Invertase is an enzyme that is found in many bacteria, yeast and fungi. It is essential in these organisms because it converts the host’s sucrose into glucose and fructose. These two monosaccharides provide energy for the microbe’s activities. When invertase is inhibited by iodine, the microorganism lacks enough sugars to grow and multiply. Iodine can thus be used as a disinfectant because by inhibiting invertase, it prevents the growth and reduces the multiplication of bacteria, yeasts and fungi.

The second law of thermodynamics is applicable to closed systems, a system where there is no input or output. A good example of a closed system is the universe. However, biological organisms are basically open systems i.e. our bodies require the intake of food and oxygen (input) and production of heat and metabolic wastes (output). Organisms seem to defy this second law because they are able to build large molecules from smaller ones (say proteins from amino acids). However, this is not true because such processes require a lot of energy input which is stored in form of bonds. When these bonds are later broken down, they release this energy back into the environment thus increasing entropy. Biological order is thus maintained in organisms while still following the second law of thermodynamics.

Photosynthesis is very important to life on earth. Plants are the only multicellular organisms that are able to produce their own food. Animals have to either feed on plants directly or indirectly by feeding on other animals. Without photosynthesis, all plants and animals would die after a while. Photosynthesis is also important in regulating the planets oxygen and carbon (IV) oxide levels. Remember plants use CO2 and produce O2 during photosynthesis. This sustains life by also ensuring that the carbon cycle between the earth, the oceans, plants and animals goes on. The mere lack of sunlight reaching plants on earth is said to have caused the last extinction event!