

A PERIODIC TABLE

ELEMENTS

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A Guide to The Periodic Table

This chart of the periodic table shows the first 105 elements as they exist today. Each group is pictured against the same tinted background - each element, photographed in colour, is discussed with regard to its particular place within the hierarchy of matter.

There are eighteen vertical columns in the table which divide the elements into groups. Elements within a group have closely related physical and chemical properties.

Horizontal rows list the elements in order of their increasing mass and are called series or periods. Properties of elements change in a systematic way through a period.

Only ten of the actinoids are pictured; the remainder do not exist in visible quantities.

Atomic Number
Above the letter symbol for each element is the atomic number, equal to the number of protons in the nucleus.

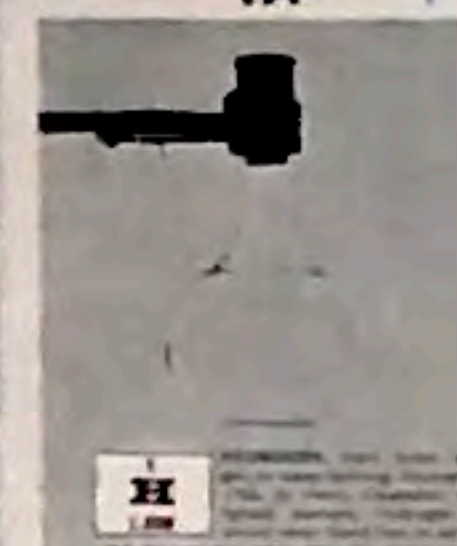






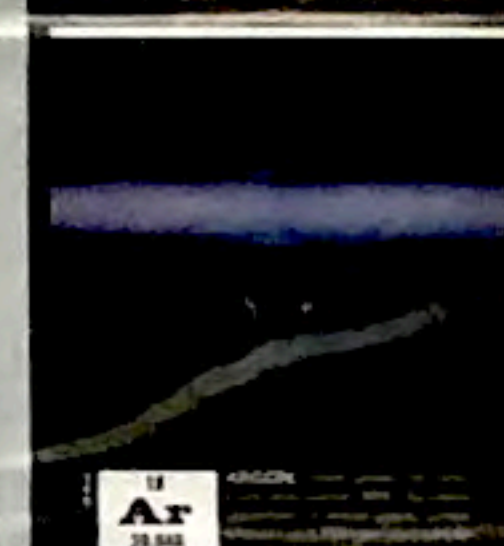
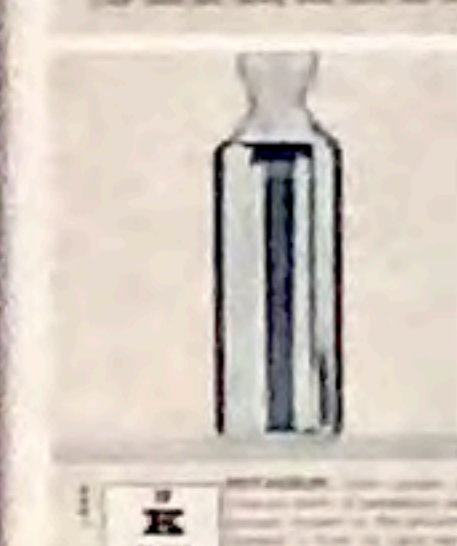

