Glycolysis	EMP (Embden Meyerhof Parnas) pathway Occurs in cytoplasm Common step in both aerobic and anaerobic respiration Hexose is converted to two molecules of pyruvate
Aerobic respiration	1. Glycolysis (Cytoplasm) 2. Pyruvate to acetyl CoA by pyretic dehydrogenase (mitochondrial matrix) 3. TCA or Krebs cycle (mitochondrial matrix)
Alcoholic Fermentation	Pyruvic acid to ethanol and CO_2 Enzymes- pyruvic acid decarboxylase and alcohol dehydrogenase

Lactic acid fermentation	Pyruvic acid to lactic acid In muscles and some bacteria Enzyme- lactate dehydrogenase
Tricarboxylic acid cycle (TCA)	Hans Krebs (Krebs cycle) Citric acid cycle- In the first step OAA reacts with acetyl CoA to produce citric acid
Net gain of ATP per glucose in aerobic respiration	36 or 38 ATP **Glycolysis-** 6 or 8 ATP (2 ATP and 2 NADH) **Transition reaction-** 6 ATP (2 NADH) **TCA-** 24 ATP (2 GTP, 6 NADH, 2 $FADH_2$)

Decarboxylation reactions	Pyruvate to acetyl CoA Isocitrate to α-ketoglutarate α-ketoglutarate to succinyl CoA
Substrate level phosphorylation (ATP production)	**Glycolysis-** 1,3-bisphosphoglyceric acid to PGA PEP to Pyruvic acid **TCA-** succinyl CoA to Succinate (GTP is produced)
Electron transport system (ETS)	Inner mitochondrial membrane Complex I- NADH dehydrogenase (FMN, Fe-S) Complex II- Succinate dehydrogenase (FAD, Fe-S) Complex III- Cytochrome bc_1 Complex IV- Cytochrome c oxidase (cyt a, a_3, two Cu) Complex V- ATP synthase (F_0, F_1)

Mobile electron carrier	Cytochrome C and ubiquinone (UQ)
Respiratory quotient	Carbohydrate- 1 Fat- 0.7 Protein- 0.9
Net gain of ATP in fermentation	2 ATP