11/10/11

* Biotechnology
  + Genetic engineering
    - Adding, deleting or transplanting genes from one organism to another, to alter the organisms in useful ways.
  + Advances human health
    - Produces medicines to treat diseases
    - Curing diseases
    - Preventing diseases from occurring in the first place
  + 5 steps to biotechnology
    - Chop: use restriction enzymes to isolate specific code
    - Amplify: make billions of copies of the code
    - Insert: put into bacteria as a plasmid (cause bacteria are too stupid to not spread genetic code)
    - Grow
    - Identify
  + Treating diseases and producing medicine with biotechnology
    - Cure diseases
    - Treating diseases
      * