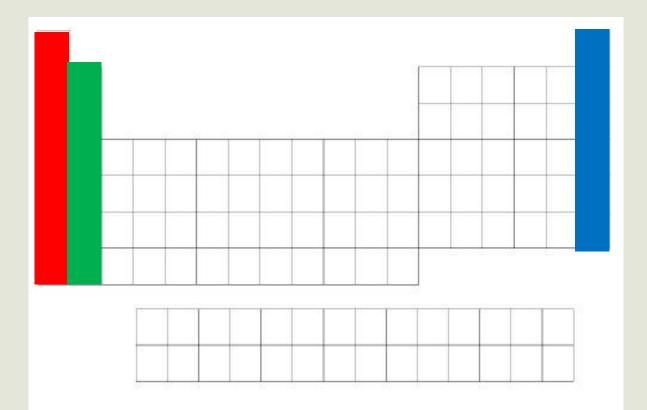


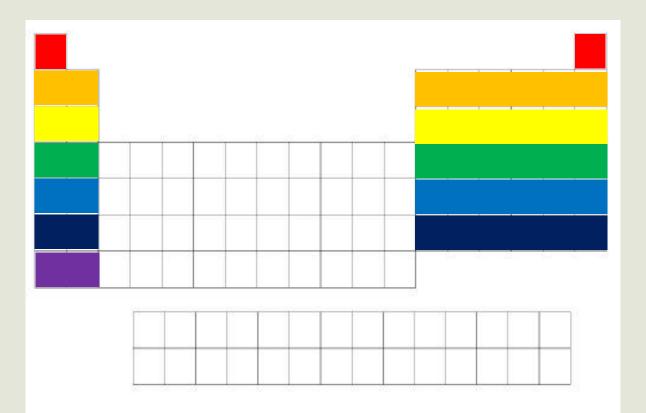
The Groups of the Periodic Table

■ The <u>columns</u> of the periodic table are called **groups**



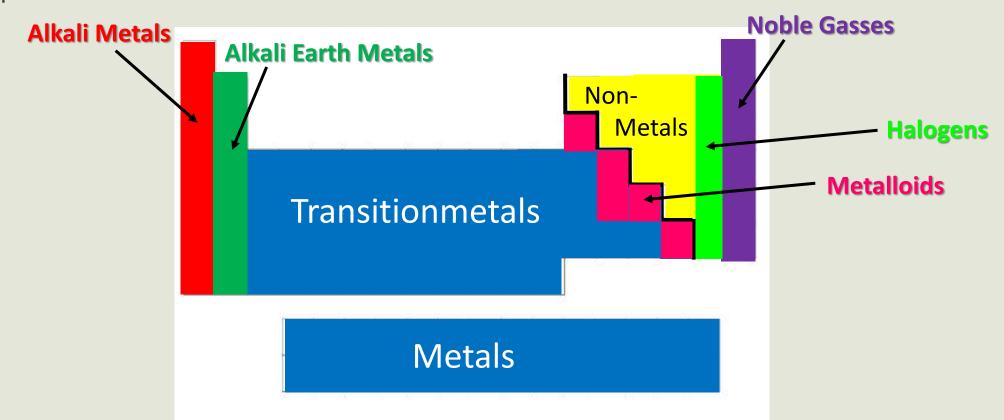
The Periods of the Periodic Table

■ The <u>rows</u> of the periodic table are called <u>periods</u>

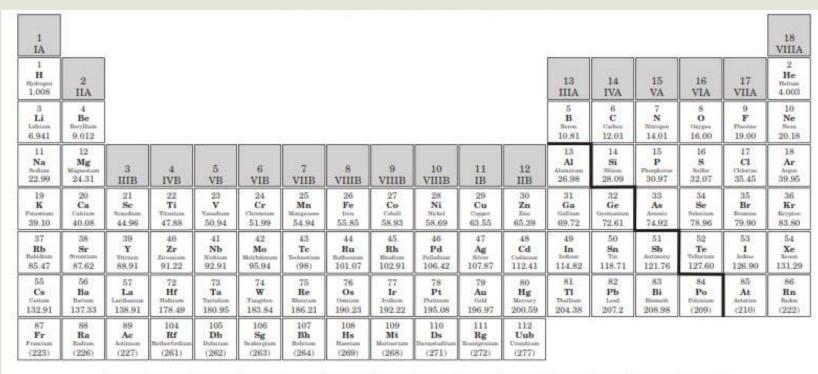


What type of element is it?

