

Photosynthesis is the process by which energy from the sun is captured and converted by plants into chemical energy in the form of sugars and other organic molecules. This process provides the foundation for all life on Earth, as it is the main source of energy for the vast majority of organisms. It occurs when energy from sunlight is absorbed by chlorophyll molecules in the plant's leaves. This energy is then transferred to ATP (adenosine triphosphate), which is then used to power various metabolic processes. The energy is also used by the plant to take up carbon dioxide from the atmosphere and combine it with water to form simple sugars (glucose) and other organic molecules. Oxygen is produced as a by-product of this process.