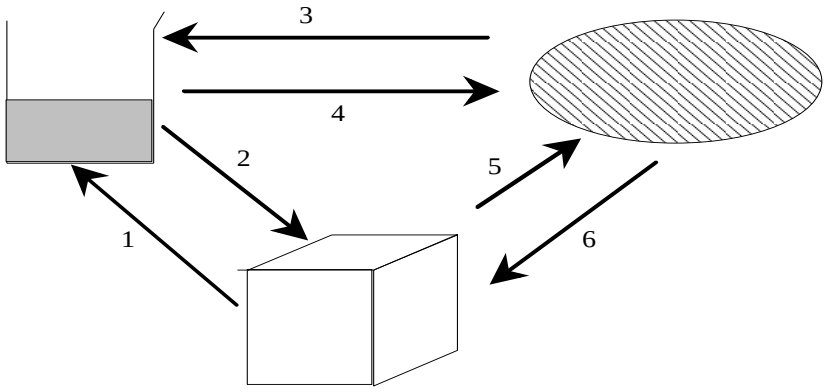
Grade 9 Science **EXAM REVIEW Part 2 – CHEMISTRY**

Use your notebook to complete all of the following review questions.
Please note that your completed notebook, corrected quizzes and unit review sheets are the BEST study tools. These questions will only help to reinforce some of the exam topics.

1. Complete the following table using your knowledge of the Particle Theory of Matter:

STATE of MATTER	FORCES OF ATTRACTION	SPACING OF MOLECULES	MOVEMENT OF MOLECULES
solid			
liquid			
gas			

2. Changes of state are examples of _____ changes.



3. Name FIVE ways in which you know a chemical change has probably taken place.

4. Identify each of the following examples as either physical or chemical changes:

a) clothes dried in an electric dryer __
b) clothes dried while hanging outdoors __
c) hamburger is cooked __
d) wood burning __
e) frost forming on a car windshield __
f) a penny tarnishes __

7. Complete the missing values in the following table:

MASS	VOLUME	DENSITY
25.0 g	40 mL	
	2.0 mL	1.5 g/mL
400 g	15 cm^3	
	200 L	47 g/L

5. Graph the data from the table of values below (include a proper title, label the axes, and point protectors). Use as much of the axis as possible when choosing your scale for the graph.

a) Draw a line of best fit for the data.

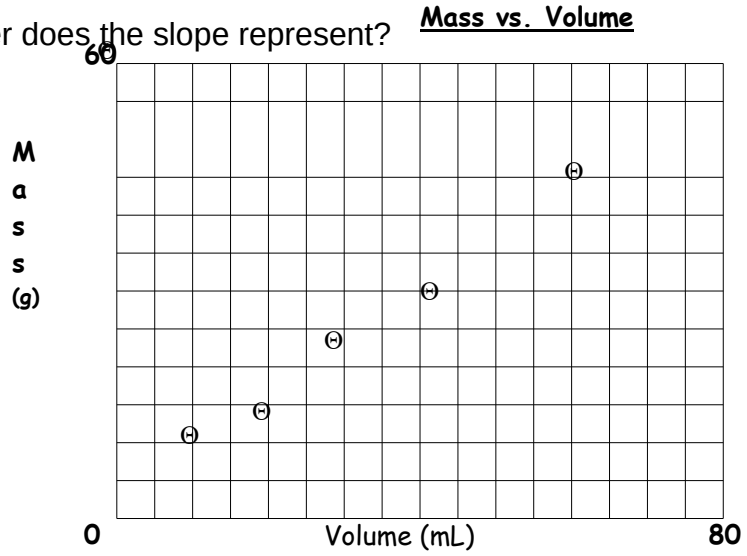
b) Find the slope of the line of best fit.

$$D = \frac{y_2 - y_1}{x_2 - x_1}$$

c) What physical property of matter does the slope represent?

Density

Volume (mL)	Mass (g)
10	10
20	15
30	25
40	30
60	45



6. For each of the properties listed below: give an explanation and identify if it is a physical or chemical property.

a) lustre: **Physical: how well an object reflects like**

b) malleability:

c) ductility:

d) combustability:

e) reacts with acid:

f) conductivity:

g) solubility:

h) hardness:

i) state:

k) brittleness:

7. a) Identify the following substances as pure substances or mixtures.

b) Once you have completed a), identify the type of mixture or pure substance each substance is.

i) raisin bran cereal **__mixture___** **__homogeneous___**

ii) shaving cream

iii) pure water

iv) nail polish remover

v) salt

vi) oxygen

vii) muddy water

8. For each chemical formula:
   a) state the number of atoms of each element that make up the formula
   b) state the total number of atoms in the formula

	Number of atoms of each element	Number of atoms in the molecule
H_2O		
NaCl		
$MgCO_3$		
K_2CO_3		
CH_4		

9. Complete the following paragraphs on the atom.

Matter is made up of small particles called _____. There are smaller pieces that make up atoms called _____, of which there are three types; _____, _____ and _____.

Most of the mass of the atom is located in its core called the _____ which contains _____ which are neutral (no charge) and **_protons_** which are positively charged. _____, which are negatively charged, are thought to move around the core in orbits.

10. Using the Periodic Table of Elements in your notebook, complete the following table:

Element Name	Symbol of Atom	Scientific Notation	Mass Number	Atomic Number	# of electrons	# of protons	# of neutrons
oxygen	**O**	$^{16}_{8}O$	16				
	S	$^{32}_{16}S$	32	16	16		
calcium	**Ca**	$^{40}_{20}Ca$	40	**20**	**20**	**20**	20
beryllium	Be						
		$^{65}_{30}Zn$	65			30	
		$^{80}_{35}Br$	**80**			35	45

11. Compare the following terms:

homogeneous (solution) and heterogeneous (mechanical mixture)	**<u>Homogeneous:</u> solution where one phase is visible** **<u>Heterogeneous:</u> mixture where two or more phases are visible**
physical property and chemical property	
metal and non-metal	
element and compound	.
pure substance and mixture	

12. Give the location and reactivity of: alkali metals, halogens, alkaline earth metals, noble gases

Alkali metals

Alkaline earth metals

Halogens –

Noble gases –

13. Draw Bohr- Rutherford diagrams for:

a) Sulfur b) Sodium c) Phosphorous d) Argon