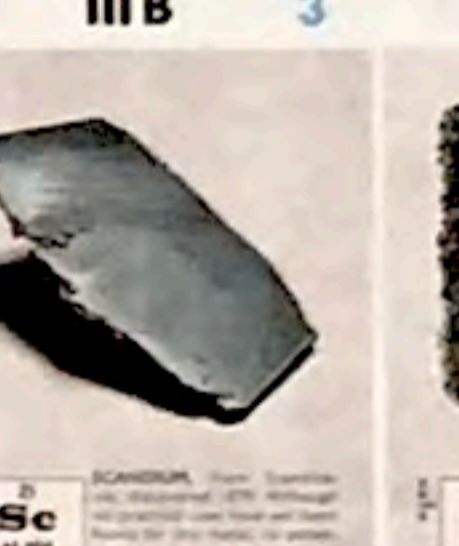




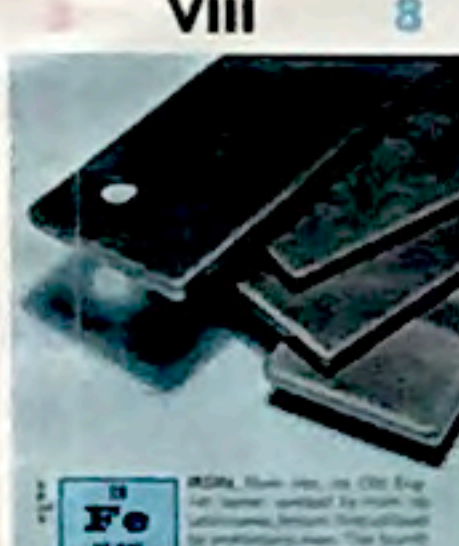


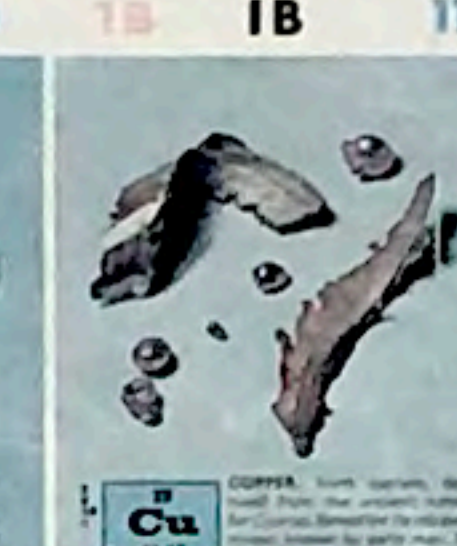
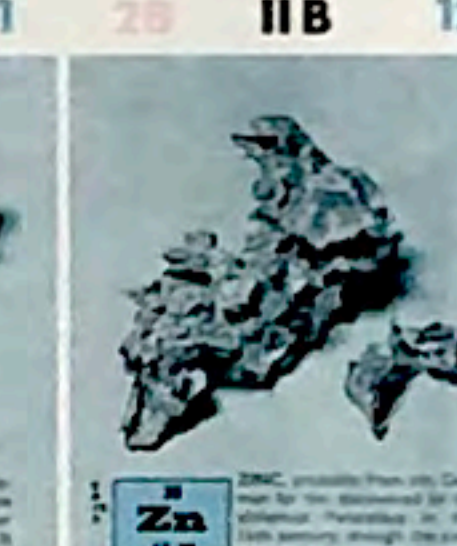

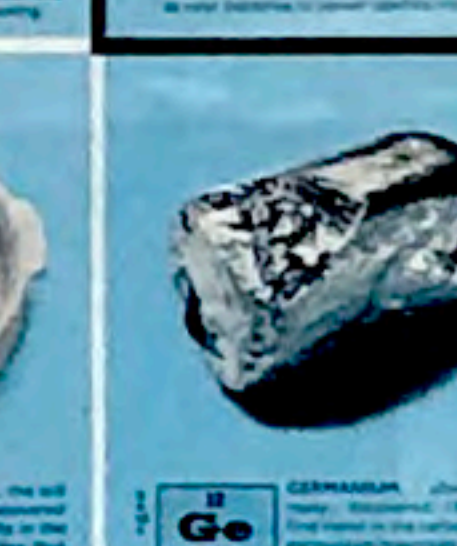
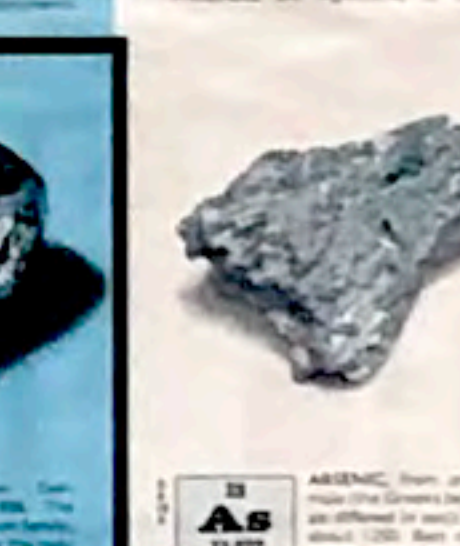


