

PT03S : Modern Periodic Table of the Elements

MODERN PERIODIC TABLE OF THE ELEMENTS

LONG FORM

GROUPS: IA, IIA, IIIB, IVB, VB, VIB, VIIB, VIII, IB, IIB, IIIA, IVA, VA, VIA, VIIA, VIIIA, 0

PERIODS: 1, 2, 3, 4, 5, 6, 7

Block Classifications: s-block, p-block, d-block, f-block

Properties: Metals, Nonmetals, Metalloids

Atomic Masses: (e.g., H=1.008, He=4.002, Li=6.941, Be=9.012, B=10.811, C=12.011, N=14.007, O=15.999, F=18.998, Ne=20.180, Na=22.990, Mg=24.305, Al=26.982, Si=28.086, P=30.974, S=32.065, Cl=35.453, Ar=39.948, K=39.098, Ca=40.078, Sc=44.956, Ti=47.88, V=50.942, Cr=52.004, Mn=54.938, Fe=55.845, Co=58.933, Ni=58.693, Cu=63.546, Zn=65.38, Ga=69.723, Ge=72.63, As=74.922, Se=78.96, Br=79.904, Kr=83.80, Rb=85.468, Sr=87.62, Y=88.906, Zr=91.224, Nb=92.906, Mo=95.94, Tc=98, Ru=101.07, Rh=101.07, Pd=106.36, Ag=107.868, Cd=112.411, In=114.818, Sn=118.710, Sb=121.757, Te=127.60, I=126.905, Xe=131.29, Cs=132.905, Ba=137.327, La=138.905, Ce=140.12, Pr=140.908, Nd=144.24, Pm=145, Sm=150.36, Eu=151.964, Gd=157.25, Tb=158.925, Dy=162.50, Ho=164.930, Er=167.259, Tm=168.930, Yb=173.054, Lu=174.967, Th=232.038, Pa=231, U=238.029, Np=237, Pu=244, Am=243, Cm=247, Bk=247, Cf=251, Es=252, Fm=257, Md=258, No=259, Lr=262)

PT07S : Mendeleev's Periodic Table

MENDELEEV'S PERIODIC TABLE

THE PROPERTIES OF ELEMENTS ARE A PERIODIC FUNCTION OF THEIR ATOMIC MASSES.

CRITICISMS OF MENDELEEV'S CLASSIFICATION OF ELEMENTS:

- Mendeleev's periodic law predicted the existence of some elements that had not been discovered at that time.
- Mendeleev's periodic table could predict the properties of some elements on the basis of their position in the periodic table.
- Mendeleev's periodic table could accommodate noble gases when they were discovered.

ANOMALIES OF MENDELEEV'S CLASSIFICATION OF ELEMENTS:

- The position of hydrogen could not be explained.
- Wrong order of atomic masses of some elements could not be explained.
- A correct position could not be assigned to hydrogen in the periodic table.

