

· stannum (jupiter) ♃ · tin (Sn) ·

· cuprum (venus) ♀ · copper (Cu) · · ferrum (mars) ♂ · iron (Fe) ·

PERIODIC TABLE of the elements

1s	1 H Hydrogen 1.01	2 He Helium 4.00
2s	3 Li Lithium 6.94	4 Be Beryllium 9.01
3s	11 Na Sodium 22.99	12 Mg Magnesium 24.30
4s	19 K Potassium 39.10	20 Ca Calcium 40.08
5s	37 Rb Rubidium 85.47	38 Sr Strontium 87.62
6s	55 Cs Cesium 132.91	56 Ba Barium 137.33
7s	87 Fr Francium (223)	88 Ra Radium (226)

3d	21 Sc Scandium 44.96	22 Ti Titanium 47.87	23 V Vanadium 50.94	24 Cr Chromium 52.00	25 Mn Manganese 54.93	26 Fe Iron 55.85	27 Co Cobalt 58.93	28 Ni Nickel 58.69	29 Cu Copper 63.55	30 Zn Zinc 65.39					
4d	39 Y Yttrium 88.91	40 Zr Zirconium 91.22	41 Nb Niobium 92.91	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.91	46 Pd Palladium 106.42	47 Ag Silver 107.87	48 Cd Cadmium 112.41					
5d	57 La Lanthanum 138.90	58 Ce Cerium 140.12	59 Pr Praseodymium 140.91	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.96	64 Gd Gadolinium 157.25	65 Tb Terbium 158.93	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93	68 Er Erbium 167.26	69 Tm Thulium 168.93	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.97
6d	89 Ac Actinium (227)	90 Th Thorium 232.04	91 Pa Protactinium (231)	92 U Uranium 238.03	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (262)

13 III A	14 IVA	15 VA	16 VIA	17 VII A	18 VIII A
5 B Boron 10.81	6 C Carbon 12.01	7 N Nitrogen 14.01	8 O Oxygen 16.00	9 F Fluorine 18.99	10 Ne Neon 20.18
13 Al Aluminum 26.98	14 Si Silicon 28.09	15 P Phosphorus 30.97	16 S Sulfur 32.07	17 Cl Chlorine 35.45	18 Ar Argon 36.96
31 Ga Gallium 69.72	32 Ge Germanium 72.61	33 As Arsenic 74.92	34 Se Selenium 78.96	35 Br Bromine 79.90	36 Kr Krypton 83.80
49 In Indium 114.82	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.60	53 I Iodine 126.90	54 Xe Xenon 131.29
81 Tl Thallium 204.38	82 Pb Lead 207.20	83 Bi Bismuth 208.98	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)

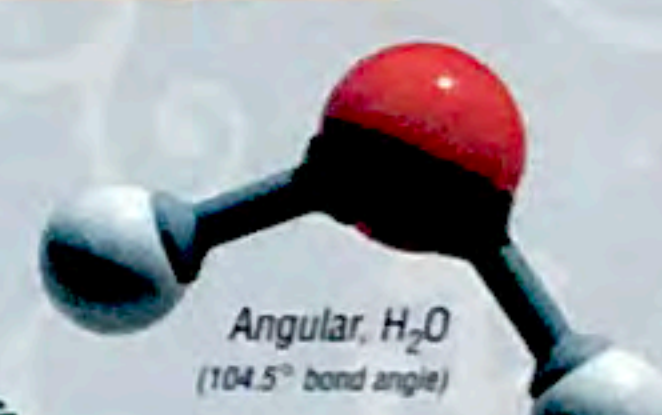
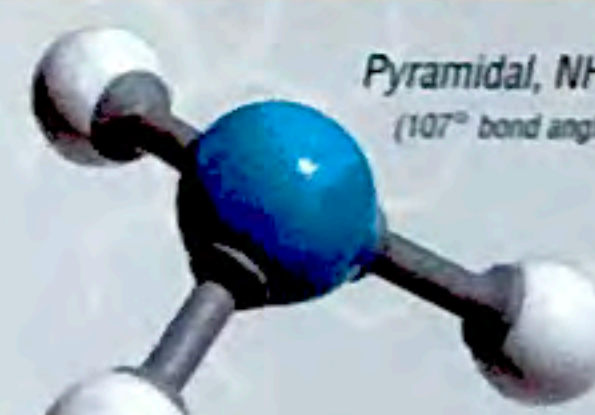
Common Polyatomic Ions	
NH ₄ ⁺	ammonium
CO ₃ ²⁻	carbonate
ClO ₃ ⁻	chlorate
CN ⁻	cyanide
OH ⁻	hydroxide
NO ₃ ⁻	nitrate
C ₂ H ₃ O ₂ ⁻	acetate
CrO ₄ ²⁻	chromate
MnO ₄ ⁻	permanganate
SO ₄ ²⁻	sulfate
PO ₄ ³⁻	phosphate
other oxyanions:	
ClO ⁻	hypochlorite
ClO ₂ ⁻	chlorite
ClO ₃ ⁻	chlorate
ClO ₄ ⁻	perchlorate

At 85
Astatine (210)

- oxidation states
- atomic number
- name
- atomic mass
- number of protons / date synthesized
- boiling point
- melting point
- electronegativity

Other symbols: \square diatomic elements, \square radioactive elements

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nomenclature atomic theory atomic weights valency periodic table radioactivity electron proton ions nucleus quantum model valency isotopes internal orbitals s, p, d, f neutron actinide series atomic mass

1787 Lavoisier publishes "Methods of Chemical Nomenclature."
 1808 Dalton proposes theory of atoms.
 1818 Berzelius publishes table of atomic weights.
 1858 Kekule defines concept of valency.
 1869 Mendeleev designs periodic table of elements.
 1896 Becquerel discovers radioactivity of uranium.
 1897 Thomson describes electron.
 1898 Wien identifies proton.
 1900 Arrhenius establishes concept of ions.
 1912 Rutherford proposes nuclear model.
 1913 Bohr proposes specific energy levels for electrons.
 1916 Lewis redefines valency in bonding.
 1919 Aston documents two (of three) isotopes for neon.
 1920 Ladenburg proposes internal electron shells in transition metals.
 1927 Hund introduces s, p, d, f labels for electron orbitals.
 1932 Chadwick isolates neutron.
 1944 Seaborg proposes table location of actinide series.
 1962 Carbon-12 is adopted as standard for atomic masses.

· aurum (sol) ☉ ♁ · gold (Au) · · argentum (Luna) ♃ · silver (Ag) · · hydrargyrum (mercurius) ♁ ♃ · mercury (Hg) ·

Development of this table was funded in part by a grant from DuPont. ©1998 Robert L. Orr. All rights reserved. Graphic design by Leydon Grafic.