

ATOMIC STRUCTURE

Name _____

An atom is made up of protons and neutrons (both found in the nucleus) and electrons (in the surrounding electron cloud). The atomic number is equal to the number of protons. The mass number is equal to the number of protons plus neutrons. In a neutral atom, the number of protons equals the number of electrons. The charge on an ion indicates an imbalance between protons and electrons. Too many electrons produces a negative charge, too few, a positive charge.

This structure can be written as part of a chemical symbol.

Example:

mass
number
↓

$^{15}\text{N}^{+3}$

↑
atomic
number

charge ←

7 protons
8 neutrons (15 - 7)
4 electrons

Complete the following chart.

| Element/ Ion | Atomic Number | Atomic Mass | Mass Number | Protons | Neutrons | Electrons |
|----------------------------|------------------|-------------|----------------|---------|----------|-----------|
| H | | | | | | |
| H ⁺ | | | | | | |
| $^{12}_6\text{C}$ | | | | | | |
| $^7_3\text{Li}^+$ | | | | | | |
| $^{35}_{17}\text{Cl}^-$ | | | | | | |
| $^{39}_{19}\text{K}$ | | | | | | |
| $^{24}_{12}\text{Mg}^{2+}$ | | | | | | |
| As ³⁻ | | | | | | |
| Ag | | | | | | |
| Ag ⁺¹ | | | | | | |
| S ⁻² | | | | | | |
| U | | | | | | |