

Atomic Structure Lab – Journey into the Atom

(Protons = Black Beans) (Neutrons = White Beans) (Electrons = Popcorn)

Bag #	# of Protons (+)	# of Neutrons	# of Electrons (-)	Atomic Number (# of P)	Mass Number (P + N)	Electrical Charge (P + E)	Chemical Symbol	Name
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

Define the following terms:

1. Atomic Mass -
2. Mass Number -
3. Atomic Number -
4. Isotope -
5. Ion -
6. List all sets of isotopes. How do you know they are isotopes?
7. List all sets of ions. How do you know they are ions?

mass number

charge

23

+

Na

11

atomic number

symbol

Set A	Set B
Determine the numbers of protons, neutrons, and electrons in each atom or ion.	Determine the numbers of protons, neutrons, and electrons in each atom or ion.
1) ${}_{12}^{24}\text{Mg}$	A) ${}_{13}^{27}\text{Al}$
2) ${}_{12}^{24}\text{Mg}^{2+}$	B) ${}_{13}^{27}\text{Al}^{3+}$
3) ${}_{27}^{59}\text{Co}^{2+}$	C) ${}_{29}^{63}\text{Cu}$
4) ${}_{27}^{59}\text{Co}^{3+}$	D) ${}_{29}^{63}\text{Cu}^{1+}$
5) ${}_{27}^{59}\text{Co}$	E) ${}_{29}^{63}\text{Cu}^{2+}$
6) ${}_{34}^{79}\text{Se}$	F) ${}_{35}^{79}\text{Br}$
7) ${}_{34}^{79}\text{Se}^{2-}$	G) ${}_{35}^{81}\text{Br}$
8) ${}_{28}^{63}\text{Ni}$	H) ${}_{50}^{118}\text{Sn}^{2+}$
9) ${}_{28}^{59}\text{Ni}^{2+}$	I) ${}_{11}^{23}\text{Na}^{+}$
10) ${}_{82}^{207}\text{Pb}$	J) ${}_{48}^{110}\text{Cd}^{2+}$
11) ${}_{82}^{207}\text{Pb}$	K) ${}_{33}^{75}\text{As}^{3-}$
12) ${}_{82}^{207}\text{Pb}^{2+}$	L) ${}_{8}^{18}\text{O}^{2-}$
13) ${}_{52}^{128}\text{Te}^{2-}$	M) ${}_{88}^{226}\text{Ra}$
14) ${}_{92}^{238}\text{U}^{2+}$	N) ${}_{80}^{200}\text{Hg}^{2+}$
15) ${}_{94}^{238}\text{Pu}$	O) ${}_{1}^{2}\text{H}^{+}$