

Name: _____ per _____

Lab

Mole Calculations

Purpose: (Write the purpose of this lab after you have completed the lab)

Procedure:

Fill out the table for each of the following substances:

1. Write how you will determine the mass for each substance. Be specific.
2. Record the mass for each substance.
3. Calculate molar mass for the compound. Make sure to show your work.
4. Using the weighed mass and the calculated molar mass determine the moles for each substance.
5. Using the moles for each substance determine the molecules/atoms for each compound.

Results:

Substance	Chemical Formula	Procedure: <i>(Write how you will determine the mass of this substance)</i>	Mass (g)	Molar Mass (g/mol) <i>(Show work)</i>	Moles (mol) <i>(Show work)</i>	Molecules Or atoms <i>(Show work)</i>
~ 1 scoop of salt	NaCl					
1 sugar cube (sucrose)	C ₁₂ H ₂₂ O ₁₁					

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Substance	Chemical Formula	Procedure: <i>(Write how you will determine the mass of this substance)</i>	Mass (g)	Molar Mass (g/mol) <i>(Show work)</i>	Moles (mol) <i>(Show work)</i>	Molecules Or atoms <i>(Show work)</i>
1 piece of Aluminum foil	Al					
1 nail	Fe					
5 mL of water	H ₂ O					

Additional Questions:

1. How many moles of sodium chloride would be present in a 10.0 kg bag of salt?

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2. A sugar cube has sides of length 1.35 cm.
- First calculate the volume.
 - Second, using the recorded mass of a sugar cube (in the table above) and the volume from above, calculate the density. (Hint: Density= mass/volume)

3. The amount of iron required per day for the average person is 15 mg.

a. How many moles of iron is this?

b. How many atoms of iron is this?

4. From the calculated number of atoms in sugar ($C_{12}H_{22}O_{11}$), determine the number of atoms for each of the elements: carbon, hydrogen, and oxygen. How many atoms in total are present?

_____ atoms C

_____ atoms H

_____ atoms O

Conclusion:

- To convert from mass to moles _____ by the _____.
- To convert from moles to mass _____ by the _____.
- To convert from molecules/atoms to moles _____ by _____.
- To convert from moles to molecules/atoms _____ by _____.