

# C11 - 1.1 - Density WS

*What is the density of an object with a mass of 200 g and a volume of 50 mL?*

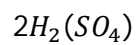
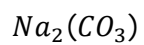
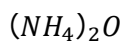
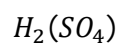
*What is the density of an object with the mass of 50 kg and a volume of 25L?*

*What is the mass of an object with the density of  $6 \frac{\text{kg}}{\text{L}}$  occupying 12L?*

*What is the volume of a 100 kg object with a density of  $15 \frac{\text{kg}}{\text{L}}$ ?*

# C11 - 1.2 - Molar Mass WS

Calculate the molar mass of the following



## C11 - 1.3 - *g* < — > Moles WS

How many moles of hydrogen in 1 g of hydrogen?

How many moles of hydrogen in 2 g of hydrogen?

How many moles of nitrogen in 14 g of nitrogen?

How many moles of nitrogen in 42 g of nitrogen?

How many moles of hydrogen in 75 g of hydrogen?

*How many moles of  $\text{NO}_2$  in 100 g of  $\text{NO}_2$ ?*

How many moles of gold in 50 g of gold?

*How many moles of  $\text{Fe}_2\text{O}_3$  in 120 g of iron?*

How many moles of calcium in 401 g of calcium?

How many moles of potassium and 3.91 g of potassium?

*How many moles of  $\text{Cu}(\text{SO}_4)$  in 32 g of  $\text{Cu}(\text{SO}_4)$ ?*

## C11 - 1.3 - Moles < – > g WS

How many grams of hydrogen in one mole of hydrogen?

How many grams of hydrogen in two moles of hydrogen?

How many grams of nitrogen in three moles of nitrogen?

How many moles of oxygen in 48 g of oxygen?

How many moles of aluminum in 100 g of aluminum?

How many moles of mercury in 200.6 g of mercury?

How many moles of magnesium in 10 g of magnesium?

How many moles of gold in 100 g of gold?

How many moles of helium in 8 g of helium?

How many moles of the nickel in 400 g of nickel?

How many moles of titanium in 47.9 g of titanium?

# C11 - 1.4 - Moles < - > Particles/Atoms WS

How many atoms in two moles of nitrogen?

How many atoms in two moles of carbon?

How many particles in four moles of oxygen?

How many atoms in three moles of sodium?

How many particles in three moles of gold?

How many atoms in five moles of sulfur?

How many particles in three moles of nickel?

## C11 - 1.4 - Particles/Atoms < - > Moles WS

How many moles in  $3.46 \times 10^{24}$  particles of copper?

How many moles in  $2.12 \times 10^{24}$  particles of hydrogen?

How many moles in 250,000 atoms of potassium?

How many moles in  $12.62 \times 10^{24}$  atoms of silicon?

How many moles in  $18.10 \times 10^{23}$  particles of iodine?

How many moles in  $8.88 \times 10^{24}$  particles of gold?

How many moles in 982 atoms of silver?

# C11 - 1.5 - STP WS

*What is the volume occupied by 1 mol of  $O_{2(g)}$  at STP?*

*What is the volume occupied by 3 mol of  $H_2O_{(g)}$  at STP?*

*What is the volume occupied by 12 mol of  $N_{2(g)}$  at STP?*

*What is the volume occupied by 0.5 mol of  $CO_{2(g)}$  at STP?*

*How many moles of  $H_2O$  gas in a balloon with a volume of 100 L at STP?*

*How many moles of  $N_2O_{3(g)}$  gas in a balloon with a volume of 22.4 L at STP?*

*How many moles of  $CO_{2(g)}$  gas in a balloon with a volume of 22.4 L at STP?*

*How many moles of  $N_{2(g)}$  gas in a balloon with a volume of 10 L at STP?*

*How many moles of  $O_{2(g)}$  gas in a balloon with a volume of 200 L at STP?*

# C11 - 1.6 - g < - > moles < - > particles WS

How many atoms in 9 g of beryllium?

How many atoms in 100 g of carbon?

How many particles in 80 g of lithium?

How many particles in 245 g of copper?

*What is the mass of  $6.02 \times 10^{23}$  atoms of Aluminum?*

*What is the mass of  $6.02 \times 10^{23}$  atoms of ?*

*What is the mass of  $12.04 \times 10^{23}$  atoms of gold?*

*What is the mass of  $2.24 \times 10^{23}$  atoms of Silver ?*

*What is the mass of 1g atoms of Oxygen?*

*What is the mass of  $2.12 \times 10^8$  atoms of Titanium ?*



## C11 - 1.6 - g < - > moles < - > STP Notes

What is the volume occupied by 50 g of hydrogen gas at STP?

What is the volume of 5 g of phosphorus gas at STP?

What is the volume of 255 g of oxygen gas at STP?

# C11 - 1.8 - Percent Composition WS

*What is the percent composition of  $\text{NH}_4$ ?*

*What is the percent composition of  $\text{CuSO}_4$ ?*

*What is the percent composition of water in  $\text{NaCl} \cdot 3\text{H}_2\text{O}$ ?*

## C11 - 1.9 -Molar Concentration WS

*What is the Molarity of 5 moles of NaCl contained in 12 L of solution?*

*How many moles of HCl in six litres of solution with the molarity of 0.50?*

*What is the volume of 12 moles of CaCl with a molarity of 6.0?*

## C11 - 1.9 - Dilution WS

*If 5 L of 2 M NaCl is added to 4 L of water, what is the molarity of the mixture?*

*If 3 L of 0.2 M LiCl is added to 1.5 L of 1.2 molarity LiCl what is the molarity of the mixture?*