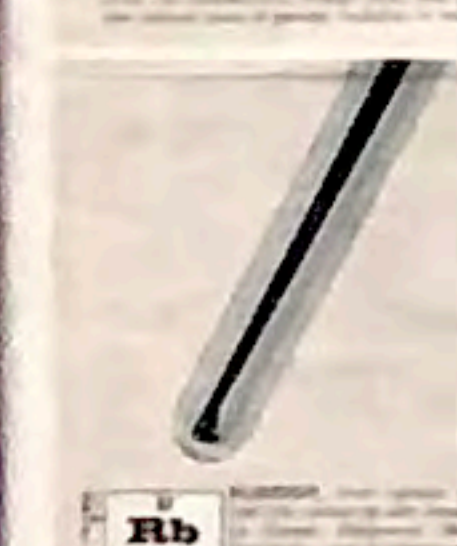



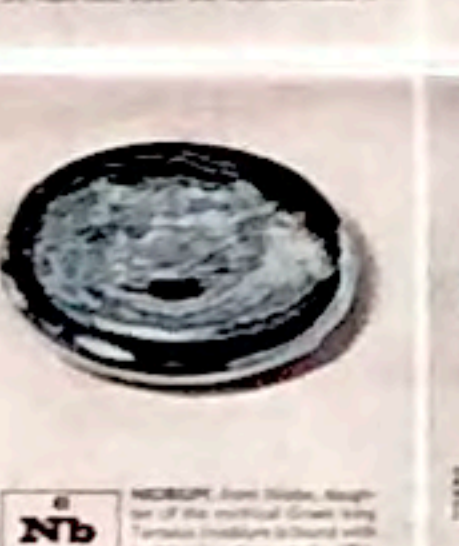

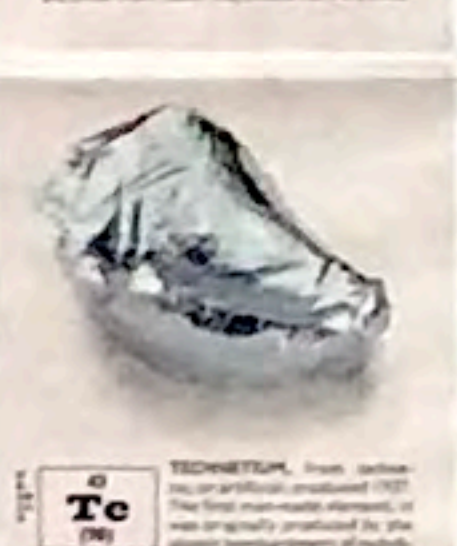












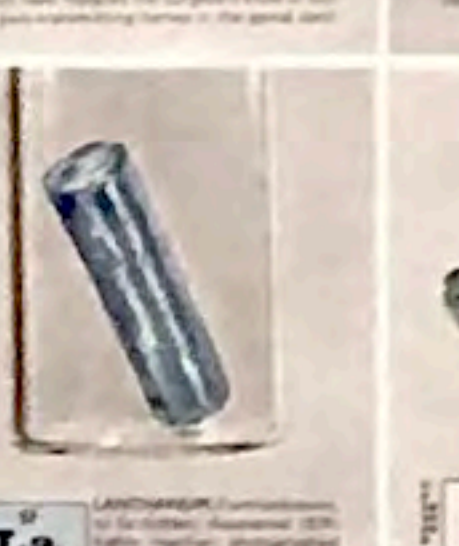








