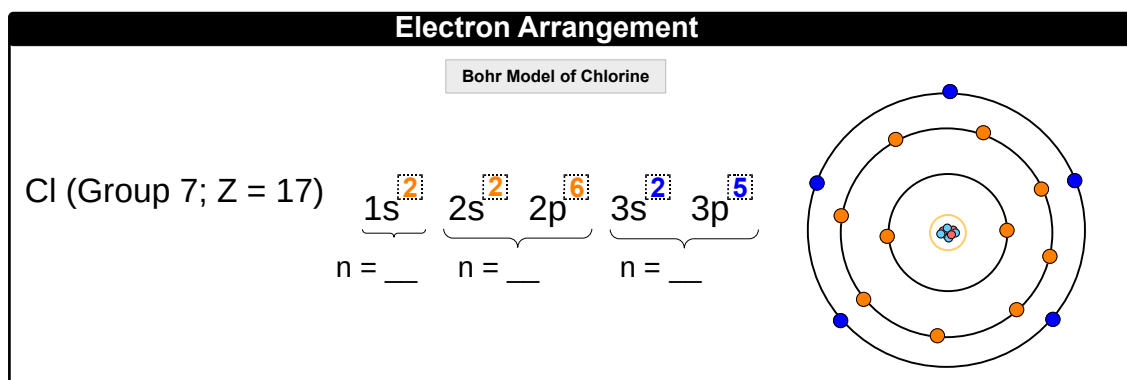


CONCEPT: VALENCE ELECTRONS OF ELEMENTS

Main Group Elements

- For Main Group Elements, number of *valence electrons* = _____.
- Valence Electrons:** _____ shell electrons involved in forming chemical bonds.
- Inner Core Electrons:** Remaining Electrons that are not valence electrons.
 - _____ (Atomic #, Z) = **Valence Electrons** + **Inner Core Electrons**



EXAMPLE: How many inner core and valence electrons would a silicon atom possess?

Transition Metals

- For Transition Metals, number of Valence Electrons = _____ + _____ electrons.

Periodic Table (Transition Metals)										
	3B	4B	5B	6B	7B	8B		1B	2B	
Valence e ⁻										
Period 4	21 Sc <i>4s²3d¹</i>	22 Ti <i>4s²3d²</i>	23 V <i>4s²3d³</i>	24 Cr <i>4s¹3d⁵</i>	25 Mn <i>4s²3d⁵</i>	26 Fe <i>4s²3d⁶</i>	27 Co <i>4s²3d⁷</i>	28 Ni <i>4s²3d⁸</i>	29 Cu <i>4s¹3d¹⁰</i>	30 Zn <i>4s²3d¹⁰</i>
Period 5	39 Y <i>5s²4d¹</i>	40 Zr <i>5s²4d²</i>	41 Nb <i>5s¹4d⁴</i>	42 Mo <i>5s¹4d⁵</i>	43 Tc <i>5s²4d⁵</i>	44 Ru <i>5s¹4d⁷</i>	45 Rh <i>5s¹4d⁸</i>	46 Pd <i>4d¹⁰</i>	47 Ag <i>5s¹4d¹⁰</i>	48 Cd <i>5s²4d¹⁰</i>
Period 6	57 La <i>6s²5d¹</i>	72 Hf <i>6s²5d²</i>	73 Ta <i>6s²5d³</i>	74 W <i>6s²5d⁴</i>	75 Re <i>6s²5d⁵</i>	76 Os <i>6s²5d⁶</i>	77 Ir <i>6s²5d⁷</i>	78 Pt <i>6s¹5d⁹</i>	79 Au <i>6s¹5d¹⁰</i>	80 Hg <i>6s²5d¹⁰</i>
Period 7	89 Ac <i>7s²6d¹</i>	104 Rf <i>7s²6d²</i>	105 Db <i>7s²6d³</i>	106 Sg <i>7s²6d⁴</i>	107 Bh <i>7s²6d⁵</i>	108 Hs <i>7s²6d⁶</i>	109 Mt <i>7s²6d⁷</i>	110 Ds <i>7s²6d⁸</i>	111 Rg <i>7s¹6d¹⁰</i>	112 Cn <i>7s²6d¹⁰</i>

EXAMPLE: How many valence electrons would the manganese (V) ion possess?

CONCEPT: VALENCE ELECTRONS OF ELEMENTS

PRACTICE: How many core electrons does the gallium atom possess?

PRACTICE: Provide the number of valence electrons in the iron (III) ion.

PRACTICE: Which of the following have their valence electrons in the same shell?

a) Mg, Al, Cl

b) B, Si, As

c) N, As, Bi

d) He, Ne, F