

# [Biology campbell chapter 2](https://assignbuster.com/biology-campbell-chapter-2/)

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Chapter 2 Terms Matter - anything that takes up space and has mass. Element - substance that cannot be broken down to other substances by chemical reactions. Compound - substance consisting of two or more different elements combined in a fixed ratio. Essential Element - the 20-25% of the 92 natural elements an organism needs to live a health life and reproduce. Trace Elements - required by an organism only minute quantities. Atom - the smallest unit of matter that still retains the properties of an element. Neutrons - electrically neutral Protons - one unit of positive charge Electrons - one unit of negative charge Atomic Nucleus - the center of an atom Dalton - the same as the atomic mass unit or amu. Atomic Number - the number of protons, which is unique to that element Mass Number - the sum of protons plus neutron in the nucleus of an atom. Atomic Mass - the total mass of an atom. Isotopes - different atomic forms of the same element. Radioactive Isotope - one in which the nucleus decays spontaneously, giving off particles and energy. Energy - defined as the capacity to cause change for instance, by doing work. Potential Energy - the energy that matter possesses because of its location or structure. Electron Shells - each with a characteristic average distance and energy level. Valence Electrons - the electrons in the outermost electron shell. Valence Shell - the outermost electron shell. Orbital - the three-dimensional space where an electron is found 90% of the time. Chemical Bonds - the interaction of sharing or transferring valence electrons, which result in staying close together. Covalent Bond - the sharing of a pair of valence electrons by two atoms. Molecule - two or more atoms held together by covalent bond. Single Bond - a pair of shared electrons Double bond - two pairs of valence electrons are shared. Valence - the bonding capacity of an element. Electronegativity 0 the attraction of a particular atom for the electrons of a covalent bond. Non-polar Covalent Bond - Polar Covalent Bond - Ion - a charged atom or molecule Cation - A positive ion. Anion - A negative ion. Ionic Bond - when cations and anions attract each other. Ionic Compounds - compounds formed by ionic bonds, salt. Hydrogen Bond - non-covalent attraction between a hydrogen and an electronegative atom Van Der Waals Interactions - Chemical Reactions - the making and breaking of chemical bonds, leading to changes in the composition of matter. Reactants - Products - Chemical Equilibrium - the point at which the reactions offset one another exactly. Chapter 2 Review: In the term trace element, the adjective trace means that The element is required in very small amounts