Ch 9.1

**Catabolic Pathway** = yield energy by oxidizing organic fuel

* Is metabolic pathway that release stored energy by breaking down complex molecules

**Exogenic Reaction** = Fuel

Energy from bond goes to…

* Work (Some)
* Heat

**Catabolic Process** = Break down stuff for energy; Then waste

* **Organic Compound** = Potential Energy = *Bonds*
  + Break **high energy** organic compound into **lower-level** *waste*
* **Fermentation** = Degrade sugar / other organic fuel without O2
* **Areobolic Respiration** = O2 is consumed as **reactant** with organic fuel
  + *More* efficient than **Fermentation**
  + Most **Eukaryotic** / *some* **Prokaryotic** cells use this
    - Some **Prokaryotes** use things other than O2
      * Called **Anaerobic Respiration** (an = no O2)
        + **Fermentation** is *Anaerobic*
  + Kind of like a car engine
    - Gas = Food
    - Exhaust = Carbon Dioxide/Water
    - Or:
      * Organic Compounds + Oxygen + Carbon Dioxide + Water + Energy \ Heat

**Carbohydrates**, **Fats**, and **Protein** can be processed and made into food

Cellular Respiration = Both **Aerobic** and **Anaerobic** **Respiration**

* C6H12O6 + 6 O2 🡪 6 CO2 + 6 H2O + ATP + Heat
  + Breakdown of glucose = **Exergonic**
  + Free Energy Change of -686 kcal / 2870 kJ