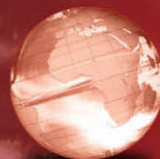


GLOBAL
EDITION



Chemistry for Changing Times

FOURTEENTH EDITION

John W. Hill • Terry W. McCreary



ALWAYS LEARNING

PEARSON

| Main groups | | | | | | | | | | Main groups | | | | | | | | | |
|--------------------------------------|---------------------------------------|---|---|--|---|--|---|--|---|--|---------------------------------------|---------------------------------------|--|---------------------------------------|---|--|--|-------------------------------------|--|
| 1 ^a 1A ^b | | | | | | | | | | | | | | | | | | 18 8A | |
| 1 | 2 | | | | | | | | | 13 | 14 | 15 | 16 | 17 | | | | | |
| 1 H Hydrogen 1.00794 | 2A | | | | | | | | | 3A | 4A | 5A | 6A | 7A | | | | | |
| 2 | 3 | 4 | | | | | | | | | 5 | 6 | 7 | 8 | 9 | | | | |
| | 3 Li Lithium 6.941 | 4 Be Beryllium 9.012182 | | | | | | | | | 5 B Boron 10.811 | 6 C Carbon 12.0107 | 7 N Nitrogen 14.00674 | 8 O Oxygen 15.9994 | 9 F Fluorine 18.998403 | | | | |
| Transition metals | | | | | | | | | | | | | | | | | | | |
| 3 | 11 | 12 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | |
| | 3 Na Sodium 22.989770 | 4 Mg Magnesium 24.3050 | 3B | 4B | 5B | 6B | 7B | 8B | | 10 | 11B | 12B | 13 Al Aluminum 26.981538 | 14 Si Silicon 28.0855 | 15 P Phosphorus 30.973762 | 16 S Sulfur 32.066 | 17 Cl Chlorine 35.4527 | 18 Ar Argon 39.948 | |
| 4 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | |
| | 4 K Potassium 39.0983 | 20 Ca Calcium 40.078 | 21 Sc Scandium 44.95591 | 22 Ti Titanium 47.867 | 23 V Vanadium 50.9415 | 24 Cr Chromium 51.9961 | 25 Mn Manganese 54.938049 | 26 Fe Iron 55.845 | 27 Co Cobalt 58.933200 | 28 Ni Nickel 58.6934 | 29 Cu Copper 63.546 | 30 Zn Zinc 65.39 | 31 Ga Gallium 69.723 | 32 Ge Germanium 72.61 | 33 As Arsenic 74.92160 | 34 Se Selenium 78.96 | 35 Br Bromine 79.904 | 36 Kr Krypton 83.80 | |
| 5 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | |
| | 5 Rb Rubidium 85.4678 | 38 Sr Strontium 87.62 | 39 Y Yttrium 88.90585 | 40 Zr Zirconium 91.224 | 41 Nb Niobium 92.90638 | 42 Mo Molybdenum 95.94 | 43 Tc Technetium [98] | 44 Ru Ruthenium 101.07 | 45 Rh Rhodium 102.90550 | 46 Pd Palladium 106.42 | 47 Ag Silver 107.8682 | 48 Cd Cadmium 112.411 | 49 In Indium 114.818 | 50 Sn Tin 118.710 | 51 Sb Antimony 121.760 | 52 Te Tellurium 127.60 | 53 I Iodine 126.90447 | 54 Xe Xenon 131.29 | |
| 6 | 55 | 56 | 57 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | |
| | 6 Cs Cesium 132.90545 | 56 Ba Barium 137.327 | * La Lanthanum 138.9055 | 72 Hf Hafnium 178.49 | 73 Ta Tantalum 180.9479 | 74 W Tungsten 183.84 | 75 Re Rhenium 186.207 | 76 Os Osmium 190.23 | 77 Ir Iridium 192.217 | 78 Pt Platinum 195.078 | 79 Au Gold 196.96655 | 80 Hg Mercury 200.59 | 81 Tl Thallium 204.3833 | 82 Pb Lead 207.2 | 83 Bi Bismuth 208.98038 | 84 Po Polonium [209] | 85 At Astatine [210] | 86 Rn Radon [222] | |
| 7 | 87 | 88 | 89 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 ^c | 114 | 115 | 116 | 117 | 118 | |
| | 7 Fr Francium [223] | 88 Ra Radium 226.025 | † Ac | | | | | | | | | | | | | | | | |

Atomic masses in brackets are the masses of the longest-lived or most important isotope of certain radioactive elements.

^aThe labels on top (1, 2, 3 ... 18) are the group numbers recommended by the International Union of Pure and Applied Chemistry.

^bThe labels on the bottom (1A, 2A, ... 8A) are the group numbers commonly used in the United States and the ones we use in this text.

^cThe names and symbols of elements 113, 115, 117, and 118 have not been assigned.

Further information is available at the Web site of WebElements™.

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