JOHN GRAY HIGH SCHOOL

KS3 SCIENCE

YEAR 8

PHYSICAL AND CHEMICAL CHANGES 2

Time : 45 mins

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of **FOUR** questions.
2. Answer **ALL** questions.
3. Indicate answers in the spaces provided.
4. Remember to read the questions properly before attempting to answer

Name: _____

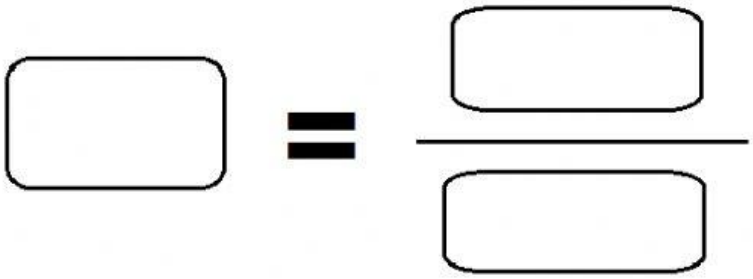
Teacher's Name: _____

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

LIVEWORKSHEETS

1. a. Drag the following word in the correct places to make the equation for calculating density.

Volume Mass Density



b. The density of water is 1 g/cm^3. Will the following objects or substances FLOAT or SINK in a basin of water, based on their density.

a. Helium (0.18 g/cm^3) _____

b. Chlorine gas (3.2 g/cm^3) _____

c. Paper (0.4 g/cm^3) _____

d. Iron (7.9 g/cm^3) _____

e. Honey (1.4 g/cm^3) _____

f. Flibbles (2.78 g/cm^3) _____

g. Desdamonas (0.2g/cm^3) _____

h. Yannis (10.45 g/cm^3) _____

i. Kitodoodles (0.0054 g/cm^3) _____

j. Epicurians (23.45 g/cm^3) _____

LIVEWORKSHEETS

c. For most matter, when it is heated, _____ because while the mass remains the same, the volume will _____. This is why _____ water floats on top of _____ water.

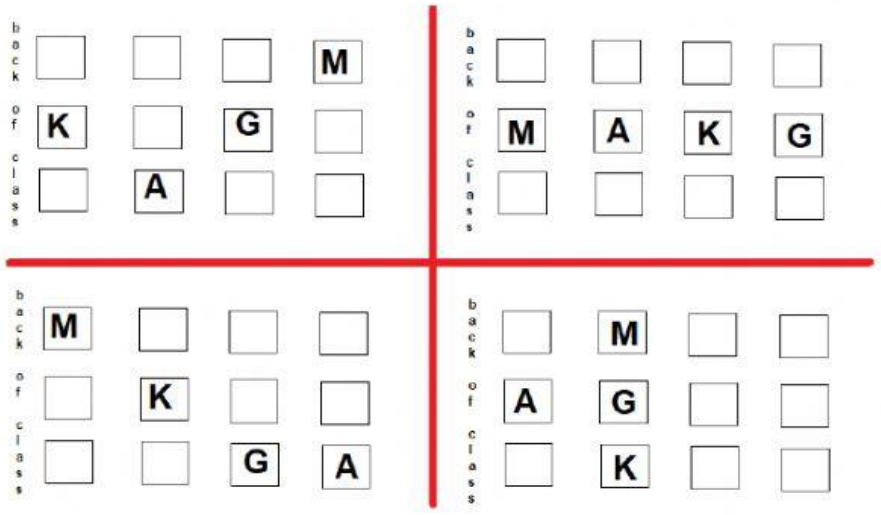
Calculate the density of the following objects.

a. Calculate the DENSITY of a ball if its mass is 20g and its volume is $5cm^3$.

$$\text{density} = \frac{\square}{\square} = \frac{\square\ g}{\square\ cm^3}$$

$$= \square\ g/cm^3$$

2. a. Maribella (M) sprayed her perfume at the back of the class. Kirkell (K) smelled it before Alexanderova (A) who smelled it after Gagaloosh (G). Which class arrangement shows how they were most likely sitting?



LIVEWORKSHEETS

b. How do the following factors affect how quickly particles will spread by diffusion?

   a. Increasing the size of the particles being diffused. _____

   b. Diffusing a gas instead of a liquid. _____

   c. Decreasing the temperature of the particles being diffused. _____

   d. Increasing the number of particles being diffused. _____

   e. Decreasing the size of the container or room in which diffusion occurs. _____

c. Concentration refers to the _____ of particles in a solution or system. If a solution has many particles in it, the solution is _____. If the solution has few particles in it, the solution is _____.

d. Calculate the concentration of the following solids dissolved in water using the given equation.

   i. A mass of 100g of salt was dissolved in 400 cm^3 of water. Calculate the concentration of the salt solution.

$$\text{concentration} = \frac{\text{mass}}{\text{volume}}$$

$$\text{concentration} = \frac{\boxed{\text{g}}}{\boxed{\text{cm}^3}} = \boxed{\text{g/cm}^3}$$

LIVEWORKSHEETS

ii. A mass of 120g of sugar was dissolved in 80cm^3 of water. Calculate the concentration of the sugar solution.

$$\text{concentration} = \frac{\text{mass}}{\text{volume}}$$

$$\text{concentration} = \frac{\text{g}}{\text{cm}^3} = \text{g/cm}^3$$

e. Calculate the concentration of the following liquids dissolved in water using the given equation.

i. A volume of 15cm^3 of acid was mixed with 300cm^3 of water. Calculate the percentage concentration of the acid solution.

$$\text{concentration} = \frac{\text{volume acid}}{\text{volume water}} \times 100$$

$$\text{concentration} = \frac{\text{cm}^3}{\text{cm}^3} \times 100 = \%$$

LIVEWORKSHEETS

f. A volume of 80cm^3 of acid was slowly mixed with 200cm^3 of water. Calculate the percentage concentration of the acid solution.

$$\text{concentration} = \frac{\text{volume acid}}{\text{volume water}} \times 100$$

$$\text{concentration} = \frac{\text{cm}^3}{\text{cm}^3} \times 100 = \text{\%}$$

3. a. Complete the table below about the features of physical and chemical changes in science.

PHYSICAL CHANGES	CHEMICAL CHANGES

b. Are the following examples of physical or chemical changes?

i. Melting butter then allowing to harden again. _____

ii. Iron rusting when exposed to oxygen. _____

iii. Water evaporating to form a gas. _____

iv. Popping a balloon. _____

v. Frying dumplings. _____

vi. Tearing a piece of paper. _____

vii. Making cheese from milk. _____

viii. Mixing sugar and water. _____

LIVEWORKSHEETS