 We can tell what type of element it is simply by where it is located on the periodic table



How does atomic number change?



Low

| 58 Ce Certuni 140,12 | 59 Pr Procedulan 140.91 | 60 Nd Sustanian 144.24 | 61 Pm Prometricas (145) | 62 Sm Smartin 150.36 | 63 Eu Europian 151.96 | 64 Gd Gabbinum 157.25 | 65 Tb Tertion 158,93 | 66 Dy Dysproison 162,50 | 67 Ho Bolman 164.93 | 68 Er min 167.26 | 69 Tm Thulan 168,93 | 70 Yb Viorium 173.04 | Lu Lutedine 174.97 |
|-------------------------------|----------------------------------|---------------------------------|----------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|----------------------------------|------------------------------|------------------------|------------------------------|-------------------------------|--------------------------|
| 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | No | 103 |
| Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Md | No | Lr |
| Therian | Protectiatum | Urasium | Septuatum | Botonian | American | Curtuin | Berkeltin | Californium | Ensteinen | Perman | Mondelectum | Selsion | Lavrencium |
| 232.04 | 231.04 | 238.04 | (237) | (244) | (243) | (247) | (247) | (251) | (252) | (257) | (258) | (254) | (262) |

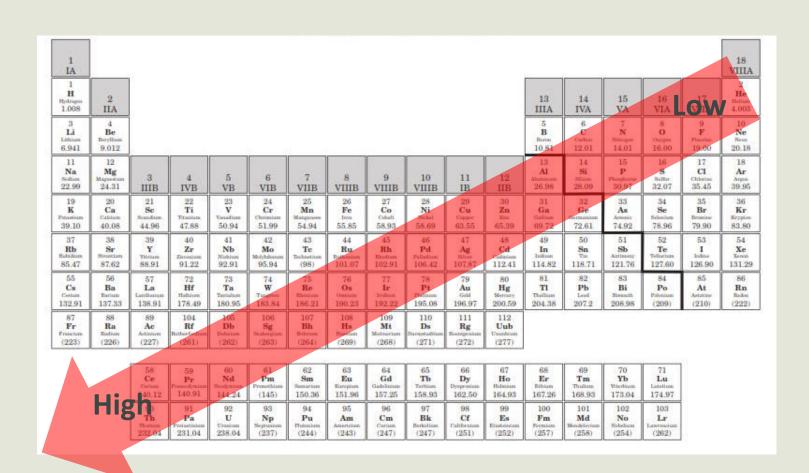
How does atomic mass change?