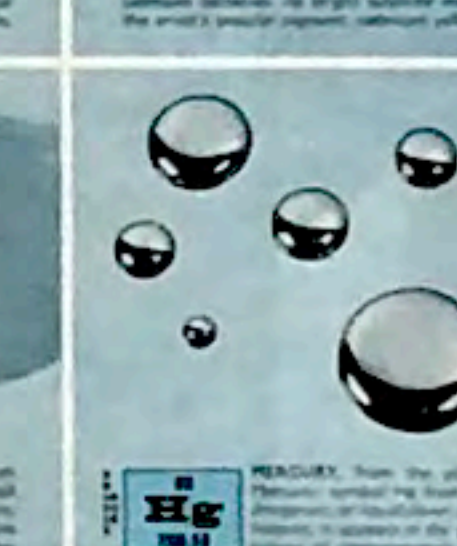
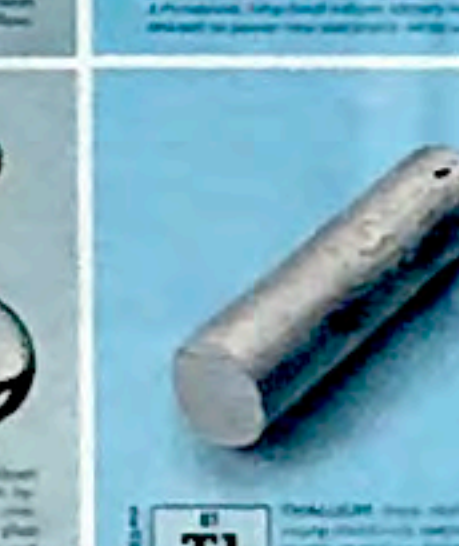



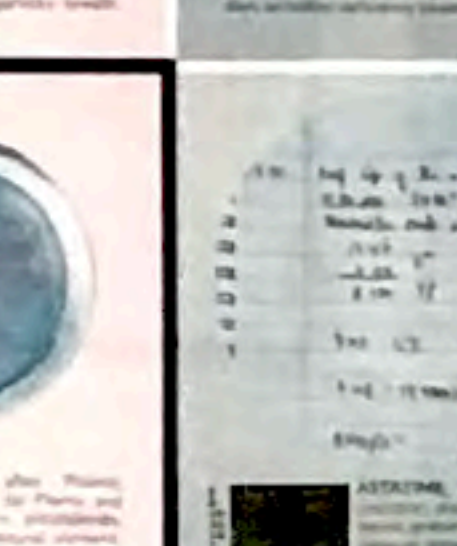
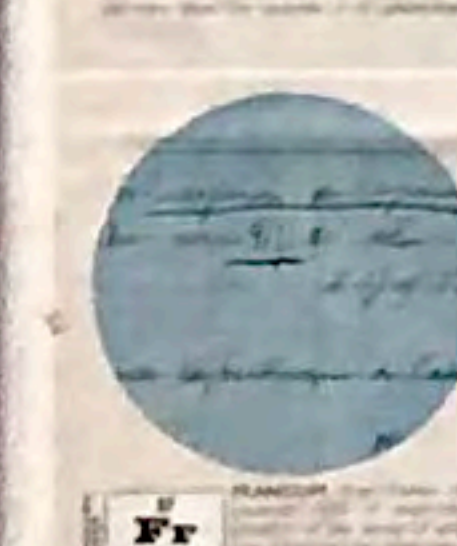


