







Name: _____ Section: _____

Mole Lab



Objective: you should acquire an understanding of how big a mole is and how small atoms/molecules are by making observations, measurements, and conversions using everyday materials

Materials:


-  Balance
-  Calculator
-  1 Full 0.5 Liter Bottle of Water (+ one empty bottle)
-  2 Aluminum Cans
-  1 Tablespoon of sugar in a container (+ one empty container)
-  1 Penny

Procedures:

1. Sensibly estimate the number of grams, moles, and atoms/molecules for each object and place it in the chart.
2. Use the balance to get the actual mass of your sample. (Be sure to calculate the mass of the empty container and subtract it from the total if necessary.) This will be your starting point.
3. Below the chart, perform the appropriate conversions to get the actual number of moles and atoms/molecules for each sample.
4. Insert your answers into the table (and don't forget to circle atom or molecule).

YOU MUST SHOW ALL WORK WITH UNITS IN ORDER TO GET CREDIT FOR THIS ACTIVITY!


0.5 liter of H₂O

	Estimate	Actual
Grams		
Moles		
Atoms/Molecules (Circle the appropriate one)		

Grams → Moles Conversion

Moles → Atoms/Molecules Conversion


Two aluminum cans

	Estimate	Actual
Grams		
Moles		
Atoms/Molecules (<u>Circle</u> the appropriate one)		

Grams → Moles Conversion

Moles → Atoms/Molecules Conversion

One tablespoon of sugar ($C_{12}H_{22}O_{11}$)


	Estimate	Actual
Grams		
Moles		
Atoms/Molecules (Circle the appropriate one)		

Grams → Moles Conversion

Moles → Atoms/Molecules Conversion

One Penny

All pennies made during the year of 1982 and after are 97.5 percent zinc and 2.5 percent copper (copper-plated zinc)

	Estimate	Actual
Total Grams		
Total Moles* <i>(Moles of Cu + Moles of Zn)</i>		
Total* Atoms/Molecules <i>(Circle the appropriate one)</i> <i>(Atoms/molecules of Cu + atoms/molecules of Zn)</i>		
Grams of <u>Copper</u> <i>(.025)(Grams)</i>		
Moles of <u>Copper</u>		
Atoms/Molecules of <u>Copper</u> <i>(Circle the appropriate one)</i>		
Grams of <u>Zinc</u> <i>(.975)(Grams)</i>		
Moles of <u>Zinc</u>		
Atoms/Molecules of <u>Zinc</u> <i>(Circle the appropriate one)</i>		

*Indicates that you should calculate these values after everything else is completed

Grams → Moles Conversion
(Copper)

Moles → Atoms/Molecules Conversion
(Copper)

Grams → Moles Conversion
(Zinc)

Moles → Atoms/Molecules Conversion
(Zinc)

Total # of Moles

Total # of Atoms/Molecules