Welcome to **Honors Chemistry 1!** I hope you have a fun and restful summer. I look forward to seeing you in August/January.

Your summer assignment will consist of two tasks.

1. **Summer Pre-assessment and Algebra Inventory: (pages 2-8)**
    - **Due the first day of class!** The purpose of these assignments is to assess your previous knowledge, writing skills and algebra skills.

2. **Memorization Task: Elements 1 – 36**
    - You need to know the **name and symbol** of these 36 elements (Hydrogen through Krypton) Link to periodic table http://www.ptable.com/

A 100 point assessment covering the skills in the summer assignment will be given during the first week of class. Students are expected to independently research in order to answer the questions they may not know. Google and YouTube are great tools to begin researching terms/concepts you are not familiar with.

Before the first day of Chemistry class:

- Work through the Pre-assessment. Circle the best answer for the multiple choice and list the letter answer in the margin.
- Answer the essay question in at least **two full paragraphs**.
- Solve each problem for x.
- Complete the algebra inventory. **DO NOT** use a calculator.
- Begin the memorization task – e.g. make flashcards, begin practicing.

Pre-assessment **Name: _____**

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. A chemical can be defined as
a. a toxic substance.
b. an unnatural additive placed in food.
c. any substance that has a definite composition.
d. any substance that is not alive.

____ 2. A compound is
a. a pure substance that cannot be broken down into simpler, stable substances.
b. a substance, made of two or more atoms that are chemically bonded, that can be broken down into simpler, stable substances.
c. the smallest unit of matter that maintains its chemical identity.
d. any substance, whether it is chemically bonded or not.

____ 3. Matter includes all of the following *except*
a. air.
b. light.
c. smoke.
d. water vapor.

____ 4. Which of the following is *not* a physical change?
a. grinding
b. cutting
c. boiling
d. burning

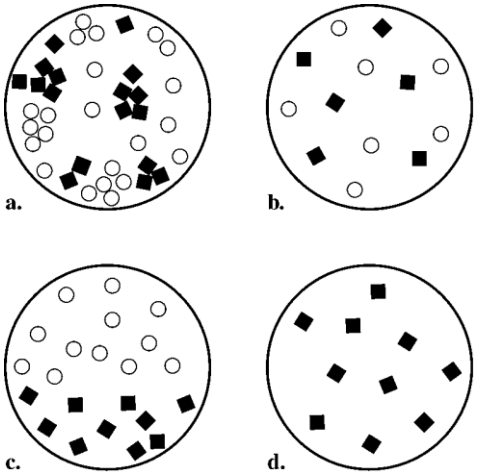
____ 5. Which of the following is *not* a chemical change?
a. rusting
b. igniting
c. melting
d. burning

____ 6. A state of matter in which a material has no definite shape but has a definite volume is the ____ state.
a. gas
b. liquid
c. plasma
d. solid

____ 7. A solid substance is
a. always frozen regardless of its container.
b. always a crystal regardless of its container.
c. always the same shape regardless of its container.
d. always losing particles regardless of its container.

____ 8. Which of the following observations is quantitative?
a. The liquid turns blue litmus paper red.
b. The liquid boils at 100°C.
c. The liquid tastes bitter.
d. The liquid is cloudy.

____ 9. Which part of the illustration below shows the particles in a heterogeneous mixture?



a. a
b. b
c. c
d. d

____ 10. Which of the following observations is qualitative?
a. A chemical reaction was complete in 2.3 seconds.
b. The solid had a mass of 23.4 grams.
c. The pH of a liquid was 5.
d. Salt crystals formed as the liquid evaporated.

____ 11. The metric unit for length that is closest to the diameter of a pencil is the
a. micrometer.
b. millimeter.
c. centimeter.
d. decimeter.

____ 12. The density of aluminum is 2.70 g/cm^3. What is the mass of a solid piece of aluminum with a volume of 1.50 cm^3?
a. 0.556 g
b. 1.80 g
c. 4.05 g
d. 4.20 g

____ 13. How many minutes are in 1 week?
a. 168 min
b. 1440 min
c. 10 080 min
d. 100 800 min

____ 14. If a mixture is uniform in composition, it is said to be
a. homogeneous.
b. chemically bonded.
c. heterogeneous.
d. a compound.