PERIOD	GROUP I R ⁺ O	GROUP II RO	GROUP III R ³⁺ O ³⁻	GROUP IV RH ⁺ RO ²⁻	GROUP V RH ³⁺ R ³⁺ O ³⁻	GROUP VI RH ²⁺ RO ²⁻	GROUP VII RH ⁺ RO	GROUP VIII RO
1	Hydrogen (H) = 1.008							
2	Lithium (Li) = 6.938	Beryllium (Be) = 9.012	Boron (B) = 10.81	Carbon (C) = 12.011	Nitrogen (N) = 14.007	Oxygen (O) = 15.999	Fluorine (F) = 18.998	
3	Sodium (Na) = 22.99	Magnesium (Mg) = 24.31	Aluminium (Al) = 26.98	Silicon (Si) = 28.09	Phosphorus (P) = 30.974	Sulphur (S) = 32.06	Chlorine (Cl) = 35.453	
4	Potassium (K) = 39.102	Calcium (Ca) = 40.08	Scandium (Sc) = 44.96	Titanium (Ti) = 47.90	Vanadium (V) = 50.94	Chromium (Cr) = 52.00	Manganese (Mn) = 54.94	Iron (Fe) = 55.85, Cobalt (Co) = 58.93, Nickel (Ni) = 58.71
5	Copper (Cu) = 63.54	Zinc (Zn) = 65.37	Gallium (Ga) = 69.72	Germanium (Ge) = 72.58	Arsenic (As) = 74.92	Selenium (Se) = 78.96	Bromine (Br) = 79.906	
6	Rubidium (Rb) = 85.47	Sroutium (Sr) = 87.62	Yttrium (Y) = 88.91	Zirconium (Zr) = 91.22	Niobium (Nb) = 92.91	Molybdenum (Mo) = 95.94	Technetium (Tc) = 98	Ruthenium (Ru) = 101.07, Rhodium (Rh) = 102.91
7	Silver (Ag) = 107.87	Cadmium (Cd) = 112.40	Indium (In) = 114.82	Tin (Sn) = 118.69	Antimony (Sb) = 121.75	Tellurium (Te) = 127.60	Iodine (I) = 126.90	
8	Caesium (Cs) = 132.90	Barium (Ba) = 137.34	Lanthanum (La) = 138.91	Cerium (Ce) = 140.12				
9								
10			Ytterbium (Yb) = 173.04	Hafnium (Hf) = 178.49	Tantalum (Ta) = 180.95	Tungsten (W) = 183.85		Osmium (Os) = 190.2, Iridium (Ir) = 192.2, Platinum (Pt) = 195.09
11	Gold (Au) = 196.97	Mercury (Hg) = 200.59	Thallium (Tl) = 204.37	Lead (Pb) = 207.19	Bismuth (Bi) = 208.98			
12				Thorium (Th) = 232.04		Uranium (U) = 238.03		

(In the formulae for oxides and hydrides, the letter 'R' is used to represent any of the elements in the groups.)

CL01S : Laboratory Safety

LABORATORY SAFETY

- Always follow the instructions of your teacher.
- Never touch anything in the laboratory without the permission of your teacher.
- Always wear your apron.
- Do not eat or drink anything in the laboratory.
- Do not use glass apparatus unless you are instructed to do so.
- Always use the correct technique for pouring liquids.
- Always use the correct technique for heating liquids.
- Always use the correct technique for using a Bunsen burner.
- Always use the correct technique for using a pipette.
- Always use the correct technique for using a burette.
- Always use the correct technique for using a titration.
- Always use the correct technique for using a volumetric flask.
- Always use the correct technique for using a conical flask.
- Always use the correct technique for using a beaker.
- Always use the correct technique for using a test tube.
- Always use the correct technique for using a crucible.

CL02S : Laboratory Techniques

LABORATORY TECHNIQUES

- How to use a pipette.
- How to use a burette.
- How to use a titration.
- How to use a volumetric flask.
- How to use a conical flask.
- How to use a beaker.
- How to use a test tube.
- How to use a crucible.
- How to use a Bunsen burner.
- How to use a retort stand.
- How to use a clamp.
- How to use a wire gauze.
- How to use a tripod stand.
- How to use a gauze mat.
- How to use a desiccator.
- How to use a desiccant.

CL03S : pH Colour Chart



CL04S : Laboratory First Aid

LABORATORY FIRST AID

Report all Accidents, Injuries and Spills Immediately !!!

- Chemical Burns to Eye:** Flush with water for 15 minutes.
- Chemical Burns to Body:** Wash with water for 15 minutes.
- Cuts and Bruises:** Clean with antiseptic and bandage.
- Fainting or Collapse:** Lay the person flat and call for help.
- Electric Burn:** Turn off the power and seek medical attention.
- Minor Thermal Burns:** Cool with water and cover with a clean cloth.
- Poisoning:** Do not induce vomiting. Call for help.
- Glass Piece in Skin:** Do not remove. Seek medical attention.
- Foreign Matter in Eyes:** Flush with water and seek medical attention.
- Clothes on Fire:** Stop, Drop, and Roll. Seek medical attention.