**Mole Worksheet**

Mole/Gram Relationship

1. How many moles are in 5.21 grams of silver?

The info in the problem is \_\_\_\_\_\_\_\_\_\_\_

 From the periodic table we know that 1 mole Ag = \_\_\_\_\_\_\_g Ag

 The info you are looking for is \_\_\_\_\_\_\_\_\_\_\_

 Set this up:

 Did your units cancel correctly?

1. How many grams of calcium do you have if you have 3.25 moles?

 What do you know?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(from the problem!)

 What do you know from the periodic table?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 What are you looking for?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Set it up:

 Did the units cancel?

Group Practice:

1. How many moles are in 27.35 grams of zinc?
2. What is the mass of .53 moles of uranium?
3. How many moles of bromine do you have if you have 22.75 grams?
4. What is the mass of 1.72 moles of copper?

Mole/Atom-Formula Unit Relationship

1. How many atoms are in 3.6 moles of gold?

 What do you know? (from the problem)

 Given: 1 mole = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms (Avogadro’s number)

 What are you looking for?

 Set up the equation:

 Did your units cancel?

1. How many moles of tin do you have if you have 1.56 x 1022 atoms?

What do you know? (from the problem)

 Avogadro’s number 1 mole = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms

 What are you looking for?

 Set it up:

 Did your units cancel correctly?

Group Practice:

1. Determine the number of atoms that are in 0.58 mol of Se.
2. How many moles are there in 8.1 x 1021 atoms of phosphorus?
3. How many atoms are in 0.87 moles of antimony?
4. How many moles do you have if you have 9.4 x 1025 atoms of carbon?

**More Moles Worksheet**

Grams to Atoms

1. How many atoms of aluminum are there in 13.3 grams of aluminum?

What do you know? (from the problem)

Periodic table info 1 mole Al = \_\_\_\_\_\_\_\_\_ g

Avogadro’s number 1 mole Al = \_\_\_\_\_\_\_\_\_\_\_\_\_ atoms

This is a two part process because you cannot go from grams to atoms on the mole map.

Set up the 1st part of the problem:

Next take the answer and solve for the 2nd part of the problem:

Did your units cancel so you ended with the correct unit?

1. How many grams of calcium do you have if you have 4.65 x 1023 atoms of calcium?

 What do you know? (from the problem)

 Periodic table info 1 mole Ca = \_\_\_\_\_\_\_\_\_ g

 Avogadro’s number 1 mole Ca = \_\_\_\_\_\_\_\_\_\_\_\_\_ atoms

 This is a two part process because you cannot go from atoms to grams on the mole map.

Set up the 1st part of the problem:

Next take the answer and solve for the 2nd part of the problem:

 Did your units cancel so you ended up with the correct unit?

Group Practice:

1. What is the mass in grams of 4.22 x 1021 atoms of tungsten?
2. Calculate the number of atoms in 0.124 g of magnesium.
3. Determine the mass in grams of 1.33 x 1024 atoms of antimony.

**But what if you have a compound???**

**Molar Mass** – the mass in \_\_\_\_ \_\_\_\_\_\_ of a substance.

1. Calculate the molar mass of sodium chloride (NaCl)

Find the mass of each element on the periodic table then multiply the number of atoms of each element in the compound by the mass:

1. Calculate the molar mass of potassium nitrate (KNO3)

Group Practice

1. Find the molar mass of sulfuric acid (H2SO4)
2. Find the molar mass of glucose (C6H12O6)
3. Find the molar mass of sodium hydroxide (NaOH)

Now work some problems with compounds instead of elements:

1. How many grams of carbon disulfide (CS2) do you have if you have 1.35 moles?
2. How many moles of water do you have if you have 9.01g?
3. How many molecules of carbon dioxide are in 15.5 grams of CO2
4. 4.96 x 1024 molecules of glucose (C6H12O6) is how many grams?