11 elements whose symbol does not fit the pattern:

Fe – Iron
Na – Sodium
Sn – Tin
Sb – Antimony
K – Potassium
Cu – Copper
Au – Gold
Hg – Mercury
Ag – Silver
Pb – Lead
W – Tungstun

These elements were originally given Latin names and they have been known since Roman times.

**Whole #** = # of protons
**Atomic Mass #** = average atomic mass of all of the isotopes; this number will be a decimal # and is measured in AMU (atomic mass units).

**Atomic Mass** **– Atomic Number = Number of neutrons**

**# of protons = # of electons**

**Atom** – No Charge (Protons = Electrons)

 As atoms travel at the speed of light they lose mass therefore the atomic mass is a decimal or a very small fractional number measured in atomic mass units.

**Quarks** – the building blocks of matter
 Quarks make up the elements

Atoms are mostly empty space therefore we know the probability of finding a specific electron not an exact location within the electron cloud.

|  |  |  |  |
| --- | --- | --- | --- |
| **Atoms** | **Mass** | **Location** | **Charge** |
| P+ | 1 AMU | nucleus | + |
| N no charge | 1 AMU | nucleus | No charge |
| e- | 1 AMU | Orbitals – levels or shells | - |