Relative Atomic Mass The Mole

Name: _	KE	1
Date:		

a measure of the amount of matter

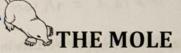
Atomic Mass: the overage mass of all isotopes of a particular element

· Atoms of different elements have different masses

ATOMIC MASS

- The mass of one individual ATOM is extremely small
- A LARGE # of atoms is required to provide enough mass to measure its mass
- A MOLE is a unit that measures the number of atoms that is equivalent to the atomic mass of a particular element.

A mole is used to upscale



Avogadro's Number

1 mole = 6.02214179 x 1023 items **items = atoms/molecules/particles etc Think about the term "dozen".

We can say ... | 1 | 12 | 2 | 3 | ... a dozen eggs = 12 eggs

... a dozen books = 12 books | mol

Similarly,

...a mole of particles = 6.02 x 1023 particles ... a mole of eggs = 6.02×10^{23} eggs

The abbreviation for the unit mole is ______. (do not confuse this with molecules!)

Reminder: All unit conversions must be completed in the chain conversion format!

Example: How many lithium atoms are in 3.2 mol of lithium?

Example: How many oxygen atoms are in 6.02 x 10²³ molecules of oxygen gas?

Practice Problems: USE the Unit Conversion techniques discuss in the previous unit!

1. Find the number of chromium ions in 3.5 mol of chromium ions.

2. How many molecules of sodium chloride are in 0.23 mol NaCl?

3. 7.3 x 10²⁴ carbon monoxide molecules represent how many moles of carbon monoxide?

4. How many moles of argon do 1.81 x 10²² atoms of argon represent?

5. How many moles of hydrogen are there in a mole of water? How many moles of oxygen are there in a mole of water? **Hint:** What is the ration of hydrogen atoms to oxygen atoms?

6. 1.4 x 1018 Ag atoms represent how many moles of atoms?

7. If your body contains 0.0042 mols of Fe ions in a body, how many atoms of Fe are there in this body?