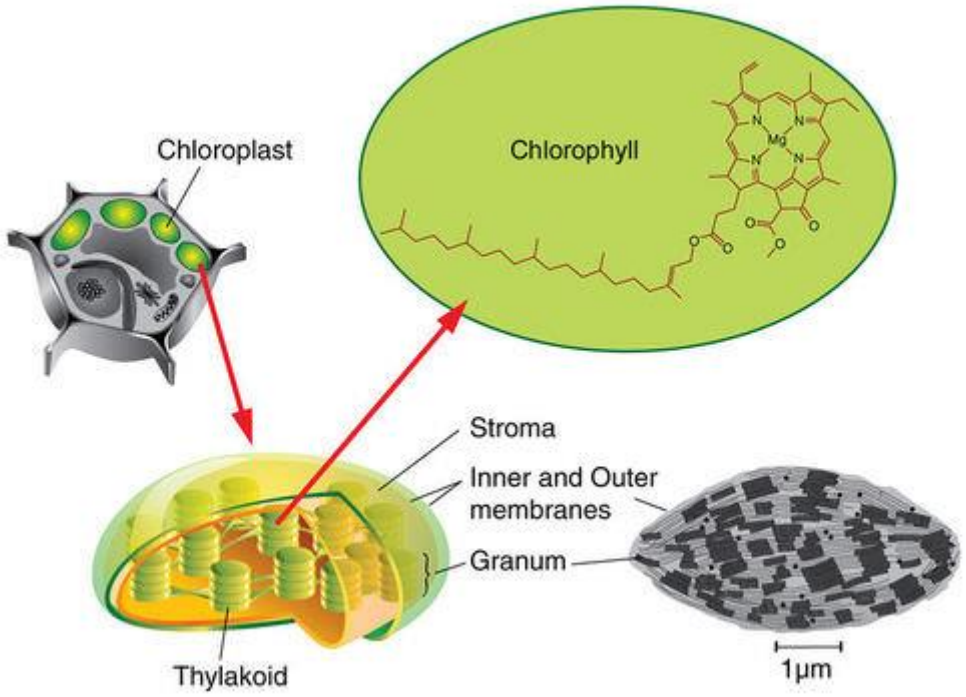

[Figure 6]

Within plant cells or algal cells, chloroplasts organize the enzymes, chlorophyll, and accessory pigment molecules necessary for photosynthesis.

When the reactants meet inside chloroplasts, or the very similar cells of blue-green bacteria, chemical reactions combine them to form two products: energy-rich glucose molecules and molecules of oxygen gas. Photosynthetic organisms store the glucose (usually as starch) and release the oxygen gas into the atmosphere as waste.

Let's review the chemical equation for photosynthesis once more, this time at the level of atoms as in the equation below.

$$6CO_2 + 6H_2O + \text{light} \xrightarrow[\text{Chlorophyll}]{\text{Chloroplast}}_{\text{Enzymes}} C_6H_{12}O_6 + 6O_2$$

Look closely at its primary purpose: storing energy in the chemical bonds of food molecules. The source of energy for food is sunlight energy. The source of carbon atoms for the food molecules is carbon dioxide from the air, and the source of hydrogen atoms is water. Inside the cells of plants, algae, and photosynthetic bacteria, chlorophyll, and enzymes use the light energy to rearrange the atoms of the reactants to form the products, molecules of glucose and oxygen gas. Light energy is thus transformed into chemical energy, stored in the bonds which bind six atoms each of carbon and oxygen to twelve atoms of hydrogen – forming a molecule of glucose. This energy