| 1 IA | | ř | | | | | | | | | | | | | | | 18 VIII |
|---------------------------------------|---------------------------------|-------------------------------|-------------------------------------|-------------------------------|----------------------------------|--------------------------------|---------------------------------|--------------------------------|----------------------------------|----------------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|---------------------------------|-------------------------------|----------------------------|
| H H Hydrogen 1.008 | 2 IIA | e e | | | | | | | | | | 13 IIIA | 14 IVA | 15 VA | 16 VIA | 17 VIIA | He Heltur 4.003 |
| Li Lithium 6.941 | 4 Be flerylines 9,012 | | | | | | | | | | | 5 B Beron 10.81 | 6 C Carten 12.01 | 7 N Stiruges 14,01 | 8 O Ourges 16.00 | 9 F Flucture 19.00 | 10 Ne Sees 20.1 |
| 11 Na Sodara 22.99 | Mg Mg Magnasium 24.31 | 3 ШВ | 4 IVB | 5 VB | 6 VIB | 7 VIIB | 8 VIIIB | 9 VIIIB | 10 VIIIB | 11 IB | 12 IIB | Al Al Aluminum 26.98 | 14 Si Siton 28.09 | 15 P Phospherus 30.97 | 16 S Salter 32.07 | 17 C1 Chlorine 35.45 | 18 Ar Argsa 39.90 |
| 19 K Petawian 39.10 | 20 Ca Calcium 40.08 | 21 Sc Scoodum 44.96 | Ti Transiers 47.88 | V Venetion 50.94 | 24 Cr (hresian 51,99 | 25 Mn Marginers 54.94 | 26 Fe Ima 55.85 | 27 Co Cutalt 58.93 | 28 Ni Nickel 58.69 | 29 Cu Cupper 63.55 | 30 Zn Zn 65.39 | 31 Ga Gallian 69.72 | 32 Ge Gemanum 72.61 | 33 As Armenic 74.92 | 34 Se 56.96 | 35 Br 79,90 | 36 Kr Krypte 83.8 |
| 37 Rb flabilism 85.47 | 38 Ser Strootian 87.62 | 39 Y Turum 88,91 | 40 Zr Zimminn 91.22 | Nb Nb Notion 92.91 | Mo Mo Molyhdanum 95.94 | 43 Te Technetium (98) | 44 Ru Bathanian 101.07 | Rh Bhadian 102.91 | 46 Pd Palladiani 106.42 | 47 Ag Shiri 107.87 | 48 Cd Cadarium 112.41 | 49 In Intime 114.82 | 50 Sn Tm 118.71 | 51 Sb Antimony 121.76 | 52 Te Tellution 127.60 | 53 I lodine 126.90 | 54 Xe Xens 131.3 |
| 55 Cs Cesture 132.91 | 56 Ba Barran 137.33 | 57 La Lachann 138.91 | 72 Hf Heltism 178.49 | 73 Ta Tatalan 180.95 | 74 W Tungster 183.84 | 75 Re Ebenium 186.21 | 76 Os Osmiris 190.23 | 77 Ir Irdian 192.22 | 78 Pt Palisson 195.08 | 79 Au Gast 196.97 | 80 Hg Nemary 200.59 | 81 TI Thellium 204.38 | 82 Pb Lead 207.2 | 83 Bi Bissuth 208.98 | 84 Po Printen (209) | 85 At Autoline (210) | 86 Rn holo (222 |
| 87 Fr Francium (223) | 88 Ra Baltun (226) | 89 Ac Admini (227) | 104 Rf Butherfeelium (261) | 105 Db Dubrium (262) | 106 Sg Seaborgian (263) | 107 Bh Bshrian (264) | 108 Hs ffasten (269) | 109 Mt Metoeran (268) | Ds Ds Damptathium (271) | 111 Rg Sostopolim (272) | Uub Unsobian (277) | OLD IV CONTO | | | | | |

Low

| 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 |
|-------------------------------|-------------------------------------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|------------------------------|--------------------------------|----------------------------------|--------------------------------|------------------------------|----------------------------------|------------------------------|----------------------------------|
| 58 Ce Certum 140,12 | Pr Procedynian 140.91 | Nd Nd Nostymus 144.24 | Pm Promethicus (145) | Sm Smartin 150.36 | | Gd Gatelmun 157.25 | Tb Terbina 158,93 | Dy Dyspensium 162,50 | 67 Ho Bolision 164.93 | Er fistion 167.26 | 69 Tm Thulism 168,93 | Yb Viterbiani 173.04 | 71 Lu Latetius 174.97 |
| 90 Th Therian 232.04 | 91 Pa Protectistion 231.04 | 92 U Unatum 238.04 | 93 Np Neptunian (237) | 94 Pu Butonism (244) | 95 Am American (243) | 96 Cm Curtain (247) | 97 Bk Berkelian (247) | 98 Cf Californium (251) | 99 Es Ensteinen (252) | 100 Fm Perman (257) | 101 Md Modelectum (258) | No No Setstan (254) | 103 Lr Lavrentium (262) |

How does atomic radius change?

