# ENERGY

* Photosynthesis
  + If you don’t know what this is then I quit
* Cellular respiration
  + Organisms release energy stored in the chemical bonds of food molecules they eat (or the sugar they produce in photosynthesis) and use it as fuel.
* Kinetic Energy
  + Moving energy
* Potential energy
  + Stored energy
* LAWS
  + Law of conservation of matter
    - Matter can be changed from one physical or chemical form to another, but in doing so, no matter is created or destroyed
  + 1st Law of Thermodynamics
    - the total amount of energy in the universe is constant – energy can be transformed, but it can never be created or destroyed.
  + 2nd Law of Thermodynamics
    - Energy changes are accompanied by increasing disorder or randomness (heat always flows spontaneously from hot to cold).
* First process is Photosynthesis
  + Take kinetic energy and make it potential energy
  + Takes place in the chloroplasts
* Second process is Cell respiration
  + Reverse of photosynthesis
  + Step 1: ????
  + Step 2: Krebs Cycle
    - Extract energy from sugar
    - First the end product of glycolysis, pyruvate is chemically modified.
  + Step 3: ATP is built in the Electron Transport Chain.
* C4 and CAM photosynthesis are evolutionary adaptations at the biochemical level that, although being more energetically expensive than regular (C3) photosynthesis, allow plants in hot, dry climates to close their stomata and conserve water without shutting down photosynthesis.