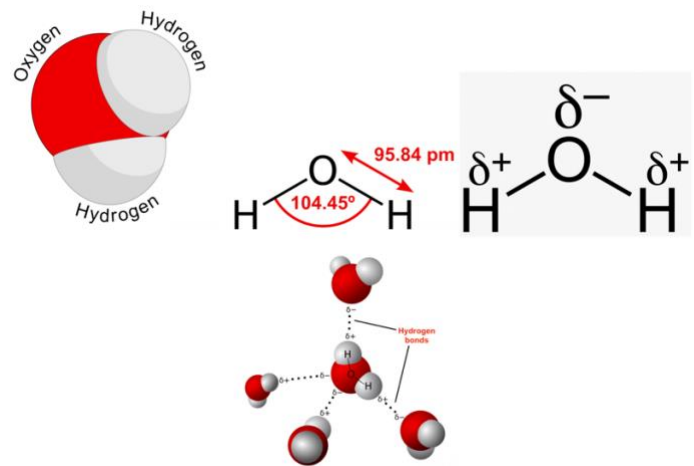
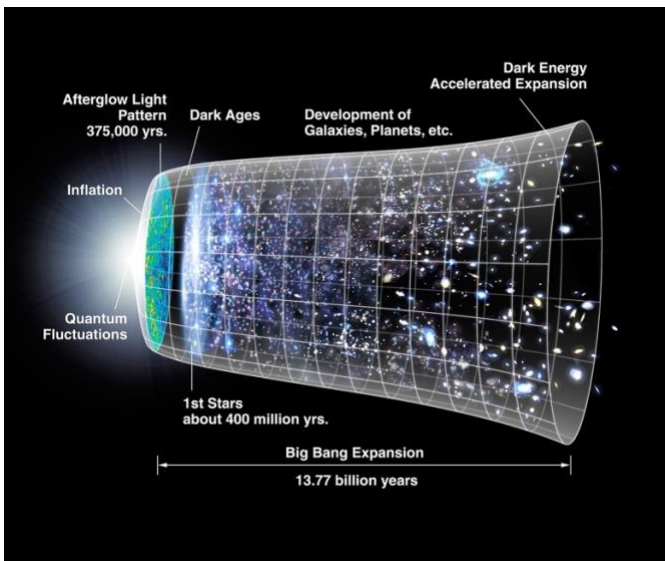


water

Hydrogen, by far the most abundant element in the universe, formed not too long after everything began, nearly 13,800,000,000 years ago ([*bang*](#)). Once things cooled down a bit, hydrogen nuclei aggregated by gravitational attraction, compressed, fused, and ignited the first stars. Oxygen, carbon, and nitrogen were generated in the hot plasma of those nuclear furnaces. Much later, hydrogen and oxygen combined chemically to form water - essential for living systems.



The basic unit of life is the cell. The bilayer membrane of cells is composed primarily of phospholipids. Both the *inner surface and outer surface* of the membrane are therefore *hydrophilic* and interact with the *polar* molecules of water. Within the membrane structure, the *nonpolar* portion of the lipid chains form a barrier to the free passage of water. This defines the limit of inside (living) and outside (non-living) for each cell ... see: [*membrane*](#).

