QUIZ REVIEW PACKET

Topics Covered:

Density

- Know the formula
- basic math problems

Intro to Chemistry - basic definitions

Matter, Substances (elements verses compounds)

Mixtures

- Classifiying homogeneous verses heterogeneous

Solutions and solubility

- Solubility graphing

Physical Properties / Chemical P roperties Physical Changes verses Chemical reactions

Law of Conservation of Mass

- Know the law
- basic balancing mass of reactants and products in chemical equations



In the procedure shown above, a calcium chloride solution is mixed with a sodium sulfate solution to create the products shown. Which of the following is illustrated by this activity?

- (A) The law of conservation of mass
- (B) The theory of thermal equilibrium
- (C) The law of conservation of momentum
- (D) The theory of covalent bonding

Balancing mass of products and reactants:

1. In the reaction, $(CaCl_2 + Na_2SO_4 \rightarrow CaSO_4 + NaCl)$ 125g of $CaCl_2$ reacts with 78g of Na₂SO₄ to form 90g of CaSO₄. How many grams of NaCl (table salt) are produced in solution?

2. 6Na + Fe₂O₃ \rightarrow 3Na₂O + 2Fe In the reaction, 7Og of Na react with 81g of Fe₂O₃ to produce 94g of Na₂ and Fe. How many grams of Fe are produced?

UNITS Density:(g/cm³) Mass: grams (g) Volume (mL) or (cm³)

Show all work 1. List the formula 2. Substitute the numbers 3. Solve w/ units

1. If the mass of a piece of a metal was 100g and the volume of the aluminum was 35cm³, what is the density of this metal?

2. Matt found a toy block under his bed. It seemed lightweight, yet very sturdy. He was wondering if it could float in the bath tube. The dimensions of the object were 30 cm in length, 5 cm in height, and 20 cm in width. Its mass was 500 grams. First, what is the blocks volume?
Second, what is it's density?

Will it float? Hint: the density of liquid water is 1 g/cm^3 Yes or No <-circle

3. Rebecca wanted to determine the density of some salad dressing. She poured 50 mL of the dressing into a graduated cylinder. The graduated cylinder had a mass of 120 grams but with the dressing in it, it had a mass of 143 grams. What is the density of the oil? First, what is the liquid's mass? Second, what is it's density?

Physical Change vs. Chemical Change

How to tell the difference...

Evidence:		
Physical	Chemical	
1. Color changes - ex. with crayons	1. Color change - new substance	
2. Phase changes	2. Bubbling or foaming	
3. Shape changes	3. Fizzing	
4. Size changes	4. Heat	
5. Dissolving -substance disappears in water	5. Light or sound	
6. Bending, crushing, cutting, mixing	6. Smell (odor)	
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Label each of the following as a Physical or Chemical change:

Evidence:

1. Butter melting	 /
2. Wood rotting	 · · · · · · · · · · · · · · · · · · ·
Fall leaves changing color	
4. Burning sugar	
5. Digesting a hamburger	
6. Mixing chocolate into milk	
7. Cutting an apple	
8. Rust forming on a tin can	 32 19
9. Burning toast in the toaster	
10. Baking bread in the oven	
11. Ripping up a note	
12. Etching glass with acid	 8
14. Chewing a carrot	
15. Roasting marshmallows in fire	



Complete the paragraphs using the terms listed in the box. Some may be used more than once.

magnetism	liquid	physical change	chemical change	e mixture	melting
physical prope	erties	physical property	equals	conservation o	of mass

Scientists try to explain how changes in substances take place. By applying energy you can tear a sheet

of paper into pieces and cause a 1. ______ in the paper. On a hot summer day,

water vapor will condense into water droplets on the outside of a glass of iced tea. The glass of iced tea is a 2.

_____ of sugar, tea, lemon, and water. Water is a clear colorless 3.

_____ at room temperature. The words clear and colorless describe two 4.

of water. The melting of the ice in iced tea is a 5.

In comparison,	a 6 prod	luces new substances.
When a candle burns, p	physical and chemical changes take place. The 7.	of the
ax is a physical chang	e. The melted wax, as it burns, combines with oxygen in the ai	r. After the chemical
change, water vapor ar	nd carbon dioxide gas are formed. The mass of all substances b	pefore a chemical change
8	the mass of all substances after a chemical cha	ange. This is called the law
of 9		

To separate a solid from a liquid, such as salt from seawater, a process using the 10. ______ of boiling called distillation is used. To separate out a

metal from a mixture a physical property of 11. ____

can be used.

Write the correct letter on the line that best defines each word.

Vocabulary	Definition
1. Solution	A. A strong solution
2. Diluted	B. Holding as much solute as it can at that temperature
3. Concentrated	C. This substance is dissolved into the solvent
4. Solute	D. A weak solution with very little solute
5. Solvent	E. This substance does the dissolving
6. Saturated	F. Consists of a solute and solvent and is a homogenous mixture

Use the Solubility Graph to answer questions 1-3.

At what temperature can Substance A dissolve 70grams of solute?

- 2. At 30° C Substance C can dissolve how much solute?
- 3. At 40° C Substance B can dissolve how much solute?
- 4. List some ways to increase the rate of dissolving a solute.





Solubility of Three Substances

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