



Elements

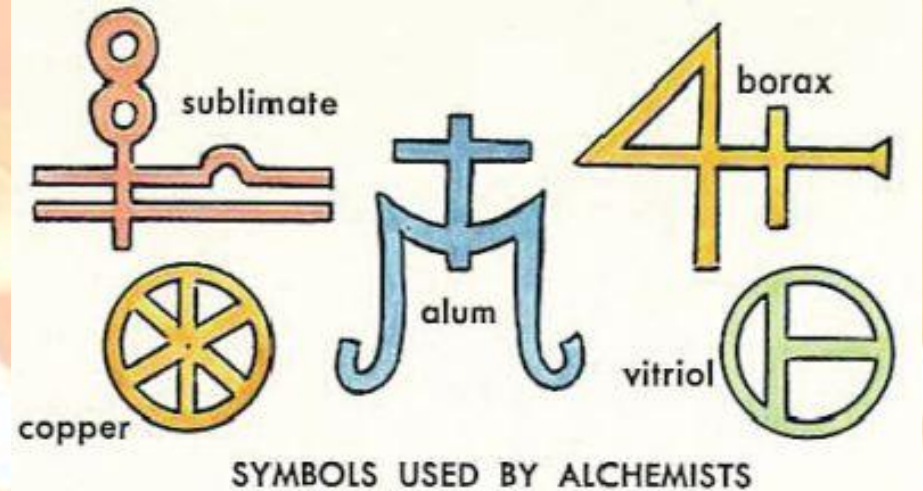
Chemical Symbols

The Nature of Elements

- Element - substance that cannot be broken down into simpler substances by chemical means
- Atom - smallest particle of an element that has the properties of the element
- Examples - boron, copper, gold, hydrogen, magnesium, nitrogen, oxygen, silver, sulfur, zinc, etc.

Alchemy

- The origins of chemistry can be found in alchemy.
- One of the goals of the alchemists was to make gold.
- In order to conceal their research from their competitors, alchemists developed secret chemical symbols.



Modern Chemical Symbols

- Chemical symbols are useful chemical shorthand.
- Modern symbols : Jöns Berzelius (1814), a Swedish chemist devised the system of symbols used by scientists today.
- Rules for writing symbols
 - If possible, use the first letter of the name and capitalize it:
[1] H – hydrogen; [2] O – oxygen; [3] N – nitrogen;
[4] C – carbon
 - In case of duplication of the first letter, use the first letter capitalized together with a second lower case letter:
[1] Ca – calcium; [2] Cd – cadmium; [3] Ce – cerium;
[4] Cs – cesium; [5] Cr – chromium; [6] Cl – chlorine;
[7] Co – cobalt

(Continued)

More on Modern Chemical Symbols

- Many elements have symbols derived from their Latin (L) or German (G) names

Element	Symbol	Foreign Name
Antimony	Sb	Stibium (L)
Copper	Cu	Cuprum (L)
Gold	Au	Aurum (L)
Iron	Fe	Ferrum (L)
Lead	Pb	Plumbum (L)
Mercury	Hg	Hydrargyrum (L)
Potassium	K	Kalium (L)
Silver	Ag	Argentum (L)
Sodium	Na	Natrium (L)
Tin	Sn	Stannum (L)
Tungsten	W	Wolfram (G)

**Not
Required
Information!**

Systematic Names

- Systematic Names - three letter symbols that represent the atomic numbers of unnamed elements: prefixes stand for numbers.

Number	Prefix	Symbol
0	nil	n
1	un	u
2	bi	b
3	tri	t
4	quad	q

Number	Prefix	Symbol
5	pent	p
6	hex	h
7	sept	s
8	oct	o
9	enn	e

- the ending *ium* follows the last prefix
- example: number - 109; name - unnilennium; symbol - Une