Mole Practice 2 (1 & 2 Step Problems)

Type of equation	Equation with description	Keywords that tell you to use this equation
Particle Equation	**1 Mole X = 6.022*10²³ particles of X** X is the substance that is being considered and particles can represent atoms, ions, molecules, or formula units	Particles Atoms molecules Ions Formula units
Molar mass Equation	**1 Mole X= _____ Grams of X** For substance X, the molar mass of that substance is given on your periodic table. The molar mass of the substance goes in the blank above.	Mass grams
Volume Equation	**1 Mole gas = 22.4 Liters of gas**	Liters Volume Space

Tutorial   Tutorial 2

1. What is the mass of 3.8 moles of glucose ($C_6H_{12}O_6$)?

Step 1: What equation or equations need to be written down for this problem?

1 mole $C_6H_{12}O_6$= _____ grams $C_6H_{12}O_6$	1 mole $C_6H_{12}O_6$= 6.022*10^23 molecules $C_6H_{12}O_6$

Step 2: Correctly fill in the T-Chart such that diagonal units cancel

Step 3: Use Desmos to compute your final answer and include the correct unit.

2. How many moles of water vapor are contained in a 45L container?

Step 1: What equation or equations need to be written down for this problem?

1 mole H_2O = 18.016 grams H_2O	1 mole H_2O = 22.4 Liters H_2O	1 mole H_2O=6.022*10^23 molecules H_2O

Step 2: Correctly fill in the T-Chart such that diagonal units cancel

Step 3: Use Desmos to compute your final answer and include the correct unit.

3. How many atoms are in 27 mol of lead?

Step 1: What equation or equations need to be written down for this problem?

1 mole Pb = 207.20 grams Pb	1 mole Pb = 22.4 Liters Pb	1 mole Pb = 6.022*10^23 atoms Pb

Step 2: Correctly fill in the T-Chart such that diagonal units cancel

Step 3: Use Desmos to compute your final answer and include the correct unit.

4. What mass of carbon dioxide would have a volume of 500L?

Step 1: What equation or equations need to be written down for this problem?

1 mole CO_2 = 44.01 grams CO_2	1 mole CO_2 = 22.4 Liters CO_2	1 mole CO_2=6.022*10^23 molecules CO_2

Step 2: Correctly fill in the T-Chart such that diagonal units cancel

Step 3: Use Desmos to compute your final answer and include the correct uni

5. How many water molecules does it take to have a mass of 420g?

Step 1: What equation or equations need to be written down for this problem

1 mole H_2O = _____ grams H_2O	1 mole H_2O = 22.4 Liters H_2O	1 mole H_2O=6.022*10^23 molecules H_2O

Step 2: Correctly fill in the T-Chart such that diagonal units cancel

Step 3: Use Desmos to compute your final answer and include the correct unit

6. What volume of oxygen gas would 6.2 x 10^{24} molecules have?
Step 1: What equation or equations need to be written down for this problem?

1 mole O_2 = 32 grams O_2	1 mole O_2 = 22.4 Liters O_2	1 mole O_2 = 6.022*10^23 molecules O_2

Step 2: Correctly fill in the T-Chart such that diagonal units cancel.

Step 3: Use Desmos to compute your final answer and include the correct unit.

7. What is the volume of 80g of sulfur dioxide?
Step 1: What equation or equations need to be written down for this problem?

1 mole SO_2 = _____ grams SO_2	1 mole SO_2 = 22.4 Liters SO_2	1 mole SO_2 =6.022*10^23 molecules SO_2

Step 2: Correctly fill in the T-Chart such that diagonal units cancel

Step 3: Use Desmos to compute your final answer and include the correct unit

8. How many formula units of magnesium chloride would have a mass of 120g?
Step 1: What equation or equations need to be written down for this problem?

1 mole H_2O = _____ grams $MgCl_2$	1 mole $MgCl_2$ = 22.4 Liters $MgCl_2$	1 Mole $MgCl_2$ = 6.022*10^{23} formula units $MgCl_2$

Step 2: Correctly fill in the T-Chart such that diagonal units cancel.

Step 3: Use Desmos to compute your final answer and include the correct unit.

9. How many moles are there in 35g of carbon monoxide?

1 mole CO= _____ grams CO	1 mole CO = 22.4 Liters CO	1 mole CO=6.022*10^23 molecules CO

10. 5.6 x 10^{27} atoms of zinc would have what mass?

1 mole Zinc = 65.39 grams Zn	1 mole Zn = 22.4 Liters Zn	1 mole Zn=6.022*10^23 atoms Zn