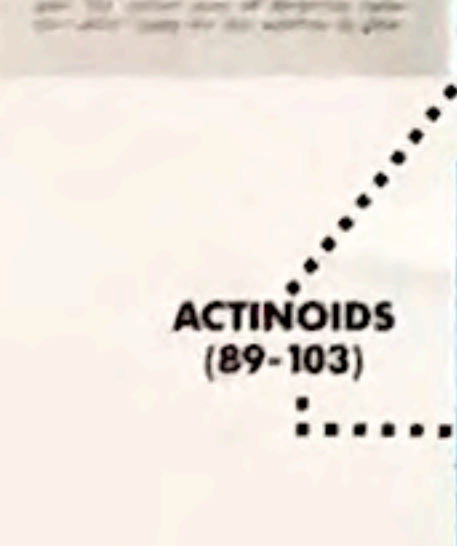
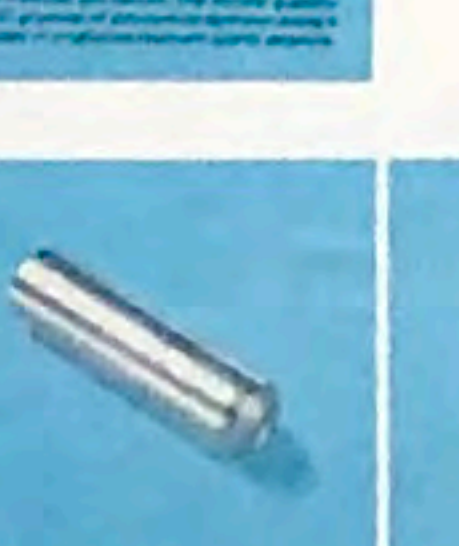



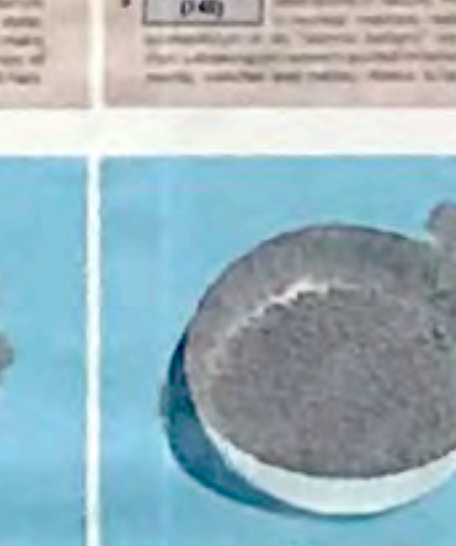


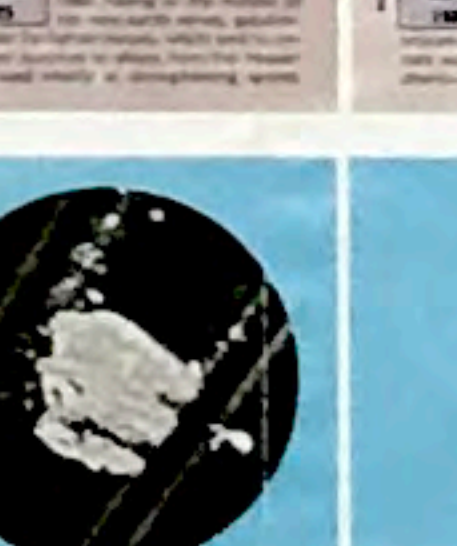
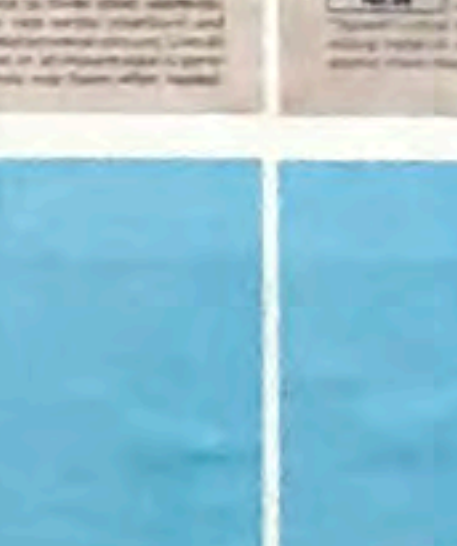