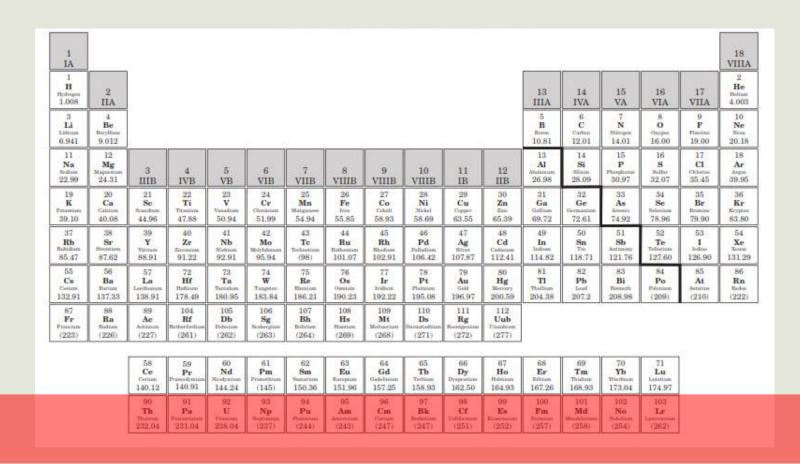


How does number of electron shells change?

Low

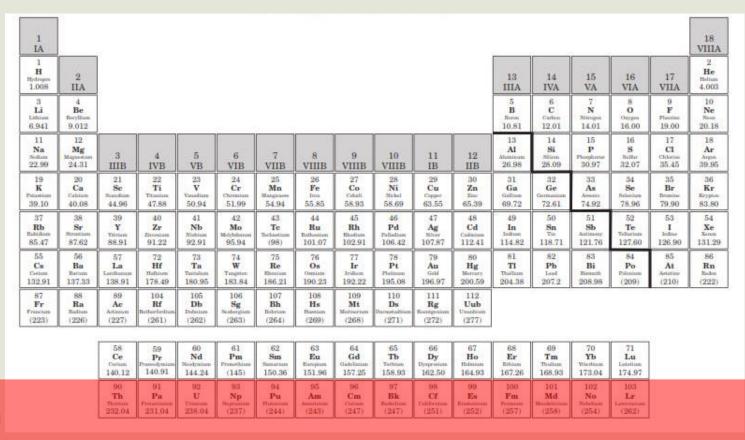
| 1 IA | | 2 | | | | | | | | | | | | 2-0 | | | 18 VIIIL |
|-------------------------------|---------------------------------|---------------------------------|-------------------------------------|--------------------------------|----------------------------------|--------------------------------|---------------------------------|---------------------------------|------------------------------------|----------------------------------|---------------------------------|--------------------------------|----------------------------------|--------------------------------------|---------------------------------|-------------------------------|----------------------------|
| H H Hydrogen 1.008 | 2 IIA | | | | | | | | | | | 13 IIIA | 14 IVA | 15 VA | 16 VIA | 17 VIIA | He Helton 4.000 |
| 3 Li Lithium 6.941 | 4 Be fieryllians 9.012 | | | | | | | | | | | 5 B Berm 10.81 | 6 C Curten 12.01 | 7 N Nitrogen 14,01 | 8 O Oaygen 16.00 | 9 F Fluorine 19.00 | 10 Ne Neus 20.18 |
| 11 Na 5-dan 22.99 | Mg Mg Magnadian 24.31 | 3 IIIB | 4 IVB | 5 VB | 6 VIB | 7 VIIB | 8 VIIIB | 9 VIIIB | 10 VIIIB | 11 IB | 12 IIB | Al Al Aluminum 26.98 | 14 Si Sitem 28.09 | 15 P Phospherus 30.97 | 16 S Buller 32.07 | 17 CI Chlorine 35.45 | 18 Ar Argas 39.96 |
| 19 K Patawian 39.10 | 20 Ca Calcium 40.08 | 21 Sc Scandan 44.96 | 22 Ti Transa 47.88 | 23 V Vanation 50.94 | 24 Cr (hrmium 51,99 | 25 Mn Margiore 54.94 | 26 Fe Ima 55.85 | 27 Co Cutalt 58.93 | 28 Ni Nickel 58.69 | 29 Cu Cupper 63.55 | 30 Zn Zno 65.39 | 31 Ga Gallian 69.72 | 32 Ge 5 | 33 As America 74.92 | 34 Se 5-feetum 78.96 | 35 Br Branine 79,90 | 36 Kr Krypta 83.8 |
