

## +WS 2.1 Protons, Neutrons, Electrons

1. Fill in the table below with the correct numbers (first one is done as an example)

symbol	name	atomic number	mass number	charge	# of particles in nucleus	# of protons	# of neutrons	# of electrons
${}_{11}^{23}\text{Na}$	sodium-23	11	23	0	23	11	12	11
${}_{29}^{60}\text{Cu}$								
	gold - 198							
${}_{19}^{39}\text{K}$								
${}_{19}^{41}\text{K}$								
${}_{19}^{41}\text{K}^{1+}$								
		12	25	0				
		36					42	36
				1-	35			18
						7	7	10
				1+	1			
					238	92		92
${}^{14}\text{C}$								

- How many n's are there in an atom of P-33? \_\_\_\_ How many p's in an  $\text{Fe-58}^{3+}$  ion? \_\_\_\_
- How many total particles (p, n & e's) are in an O-16 atom? \_\_\_\_ In a  $\text{F-19}^{1-}$  ion? \_\_\_\_
- All chromium particles must have the same number of (p, n or e?) \_\_\_\_
- (p, n, or e?) The # of \_\_\_\_ determines what element a particle is, the # of \_\_\_\_ determines what isotope of that element, and the # of \_\_\_\_ determines the particle's overall charge.
- An atom has a mass # of 62 and has 33 neutrons; what element is this atom?
- A particle has 13 p, 14 n, and 10 e; what is its mass #? \_\_\_\_ What is the particle's charge? \_\_\_\_ What element is it? \_\_\_\_
- A particle has 35 p, 45 n, and 36 e; what is its mass #? \_\_\_\_ What is the particle's charge? \_\_\_\_ What element is it? \_\_\_\_
- If a mercury-198 atom were to lose a proton, it would become a \_\_\_\_.
- If two lithium-6 atoms fused (joined together), it would create a \_\_\_\_.
- If a thorium-234 atom absorbed a neutron, it would become a \_\_\_\_.
- If a uranium-238 atom were split into two equal halves, it would make two \_\_\_\_.

Ans (IRO+2; no names for #1): 0 0 0 0 0 0 0 0 0 3- 3+ 1- 1+ 1 1 1 6 6 6 7 8 12 12 13 14 14 14 14 17 17 18 18 18 19 19 19 19 19 19 19 19 20 22 22 24 25 26 27 27 29 29 29 29 31 35 36 39 39 41 41 41 41 60 60 78 78 79 79 79 80 90 92 119 146 198 198 238

p p n e  ${}^1_1\text{H}^{1+}$   ${}^{12}_6\text{C}$   ${}^{14}_7\text{N}^{3-}$   ${}^{25}_{12}\text{Mg}$  Al  ${}^{35}_{17}\text{Cl}^{1-}$  Cu  ${}^{78}_{36}\text{Kr}$   ${}^{119}_{46}\text{Pd}$  Br  ${}^{197}_{79}\text{Au}$   ${}^{198}_{79}\text{Au}$   ${}^{235}_{90}\text{Th}$   ${}^{238}_{92}\text{U}$