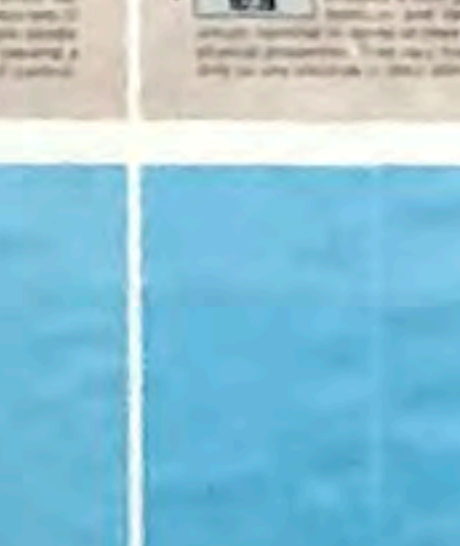
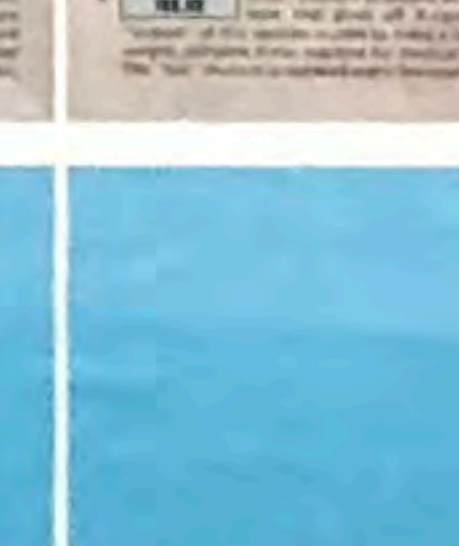
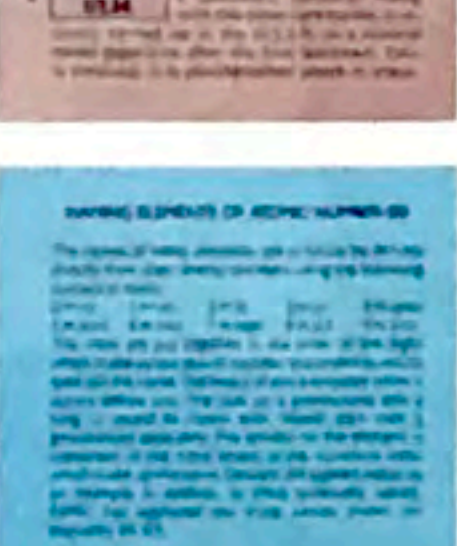
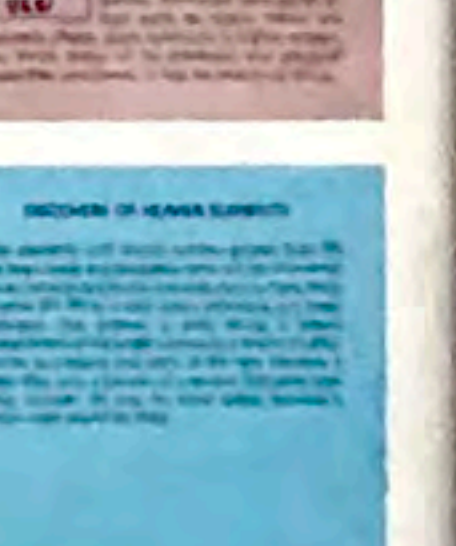
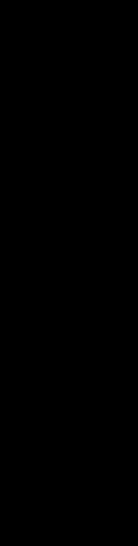
Relative Atomic Mass
Below the letter symbol for each element is the relative atomic mass which is calculated by averaging the masses of the different forms of the element (isotopes). The weight of the isotopic carbon atom is defined as exactly 12 and is used as

a standard for the other elements. Where the number is in brackets all isotopes of the elements are unstable, i.e., radioactive. The values of relative atomic masses (atomic weights) are internationally recognised and are used by permission of IUPAC.

