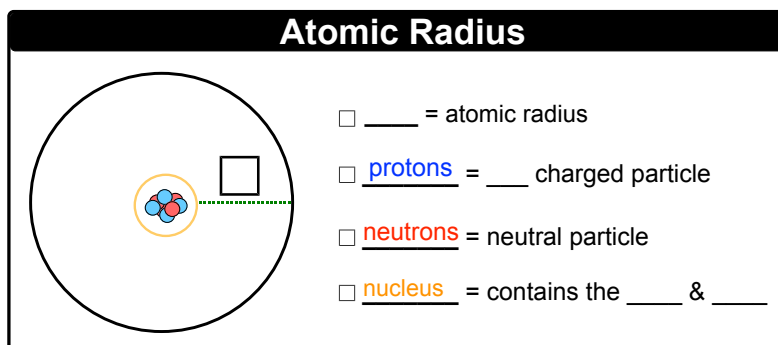


CONCEPT: PERIODIC TREND: ATOMIC RADIUS (SIMPLIFIED)

- **Atomic radius:** Distance between an atom's nucleus and its outer electron shell (valence shell).



- Going down a **group** ____ number of electrons and ____ number of electron shells.
- Moving across a **period** ____ number of electrons within the same electron shell.
 - ____ electrons in same shell = ____ attraction with nucleus = slight decrease in atomic radius
- **Periodic Trend:** Atomic Radius ____ moving from left to right across a period and going up a group.

Atomic Radius ____																	
1A (1)	2A (2)	3B (3)	4B (4)	5B (5)	6B (6)	7B (7)	8B (8) (9) (10)	1B (11)	2B (12)	3A (13)	4A (14)	5A (15)	6A (16)	7A (17)	8A (18) (8)		
1 H 1 37 pm																	
2 Li 3 152 pm	Be 4 112 pm									B 5 85 pm	C 6 77 pm	N 7 75 pm	O 8 73 pm	F 9 72 pm	Ne 10 70 pm		
3 Na 11 186 pm	Mg 12 160 pm									Al 13 143 pm	Si 14 117 pm	P 15 110 pm	S 16 104 pm	Cl 17 99 pm	Ar 18 98 pm		
4 K 19 227 pm	Ca 20 197 pm									Ga 31 135 pm	Ge 32 123 pm	As 33 120 pm	Se 34 117 pm	Br 35 114 pm	Kr 36 112 pm		
5 Rb 37 248 pm	Sr 38 215 pm									In 49 166 pm	Sn 50 140 pm	Sb 51 141 pm	Te 52 143 pm	I 53 133 pm	Xe 54 131 pm		
6 Cs 55 265 pm	Ba 56 222 pm									Tl 81 171 pm	Pb 82 175 pm	Bi 83 155 pm	Po 84 164 pm	At 85 142 pm	Rn 86 140 pm		
7 Fr 87 348 pm	Ra 88 283 pm																

- The electron arrangements for the transition metals makes their pattern less predictable.

EXAMPLE: Which one of the following atoms has the largest atomic radius?

- a) K b) Rb c) Y d) Ca e) Sr

CONCEPT: PERIODIC TREND: ATOMIC RADIUS

PRACTICE: Which alkaline earth metal has the smallest atomic radius?

- a) Ca b) Rb c) Na d) Ra e) Fr

PRACTICE: Which alkaline earth metal has the largest atomic radius?

- a) Na b) Ba c) Cl d) Mg e) Li

PRACTICE: Arrange the following atoms in order of decreasing atomic radius: Sr, Se, Ne, Ga

- a) Ne > Se > Ga > Sr
b) Ga > Se > Ne > Sr
c) Sr > Ga > Se > Ne
d) Se > Ne > Ga > Se