Photosynthesis
process of converting light energy to chemical energy and storing it in the bonds of sugar

The Cell Cycle
ordered set of events resulting in cell growth and division into two daughter cells

Interphase
phase of the cell cycle in which a cell spends the majority of its time and performs most of its normal functions in preparation for cell division

Gap 1 Phase
also known as $G_1$ phase; phase in which the cell grows, carries out protein synthesis and performs other cellular functions

Synthesis Phase
also known as S phase; phase in which the cell replicates its DNA

Gap 2 Phase
also known as $G_2$ phase; growth phase which allows cells to continue to carry out normal functions and continue growing

Mitosis
also known as M phase; process by which new cells are created and results in two daughter nuclei, each with genetic material identical to each other and the mother cell

Prophase
first stage of mitosis

Chromosome
single piece of coiled DNA which contains many genes, regulatory elements and other nucleotide sequences

Centrosome
area in the cell where microtubules are produced

Mitotic Spindle
fibers which form during mitosis and segregate chromosomes between daughter cells during cell division
Fundamental Plant Processes

Chromatid
one copy of a duplicated chromosome which is usually joined to the other copy by a centromere

Centromere
region of DNA typically found in the center of a chromosome which links two sister chromatids

Metaphase
second stage of mitosis

Anaphase
third stage of mitosis

Telophase
fourth stage of mitosis

Cytokinesis
process which occurs after mitosis where the cell splits and two daughter cells are created, each with one nucleus

Germination
process by which a plant grows from a seed

Endosperm
tissue produced inside the seeds of most flowering plants which surrounds the embryo and provides nutrition in the form of starch, oils and protein

Cotyledon
first embryonic leaf (leaves) of a seedling which emerge at the time of germination

Radicle
first root of the plant which elongates during germination and forms the primary root

Respiration
process by which a cell releases energy by breaking down glucose and other food molecules in the presence of oxygen
Fundamental Plant Processes

Turgor Pressure
also known as turgidity; pressure which occurs when the water located inside the cells begins to expand, pushing on the cell membranes

Stomata
pores found on the surface of plant structures which control the exchange of gas and water

Plant Growth Regulator
natural or synthetic organic compound which modifies or controls one or more specific physiological processes within a plant

Phytohormone
organic compounds produced within the plant

Apical Dominance
control of the shoot tip over axillary bud outgrowth which allows a plant to grow upward more than it grows outward

Phototropism
growth of plants in response to light

Senescence
condition or process of aging

Diffusion
movement of dissolved substances from areas of high concentration to areas of low concentration

Osmosis
diffusion of water across a semipermeable membrane from areas of high concentration to areas of lower concentration

Semipermeable Membrane
membrane which allows water molecules, but not solute molecules, to pass

Hypotonic Solution
solute concentration is lower outside of the cell than inside

Hypertonic Solution
solute concentration is greater outside of the cell than inside
Fundamental Plant Processes

Flaccid
  plant cell which is limp through a reduction of pressure inside the cell

Plasmolysis
  process in which cells lose water in a hypertonic solution

Isotonic Solution
  solute concentration is the same on either side of the cell membrane and results in incipient plasmolysis

Photosynthate
  chemical product of photosynthesis

Adenosine Triphosphate (ATP)
  transports chemical energy within cells for metabolism

Stroma
  connective, functionally supportive framework of a biological cell, tissue or organ

Calvin Cycle
  metabolic pathway found in the stroma of the chloroplast in which carbon enters in the form of CO$_2$ and leaves in the form of sugar

Mitochondria
  membrane-bound organelle found in eukaryotic cells which generate most of the cell’s supply of ATP which is used as energy

Pyruvate
  compound formed as a result of glycolysis

Transpiration
  loss or evaporation of water from plant leaves through stomata

Guard Cells
  specialized cells which help regulate the rate of transpiration by opening and closing the stomata