

- Structure- large, membrane bound structures found in plant and fungi cells
- Function-
 - Some are for digestion
 - Most are for storage of water and/or ions
 - To help maintain its normal volume
 - Inside seeds they are filled with proteins
 - In flower petals or fruits they contain pigments
 - May contain toxic compounds to keep predators away
- Peroxisomes:
 - Structure- globular organelles bound by single membrane
 - Originate as buds in the ER
 - Function- center for oxidation reactions
 - Liver cell peroxisomes contain enzymes that remove electrons from or oxidize the ethanol in alcohol
 - Specialized ones in plants called **glyoxysomes**
- **Mitochondria:**
 - Structure- have two membranes
 - Inner one is folded sack of cristae
 - Is called the mitochondrial matrix
 - Have their own DNA
 - Manufacture own ribosomes
 - Function- ATP production is core function

Over view of cellular respiration

- All organisms use glucose to build basic cells, and other compounds
- Cells recover glucose by breaking down these molecules
 - Glucose is used to make ATP through CR or fermentation
- CR produces ATP from a molecule with high PE-usually glucose
- 4 Steps
 - Chemical reactions
 - Distinctive starting molecule
 - Characteristics set of products
- When Glucose is Oxidized
 - Carbon atoms of glucose are oxidized to form CO₂
 - Oxygen atoms on O₂ are reduced to form water
 - Glucose is oxidized through a long series of carefully controlled redox reactions
 - Result change is free energy is used to synthesize ATP, ADP, etc
- Steps of CR
 - CR is any set of reactions that produces ATP in an electron transport chain
 - 4 steps:
 - Glycolysis - broken down to form pyruvate
 - Pyruvate processing
 - Citric Acid Cycle (Krebs cycle)- Acetyl CoA is oxidized to CO₂
 - Electron transport and chemiosmosis
- CR Interacts with metabolic pathways
 - Energy and carbon