



DIET PALAKKAD

INTER BELL 2.0



HS Chemistry
STD x

07-07-2021

WEDNESDAY

Peculiarity of the electronic configuration of chromium (Cr) and copper (Cu)

➔ Subshell electronic configuration

*
 $_{24}\text{Cr}$ Chromium- $1s^2 2s^2 2p^6 3s^2 3p^6 3d^4 4s^2$

*
 $_{29}\text{Cu}$ Copper- $1s^2 2s^2 2p^6 3s^2 3p^6 3d^9 4s^2$

➔ The stable subshell electronic configuration

*
 $_{24}\text{Cr}$ Chromium- $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$

*
 $_{29}\text{Cu}$ Copper- $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$

For the subshell electronic configurations of chromium and copper, the configurations with half filled d subshell or completely filled d subshell show greater stability.

Subshell electronic configuration and blocks


Based on subshell electronic configuration, elements are classified into four blocks **s, p, d, f**

s block		d block										p block					
1 2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Li	Be	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	B	C	N	O	F	Ne
Na	Mg	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	Al	Si	P	S	Cl	Ar
K	Ca	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	In	Sn	Sb	Te	I	Xe
Cs	Ba											Tl	Pb	Bi	Po	At	Rn
Fr	Ra											Nh	Fl	Mc	Lv	Ts	Og
		f block															
		Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu		

www.youtube.com/itsvieters
www.firstbell.kit.edu.in
10:30 pm

➔ Period and Group can be found out on the basis of subshell electronic configuration

Element	Sub shell Electronic Configuration	Sub shell to which last electron is added	Shell no. of outermost shell	No. of electrons in outermost sub shell	Group No.	Period No.
${}_3\text{Li}$	$1s^2 2s^1$	s	2	1	1	2
${}_{11}\text{Na}$	$1s^2 2s^2 2p^6 3s^1$	s	3	1	1	3
${}_{20}\text{Ca}$	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$	s	4	2	2	4

 www.youtube.com/itsvicters
 www.firstbell.kite.kerala.gov.in

*For s block elements

Group number- The number of electrons in outermost **s** subshell

Period number-Number of outermost shell

Element	Sub shell Electronic Configuration	Sub shell to which last electron is added	Shell no. of outermost shell	No. of electrons in outermost sub shell	Group No.	Period No.
${}^3\text{Li}$	$1s^2 2s^1$	s	2	1	1	2
${}^{11}\text{Na}$	$1s^2 2s^2 2p^6 3s^1$	s	3	1	1	3
${}^{20}\text{Ca}$	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$	s	4	2	2	4

www.youtube.com/itsvicters
www.firstbell.kite.kerala.gov.in

*For p block elements

Group number- $12 +$ number of electrons in outermost p subshell

Period number- Number of outermost shell

ASSIGNMENT

The atomic number of an element Y is 17.

1) Write the subshell electronic configuration of the element.

2) Find the period, group and block .

DIET