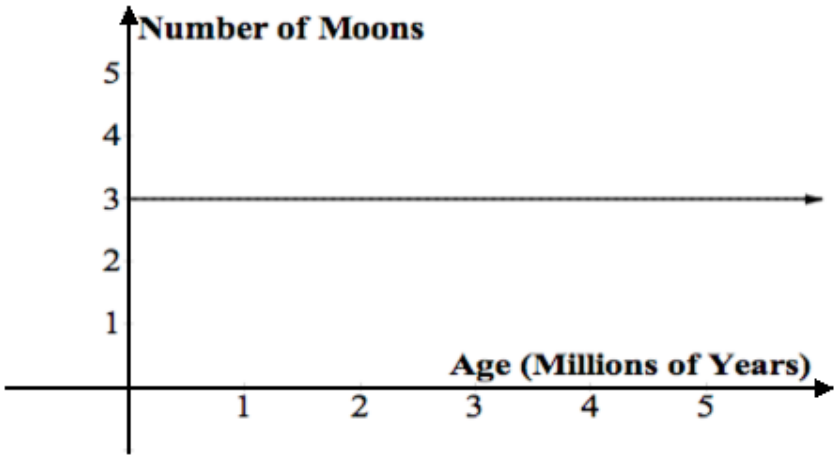
____ 15. The two most important properties of all matter are
a. the ability to carry an electric current well and to hold electric charge.
b. taking up space and having mass.
c. being brittle and hard.
d. being malleable and ductile.

____ 16. An atom is
a. the smallest unit of matter that maintains its chemical identity.
b. the smallest unit of a compound.
c. always made of carbon.
d. smaller than an electron.

____ 17. The liquid state of matter can be described as
a. having definite shape and definite volume.
b. having neither a definite shape nor a definite volume.
c. having lost electrons owing to energy content.
d. having a definite volume but not a definite shape.

____ 18. Particles within a solid
a. do not move.
b. vibrate about fixed positions.
c. move about freely.
d. exchange positions easily.

____ 19. This graph shows the relationship between the age of a planet in millions of years and the number of moons the planet has. Which of these statements is true about the graph?



a. The dependent variable is the number of moons.
b. The independent variable is the number of moons.
c. Since the number of moons is staying the same, there is no dependent variable.
d. Since the number of moons is staying the same, there is no independent variable.

20. **Essay**

In Chemistry, it is often helpful to use models when studying extremely small objects.

Prompt: Write an essay in which you describe the macroscopic and submicroscopic changes to a block of ice at -20°C being heated in a pan to a temperature of 120°C. Use pertinent scientific vocabulary when possible. Use models to show the particle spacing for each of the phases. Then, write a second part that relates this situation to real-life example(s).

Problem

21. Solve for x. **Show all work** and circle you final answer:

$x = (525)(0.385)(100 - 20)$

$-1087 = x(1.9)(-5)$

$\frac{3x-1}{5} = -8$

$1.7 = \frac{x}{2.11}$

$\frac{1.25}{x} = (1.2)(0.0821)(298)$

Honors Chemistry 1 Summer Assignment

Algebra Inventory

The purpose of this assessment is to assess your basic math skills
(No Calculator)
Be sure to show your work!!!

Addition, subtraction, multiplication and division:

1) $12+13=$

2) $-3+5=$

3) $6+^{-}4=$

4) $21-13=$

5) $-4-5=$

6) $6-9=$

7) $4*5=$

8) $-2*13=$

9) $^{-}3*^{-}1=$

10) $12\div 4=$

11) $\frac{18}{6}=$

12) $^{-}8\div 2=$

Fraction operations:

13) $\frac{3}{4}+\frac{5}{4}=$

14) $\frac{1}{2}+\frac{1}{3}=$

15) $\frac{3}{5}*\frac{1}{2}$

Order of operations:

16) $3(2+5)-4=$

17) $\frac{4+5}{3+6}+2=$

Substitution:

18) If $x = 2$, then what does $3x + 1$ equal? $3x + 1 =$

19) If $x = -4$ then what does $2x - 5$ equal? $2x - 5 =$

20) Solve: $y - 5 = 22$

21) Solve the equation $5x - 6 = 29$

22) Solve: $2j + 24 = 6j$

23) Solve $6a - b = 10$ for *a.*

24) Solve: $A = bcd$ for c.

Look back at the problems above and circle the ones that you found the most difficult.

Please write in words or examples anything that you know you need to work on to improve your math skills: