6 m → cm
- 8) 65 g → mg

Compare using <, >, or =

- 9) 7g ? 698mg
- 10) 1,500 mL ? 1.5 L
- 11) 536 cm ? 53.6 dm
- 12) 3.6 m ? 36cm

Write the abbreviation for each metric unit and tell if it measures mass, length, or volume

- 13) decigram
- 14) milliliter
- 15) meter
- 16) decameter

Write in scientific notation:

- 17) 12
- 18) 0.156000
- 19) 0.00000000853

Write in standard notation:

- 20)  $1.98 \times 10^4$
- 21)  $4.5 \times 10^{-6}$
- 22)  $2.71 \times 10^{-1}$

What is wrong with the following #s?

- 23)  $0.54 \times 10^5$
- 24)  $97 \times 10^{-4}$

Why does this not make sense? Look at the number/exponent!

- 25) The diameter of a particular atom is  $1.3 \times 10^8$  cm.

Solve the following word problems:

- 26) In Australia, the people use approximately 2,240,000,000 pounds of bread in a year. Put in scientific notation
- 27) 0.000065 is the wave length of yellow light. Put in scientific notation.
- 28) A proton weighs  $1.673 \times 10^{-27}$  kg, a neutron weighs  $1.75 \times 10^{-27}$  kg, and an electron weighs  $9.11 \times 10^{-31}$  kg. Write the heaviest particle's mass in standard notation. Make sure you don't forget to look at the exponent in addition to the number itself!

