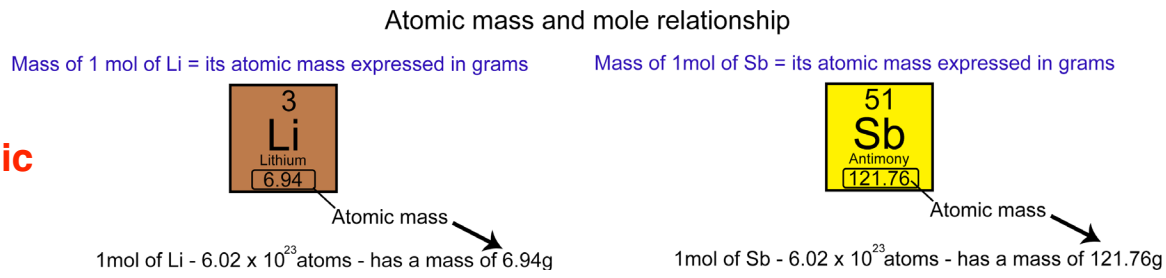
OK, so 1 mole = 6.02 x 10^{23}. Now, there is an interesting relationship between the mole and the atomic mass of an element, such that 1 mole of an element's atoms is equal to the element's atomic mass expressed in grams. As an example, lithium is atomic number 3 and has an atomic mass of 6.94. The mass of 1 mole of lithium atoms is equal to its atomic mass expressed in grams, so 1 mole of lithium has a mass of 6.94g, which means that if I had a chunk of lithium whose mass was *exactly* 6.94g, it would be composed of 6.02 x 10^{23} lithium atoms. Likewise, 1 mole of antimony – which is 6.02 x 10^{23} antimony atoms – has a mass of 121.76g. 1 mole of any element has a mass equal to its atomic mass in grams.

New Graphic



This relationship is known as the molar mass. From a definition standpoint, **molar mass** is the mass of a substance divided by the amount of the substance in moles, so the units of molar mass are g/mol. However, practically, the molar mass of an element is its atomic mass expressed in g/mol. For the two examples above, 6.94g of Li is 1 mole of lithium, so the molar mass of Li is 6.94g ÷ 1mol = 6.94g/mol. For antimony, 121.76g of antimony is equal to 1mol of Sb, so its molar mass is 121.86g ÷ 1mol = 121.76g/mol.