

Groups, Periods and Blocks

The periodic table can also be divided into groups and periods

Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Period	1	1 H																2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba	57 La	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra	89 Ac	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
				58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
				90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

Groups – 18 groups in the periodic table, going down in columns

Periods – 7 periods in the periodic table, going across in rows

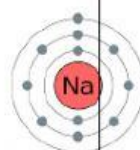
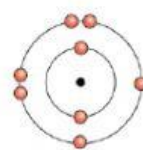
Example: What element is in group 16, period 6? Pb, Lead

Period number is number of shells.

1 shell

2 shells

3 shells



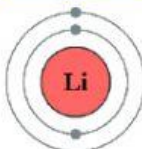
Period 1

Period 2

Period 3

End number of group number is valence electrons (Electrons in last shell). Only for groups 1, 2, 13, 14, 15, 16, 17, 18.

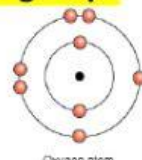
Group 1
16



Group 13



Group



Oxygen atom

1 valence electron

3 valence electrons

6 valence electrons

Group 1 - Alkali metals – Extremely reactive. Most reactive metal. Lithium used for batteries.

Group 2 - Alkaline earth metals – highly reactive. Magnesium used in laptops.

Transition Metals - They are usually hard and dense materials. High melting points and boiling points.

Metalloids - have properties of both metals and nonmetals, used in solar cells and computer chips.

Non-metals - usually gases or dull, brittle solids. Bad conductors of heat and electricity.

Group 17 - Halogens - highly reactive. Most reactive nonmetals. F used in toothpaste

Group 18 - Noble gases - unreactive because they have full shell of electrons. Used in lasers and neon lights bulbs.

Lanthanides – emit light when hit by electrons

Actinides – used in nuclear power.

1																	17	18														
1 H Hydrogen 1.008																	2 He Helium 4.002															
3 Li Lithium 6.941	4 Be Beryllium 9.012																	5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.998	10 Ne Neon 20.180									
11 Na Sodium 22.990	12 Mg Magnesium 24.305																	13 Al Aluminum 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulfur 32.06	17 Cl Chlorine 35.453	18 Ar Argon 39.948									
19 K Potassium 39.098	20 Ca Calcium 40.078	21 Sc Scandium 44.956	22 Ti Titanium 47.867	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.631	33 As Arsenic 74.922	34 Se Selenium 78.971	35 Br Bromine 79.904	36 Kr Krypton 83.798															
37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molybdenum 95.94	43 Tc Technetium 98.906	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.905	46 Pd Palladium 106.42	47 Ag Silver 107.868	48 Cd Cadmium 112.414	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.757	52 Te Tellurium 127.6	53 I Iodine 126.905	54 Xe Xenon 131.29															
55 Cs Cesium 132.905	56 Ba Barium 137.327	Lanthanoids																57 La Lanthanum 138.905	58 Ce Cerium 140.116	59 Pr Praseodymium 140.908	60 Nd Neodymium 144.242	61 Pm Promethium 144.913	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.925	66 Dy Dysprosium 162.500	67 Ho Holmium 164.930	68 Er Erbium 167.259	69 Tm Thulium 168.934	70 Yb Ytterbium 173.054	71 Lu Lutetium 174.967
87 Fr Francium 223.019	88 Ra Radium 226.025	Actinoids																104 Rf Rutherfordium 261	105 Db Dubnium 262	106 Sg Seaborgium 266	107 Bh Bohrium 264	108 Hs Hassium 277	109 Mt Meitnerium 268	110 Ds Darmstadtium 271	111 Rg Roentgenium 272	112 Cn Copernicium 285	113 Nh Nihonium 286	114 Fl Flerovium 289	115 Mc Moscovium 288	116 Lv Livermorium 293	117 Ts Tennessine 294	118 Og Oganesson 294

Number

Symbol

Name

Atomic Mass

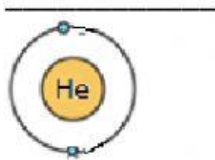
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89 Ac Actinium 227.028	90 Th Thorium 232.038	91 Pa Protactinium 231.036	92 U Uranium 238.029	93 Np Neptunium 237.048	94 Pu Plutonium 244.064	95 Am Americium 243.061	96 Cm Curium 247.070	97 Bk Berkelium 247.070	98 Cf Californium 251.080	99 Es Einsteinium 252.083	100 Fm Fermium 257.105	101 Md Mendelevium 258.10	102 No Nobelium 259.108	103 Lr Lawrencium 260.105

Questions

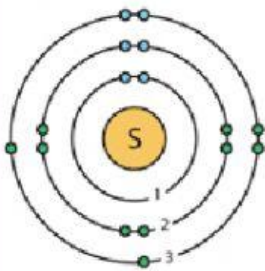
- Calcium Ca is a type of metal/metalloid/nonmetal _____
- Boron B is a type of metal/metalloid/nonmetal _____
- F is a type of metal/metalloid/nonmetal _____
- True or false: Chlorine Cl is a metal _____
- True or false: Metals are soft and easy to break _____
- True or false: Metalloids are used in making solar cells and computer chips _____
- What element is in period 5, group 16? _____

8. True or false: Potassium K is in period 4, group 1? _____

9. Look at the diagram of Helium, what period is it in, in the periodic table?



10. Look at the element Sulphur, fill in the missing information



Shells: _____

Period: _____

Valence electrons: _____

Group Number: _____

11. Group 17 elements are called _____

12. True or False: Group 1 are called the transition metals _____

13. Which group of elements have a full shell of electrons? _____

14. What is the name of the group with the most reactive metals? _____

15. _____ have properties of both metals and nonmetals.

16. True or False: Metals are bad conductors of electricity. _____

17. What is the name of the group 2 elements? _____