Name_____Date_____/_____/_____Period_____

Worksheet 2.1 Unit 2 Review – Physical and Chemical Properties and Reactions; Elements, Compounds and Mixture; Density

Look at the Notes 2.2 or the book in Chapter 2 to complete the worksheet.

1. Explain why all samples of a given substance have the same intensive properties.

Every sample of a given substance has the same chemical composition if they have the same intensive properties.

2. Name three states of matter.

Liquid, Solid and Gas

3. Name and define two categories used to classify properties of matter.

Intensive and extensive properties

4. Which property in Table 2.1 (page 37) can most easily distinguish sodium chloride from the other solids?

Color; sodium chloride is the only white solid listed

5. Compare solids, liquids, and gases in terms of compressibility, structure, shape and volume.

Compressibility- easy or hard to compressed?
Structure- molecules arranged in pattern, loosely, random?
Shape and Volume – definite or indefinite

	Compressibility	**Structure**	**Shape**	**Volume**
Solid	Hard	Pattern	Definite	Definite
Liquid	Hard	Loosely	Indefinite	Definite
Gas	Easy	Random	Indefinite	Indefinite

6.Classify each of the following as a homogeneous (homo) or heterogeneous (hetero) mixture.

a. food coloring homo
b. ice cubes in liquid water hetero
c. mouthwash homo
d. mashed and unpeeled potatoes hetero
e.pecan ice cream hetero
f. green ink homo
g. cake batter homo
h. cooking oil homo
i. granite rock hetero
j. salt water homo (clear)or hetero (cloudy)
k. paint homo
l. a silver ring homo

7. How is a compound different from an element?

Compounds can be broken down into simpler substances by chemical means, but not chemical cannot

8. How can you distinguish a pure substance from a mixture?
A pure substance has a fixed composition. The composition of a mixture may vary.

9. Classify each of these samples of matter as an element, a compound, or a mixture.
a. table sugar ($C_{12}H_{22}O_{11}$) compound
b. tap water (H_2O + metals) mixture
c. cough syrup (dextromethorphan hydrobromide; promethazine hydrochloride; alcohol).
mixture
d. nitrogen (N) element

10. Name four possible clues that a chemical change has taken place?
1. A color change
2. A texture change
3. A gas produced (bubbles form)
4. A precipitate is formed
(A precipitate is a solid product which forms in a chemical reaction)
5. A mass change
6. Temperature Change
7. Light produced

11. What is the main different between physical changes and chemical changes?
A chemical change forms one or more new substance but a physical change does not

Density – Show all work to receive credit.
12. What is the mass of 137 cm^3 of nickel? The density of nickel is 8.8 g/cm^3? **(1.2x10^3 g)**
D = m / v 8.8 = m / 137 m = 1.2 x 10^3 g

13. 78 cm^3 of soft coal have a mass of 101.4 g. What is the density of the soft coal? **(1.3 g/cm^3)**
D = m / v D = 101.4 / 78 D = 1/3 g/cm^3

14. What is the volume of a 16.4 g of a liquid with a density of 2.0 g/mL? **(8.2 mL)**
D = m / v 2.0 = 16.4 / v V = 8.2 mL

15. A student measures an empty beaker to be 35.0 grams. The student then pours 15.0 mL of an unknown liquid to the beaker. The student weighs beaker with the unknown liquid to be 96.3 grams. What is the density of the unknown liquid? **(4.09 g/mL)**

Empty graduated cylinder = 35.0 grams
Graduated cylinder with liquid = 96.3 grams
(Graduated cylinder with liquid) – (empty graduated cylinder) = 96.3 – 35.0 = 61.3 g
Volume = 15.0 mL
D = m/v D = 61.3 / 15.0 D = 4.09 g/mL