Relative Atomic Mass The Mole

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Name: _	NI	
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Mass:

a measure of the amount of matter

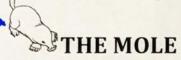
Atomic Mass: the overage mass of all isotopes of a particular element

· 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".

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

... a dozen books = 12 books | Mol

\$6.02 x1023 part =

Similarly, ...a **mole** of particles = 6.02×10^{23} particles

The abbreviation for the unit mole is __mol_. (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?