Electrons
The vertical column of numbers to the left of each element's symbol indicates the number of electrons in each "electron shell" of the element's atom. Similar properties reappear where the elements have similar electron configurations.

Metals and Non-Metals
The line stair-stepping from boron to astatine separates the metals on the left side and centre from the non-metals on the right side. Metallic properties are most pronounced for elements in the lower left-hand corner of the table, and non-metallic properties are most pronounced for elements in the upper right-hand corner.

IUPAC RECOMMENDED GROUP NOTATION UNTIL 1985
CHEMICAL ABSTRACTS SERVICE GROUP NOTATION, USED UNTIL 1986
IUPAC RECOMMENDED GROUP NOTATION FROM 1986

IA 1  H 1.008																	VIIA 17  He 4.003	
IIA 2  Li 6.941	 Be 9.012																	VIIA 17  Ne 20.180
 Na 22.990	 Mg 24.305																	VIIA 17  Ar 39.948
IIIB 3  K 39.098	IVB 4  Ca 40.078	VB 5  Sc 44.956	VIB 6  Ti 47.88	VIB 6  V 50.942	VIB 6  Cr 52.00	VIB 6  Mn 54.938	VIII 8  Fe 55.845	VIII 8  Co 58.933	VIII 8  Ni 58.69	VIII 8  Cu 63.546	VIII 8  Zn 65.38	IB 11  Ga 69.723	IB 11  Ge 72.64	IB 11  As 74.922	IB 11  Se 78.96	IB 11  Kr 83.80		
IIIB 3  Rb 85.468	IIIB 3  Sr 87.62	IVB 4  Y 88.906	IVB 4  Zr 91.224	VIB 6  Nb 92.906	VIB 6  Mo 95.94	VIB 6  Tc 98	VIII 8  Ru 101.07	VIII 8  Rh 102.905	VIII 8  Pd 106.36	IB 11  Ag 107.868	IB 11  Cd 112.411	IB 11  In 114.818	IB 11  Sn 118.710	IB 11  Sb 121.757	IB 11  Te 127.6	IB 11  Xe 131.29		
IIA 2  Cs 132.905	IIA 2  Ba 137.327	IIIB 3  La 138.905	VIB 6  Hf 178.49	VIB 6  Ta 180.948	VIB 6  W 183.84	VIB 6  Re 186.207	VIII 8  Os 190.23	VIII 8  Ir 192.222	VIII 8  Pt 195.084	IB 11  Au 196.967	IB 11  Hg 200.59	IB 11  Tl 204.383	IB 11  Pb 207.2	IB 11  Bi 208.980	IB 11  Po 209	IB 11  Rn 222		
IIA 2  Fr 223	IIA 2  Ra 226	LANTHANOIDS (57-71)																
IIA 2  Ac 227	ACTINOIDS (89-103)																	
IIA 2  Th 232.0377	IIA 2  Pa 231.036	IIA 2  U 238.02891	IIA 2  Np 237.04817	IIA 2  Pu 244.06422	IIA 2  Am 243.06138	IIA 2  Cm 247.07035	IIA 2  Bk 247.07035	IIA 2  Cf 251.0832	IIA 2  Es 252.0832	IIA 2  Fm 257.10	IIA 2  Md 258.10	IIA 2  No 259.10	IIA 2  Lr 262.10	IIA 2  Unq 263.10	IIA 2  Unp 263.10			