| Rb Rb Rdsisim 85.47 | 38 Sr Strootion 87.62 | 39 Y Tristans 88,91 | 40 Zr Zimium 91.22 | Nb Notion 92.91 | 42 Mo Molybdistum 95.94 | 43 Te Technetium (98) | 44 Ru Bathessan 101.07 | Rh Bhodian 102.91 | 46 Pd Felletians 106.42 | 47 Ag Short 107.87 | 48 Cd Caderium 112.41 | 49 In Intime 114.82 | 50 Sn Tm 118.71 | 51 Sb Antimory 121.76 | 52 Te Tellution 127.60 | 53 I lodne 126.90 | 54 Xe Xense 131.2 |
| 55 Cs Cstus 132.91 | 56 Ba Banan 137.33 | 57 La tanthanan 138.91 | 72 Hf Rahism 178.49 | 73 Ta Tentalme 180.95 | 74 W Tungster 183.84 | 75 Re menion 186.21 | 76 Os Ossians 190.23 | 77 Ir Iridism 192.22 | 78 Pt Pairing 195.08 | 79 Au Geld 196.97 | 80 Hg Nemes 200.59 | 81 TI Thallian 204.38 | 82 Pb Lead 207.2 | 83 Bi Bisseth 208.98 | 84 Po Position (209) | 85 At Astatine (210) | 86 Rn fisks (222 |
| 87 Fr Fraction (223) | 88 Ra Baltum (226) | S9 Ac Admired (227) | 104 Rf Butherfeelium (261) | 105 Db Didutum (262) | 106 Sg Subergian (263) | 107 Bh Behrium (264) | 108 Hs Massian (269) | 109 Mt Metternin (268) | 110 Ds Darmetallium (271) | 111 Rg Econgraism (272) | Uub Uuchian (277) | ALL IV CASTON | | | | | |
| | | 58 Ce Certusi 140.12 | 59 Pr Pracedynian 140.91 | 60 Nd Nastrana 144.24 | 61 Pm Prosettion (145) | 62 Sm Samerum 150.36 | 63 Eu Empire 151.96 | 64 Gd Gatolmun 157.25 | 65 Tb Terhan 158,93 | 66 Dy Dyspresien 162,50 | 67 Ho Bolonium 164.93 | 68 Er Ertsun 167.26 | 69 Tm Trulism 168,93 | 70 Yb Vierbum 173.04 | 71 Lu Lutetium 174.97 | | |
| | | 90 Th Therian 232.04 | 91 Pa Protections 231.04 | 92 U Urasian 238.04 | 93 Np Neptunium (237) | 94 Pu Pusahan (244) | 95 Am Americian (243) | 96 Cm Curium (247) | 97 Bk Berkelium (247) | 98 Cf Californium (251) | 99 Es Ensteinten (252) | 100 Fm Promiss (257) | 101 Md Mmdeleylum (258) | No No Selection (254) | 103 Lr Lavrendum (262) | | |

How does the number of valence electrons change?



Low

How does reactivity change?



High

Low