**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_**

**H. Chemistry**

**Ch. 8.3-8.4 Lecture Guide**

* The Mole (mol)
	+ Definition:
	+ Avagadro’s number:
		- 1 mole of water =
		- 1 mole of fancy socks =
		- 1 mole of a stampeding armadillos =
* How do we use the mole in chemical calculations?
	+ 12.01 g of C = 1 mole of carbon atoms (6.022 x 1023 C atoms)
	+ 1.008 g of H =
	+ 22.99 g of Na =
	+ 16.00 g of O =
* Bottom line:
* Practice Problems
	+ Calculate both the number of moles of atoms and the number of atoms in a 10.0 g sample of aluminum.
		- Number of moles of atoms:
		- Number of atoms:
	+ Calculate both the number of moles of atoms and the mass of a sample of chromium containing 5.00 x 1020 atoms.
		- Number of moles of atoms:
		- Mass of sample:
* Molar Mass
	+ Definition:
* Calculating Molar Mass:
	+ Ex) The molar mass of CH4:
		- Mass of 1 mol of C =
		- Mass of 4 mol of H =
		- Molar Mass of CH4 =
* Calculating Moles from Mass
	+ Ex) How many water moles are in a 10.0 g sample of water?
		- Step 1: Calculate the molar mass of water.
		- Step 2: Use the appropriate conversion factor to figure out the number of moles.
* Calculating Number of Molecules
	+ Ex) Sucrose, or table sugar, has the formula C12H22O11. How many molecules of sugar are in a 5.00-lb bag of sugar?
		- Step 1: Calculate the molar mass of sucrose.
		- Step 2: Use the appropriate conversion factor to figure out the number of moles of sucrose.
		- Step 3: Use the appropriate conversion factor to figure out the number of molecules of sucrose.