

Bio 103 Atoms to Molecules

- Matter is anything that has mass and takes up space
- Elements are the basic building blocks of matter they cannot be broken down by chemical means
- Over 90% of the human body is made-up of four elements carbon, nitrogen, oxygen and hydrogen
- An atom is the smallest unit of an element that retains its physical and chemical properties
- Atoms bond together to form molecules
- Neutrons are neutral protons are positive and electrons are negatively charged
- An atomic number is the number of protons
- A mass number is the sum of the number of protons and neutrons
- Atomic mass is the average AMU for all isotopes of the atom
- Isotopes are atoms of the same elements and have the same atomic number but a different number of neutrons
- Radiomass are unstoppable isotopes; they emit energy called radiation
- Radiation can damage cells and cause cancer
- Molecules are atoms bonded together
- Compounds are molecules made of different atoms, ionic and covalent bonds
- Atoms are most stable when their outer shell is full
- During ionic reactions atoms donate or take on electrons to fill their valence shell
- An ionic bond is the attraction between a positive and negative ion
- Covalent bonds are atoms that share electrons to fill their valence shells
- Double covalent bonds share two pairs of electrons
- Triple covalent bonds share three pairs of electrons
- Water is a polar molecule
- A hydrogen bond is the attraction between a slightly positive hydrogen to a slightly negative oxygen or nitrogen