Periodic Table of the Elements, in Pictures

Key

Symbol → C 6 ← Atomic Number
Name → Carbon
Use or Occurrence → Plants and Animals

The atomic number is the number of protons in an atom.

Solid, Liquid, Gas — at room temperature

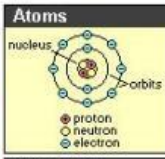
Radioactive

Man-Made

Color Key

- Alkali Metals
- Alkali Earth Metals
- Transition Metals
- Other Metals
- Other Non-Metals
- Halogens
- Inert Gases
- Lanthanides
- Actinides
- Trans-Actinides

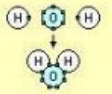
Atoms



Atoms have a nucleus of protons and neutrons surrounded by electrons.

The number of electrons in an uncharged atom is the same as the number of protons.

Molecules



Atoms combine to make molecules by sharing or trading their outer electrons.

Many atoms prefer to have eight electrons in their outer orbit like the oxygen atom in H_2O.

Periods ↓

Group 1 — Alkali Metals; Group 2 — Alkali Earth Metals; Group 8 — Inert Gases; 3 Boron Group; 4 Carbon Group; 5 Nitrogen Group; 6 Oxygen Group; 7 Halogens

Non-Metals; Metals

TRANSITION METALS

Period	Group 1	Group 2	Transition Metals	3 Boron Group	4 Carbon Group	5 Nitrogen Group	6 Oxygen Group	7 Halogens	Group 8 Inert Gases
1	H 1 Hydrogen — Sun & Stars, Water								He 2 Helium — Balloons
2	Li 3 Lithium — Watch Batteries	Be 4 Beryllium — Emeralds		B 5 Boron — Heat-Resistant Glassware	C 6 Carbon — Plants and Animals	N 7 Nitrogen — Air	O 8 Oxygen — Air, Water	F 9 Fluorine — Toothpaste	Ne 10 Neon — Signs
3	Na 11 Sodium — Baking Soda	Mg 12 Magnesium — Green Plants		Al 13 Aluminum — Foil	Si 14 Silicon — Rocks, Sand, & Dirt	P 15 Phosphorus — Bones	S 16 Sulphur — Egg Yolks	Cl 17 Chlorine — Bleach	Ar 18 Argon — Light Bulbs
4	K 19 Potassium — Fertilizer	Ca 20 Calcium — Teeth	Sc 21 Scandium — Aquamarines; Ti 22 Titanium — Jets; V 23 Vanadium — Springs; Cr 24 Chromium — Car Trim; Mn 25 Manganese — Rock Crushers; Fe 26 Iron — Buildings; Co 27 Cobalt — Magnets; Ni 28 Nickel — Coins; Cu 29 Copper — Electric Wires; Zn 30 Zinc — Brass	Ga 31 Gallium — Light-Emitting Diodes	Ge 32 Germanium — Electronics	As 33 Arsenic — Poison	Se 34 Selenium — Solar Cells	Br 35 Bromine — Sedatives	Kr 36 Krypton — Lasers
5	Rb 37 Rubidium — Solar Cells	Sr 38 Strontium — Fireworks	Y 39 Yttrium — Color Phosphors; Zr 40 Zirconium — Zircon Gems; Nb 41 Niobium — Mag Lev Trains; Mo 42 Molybdenum — Cutting Tools; Tc 43 Technetium — Medical Diagnosis; Ru 44 Ruthenium — Electric Contacts; Rh 45 Rhodium — Laboratory Crucibles; Pd 46 Palladium — Pollution Control; Ag 47 Silver — Film; Cd 48 Cadmium — Rechargeable Batteries	In 49 Indium — Electronics	Sn 50 Tin — Cans	Sb 51 Antimony — Type Metal	Te 52 Tellurium — Solar Cells	I 53 Iodine — Antiseptic	Xe 54 Xenon — Lighthouses
6	Cs 55 Cesium — Atomic Clocks	Ba 56 Barium — Stomach X-Rays	Lanthanides — See Below; Hf 72 Hafnium — Nuclear Control; Ta 73 Tantalum — Artificial Joints; W 74 Tungsten — Light Bulbs; Re 75 Rhenium — Special Light Bulbs; Os 76 Osmium — Pen Points; Ir 77 Iridium — Extinction Meteor; Pt 78 Platinum — Jewelry; Au 79 Gold — Jewelry; Hg 80 Mercury — Thermometers	Tl 81 Thallium — Poison	Pb 82 Lead — Weights	Bi 83 Bismuth — Fire Sprinklers	Po 84 Polonium — Anti-Static Brushes	At 85 Astatine — Few Uses Short-Lived	Rn 86 Radon — Radiation Therapy
7	Fr 87 Francium — Few Uses Short-Lived	Ra 88 Radium — Luminous Paint	Actinides — See Below; Rf 104 Rutherfordium; Db 105 Dubnium; Sg 106 Seaborgium; Bh 107 Bohrium; Hs 108 Hassium; Mt 109 Meitnerium; Uun 110 Ununnilium; Uuu 111 Unununium; Uub 112 Ununbium	Uut 113 Ununtrium	Uuq 114 Ununquadium	Uup 115 Ununpentium	Uuh 116 Ununhexium	Uus 117 Ununseptium	Uuo 118 Ununoctium

† Trans-Actinides: These man-made atoms exist for less than a second.

Element 112 was the highest-numbered element yet created, as of 1996.

Lanthanides or Rare Earth Metals	La 57 Lanthanum — Arc Lamps	Ce 58 Cerium — Lighter Flints	Pr 59 Praseodymium — Welder's Goggles	Nd 60 Neodymium — Telescopes	Pm 61 Promethium — Spacecraft Power	Sm 62 Samarium — Arc Lamps	Eu 63 Europium — Color Phosphors	Gd 64 Gadolinium — Nuclear Control	Tb 65 Terbium — Lasers	Dy 66 Dysprosium — Nuclear Control	Ho 67 Holmium — Color Phosphors	Er 68 Erbium — Color Phosphors	Tm 69 Thulium — Color Phosphors	Yb 70 Ytterbium — Color Phosphors	Lu 71 Lutetium — Color Phosphors
Actinides	Ac 89 Actinium — Neutron Source	Th 90 Thorium — Lantern Mantles	Pa 91 Protactinium — Few Uses Very Rare	U 92 Uranium — Nuclear Power	Np 93 Neptunium — Neutron Detectors	Pu 94 Plutonium — Nuclear Weapons	Am 95 Americium — Smoke Detectors	Cm 96 Curium — Spacecraft Power	Bk 97 Berkelium — Few Uses	Cf 98 Californium — Gauges	Es 99 Einsteinium — Short-Lived (Months)	Fm 100 Fermium — Short-Lived (Days)	Md 101 Mendelevium — Short-Lived (Hours)	No 102 Nobelium — Short-Lived (Minutes)	Lr 103 Lawrencium — Short-Lived (Seconds)

Groups

The vertical columns are called groups. Elements in the same group behave similarly because they have the same number of outer electrons.

Group 1 has one outer electron, group 2 has two, etc. Most transition metals have two.

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