KEY

Isotopes or Different Elements?

Isotopes have the same PROTONS *and* ELECTRONS *but different number of* NEUTRONS.

1. Element D has 6 protons and 7 neutrons.
   Mass number 13 Element Carbon
   Element F has 7 protons and 7 neutrons.
   Mass number 14 Element Nitrogen

   Different Elements

2. Element G has 27 protons and 7 neutrons.
   Mass number 34 Element Cobalt
   Element H has 27 protons and 7 neutrons.
   Mass number 34 Element Cobalt

   Same

3. Element I has 17 protons and 7 neutrons.
   Mass number 24 Element ~~Cla~~ Chlorine
   Element J has 18 protons and 7 neutrons.
   Mass number 25 Element Argon

   ~~Isotopes~~ Different Elements

4. Element K has 56 protons and 7 neutrons.
   Mass number 63 Element Barium
   Element L has 56 protons and 7 neutrons.
   Mass number 63 Element Barium

   Same

5. Element M has an atomic number of 20 and atomic mass of 40.
   protons 20 neutrons 20 Element Calcium

   Element N has an atomic number of 20 and atomic mass of 41.
   protons 20 neutrons 21 Element Calcium

   Isotopes

6. Element O has an atomic number of 92 and atomic mass of 238.
   protons 92 neutrons 146 Element Uranium

   Element P has 92 protons and 143 neutrons. Element Uranium

   Isotopes

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Handout 2

More Atomic Structure & Isotopes

Atomic number = number of protons **= element**

Mass number = number of protons + neutrons

Neutron number= Mass number - proton #

Charge = proton # - electron #

When Charge = 0, proton # and electron # must be the SAME

When there is a POSITIVE charge, there are MORE protons than electrons.

When there is a NEGATIVE charge, there are MORE electrons than protons.

Substance	Symbol	Atomic #	Proton #	# of Neutrons	Mass #	Proton #	# of electrons	p-e = charge	+/- ion or neutral or isotope
Potassium	K	19	19	21	40	19	18	+1	+1 ion
Strontium	Sr	38	38	50	88	38	36	+2	+2 ion
Phosphorus	P	15	15	17	32	15	15	0	neutral
Phosphorus	P	15	15	16	31	15	15	0	neutral
Bromine	Br	35	35	46	81	35	36	-1	-1 ion
Lithium	Li	3	3	4	7	3	2	+1	+1 ion
Phosphorus	P	15	15	17	32	15	15	0	neutral
Chlorine	Cl	17	17	19	36	17	18	-1	-1 ion
Carbon	C	6	6	6	12	6	7	-1	-1 ion
Carbon	C	6	6	7	13	6	6	0	neutral

isotope

isotopes

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