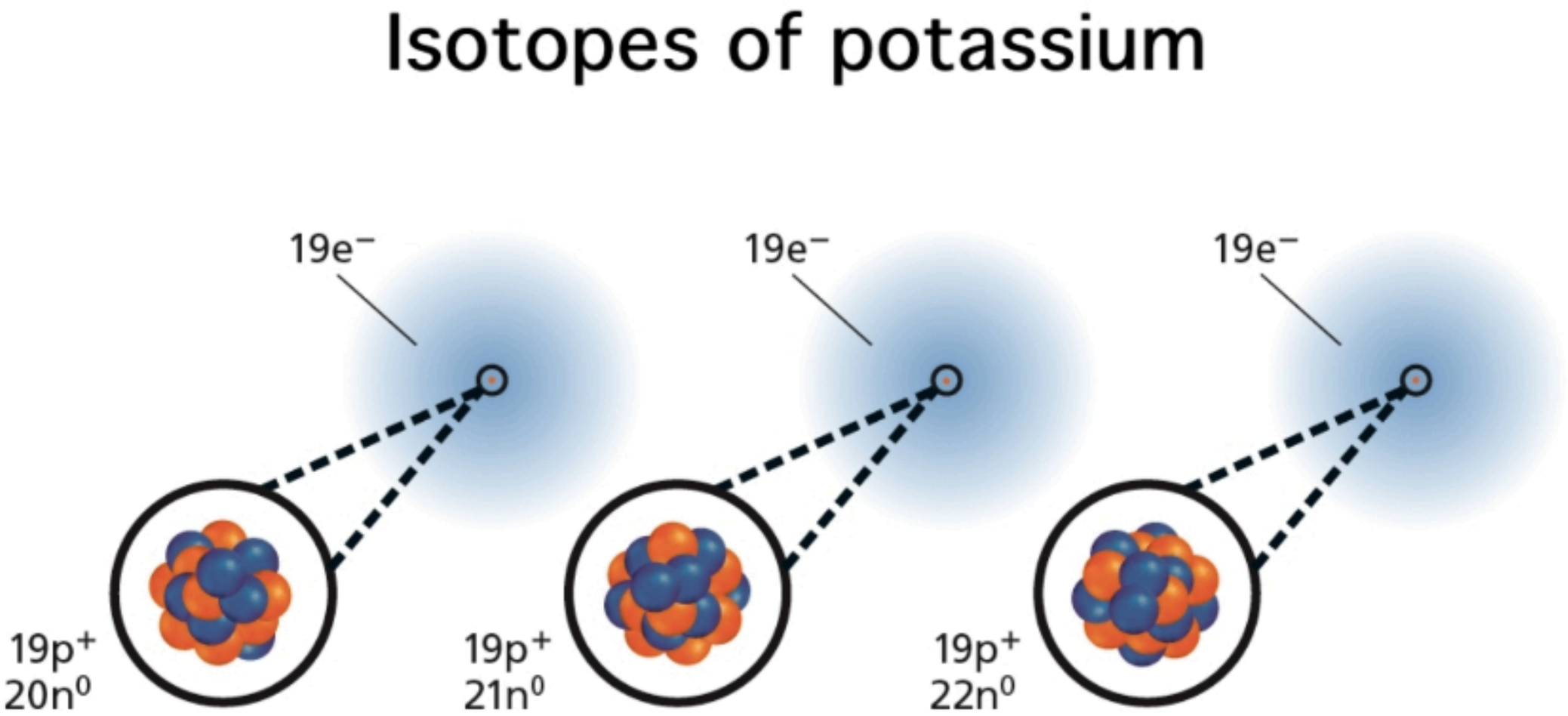
Isotopes and Atomic Mass

Isotope - atoms of the same element with different numbers of neutrons

***note - because isotopes have the same number of protons, they have identical chemical properties**

Example:



Various symbolic notations for isotopes:

$^{39}_{19}K$	$^{40}_{19}K$	$^{41}_{19}K$
or		
potassium-39	potassium-40	potassium 41
or		
K-39	K-40	K-41

<u>Atomic Mass</u> -

Remember that the mass of
1 proton ~ 1 neutron

Scientists have defined a unit that is the average mass of these two nucleons called the

<u>a</u>tomic <u>m</u>ass <u>u</u>nit (amu)

1 amu = 1/12 the mass of a carbon-12 isotope

Important definition!

Atomic mass: the weighted average mass of all the isotopes of an element

Important definition!

General Formula for calculating a weighted average:

a%(A) + b%(B) + c%(C)…

Example Problem:
Use the information below to calculate the atomic mass for magnesium.

We will solve this in class!

Isotope	Percent Abundance	Mass
Mg-24	78.70 %	23.99 amu
Mg-25	10.13 %	24.99 amu
Mg-26	11.17 %	25.94 amu

Where can you go to check that your answer is correct?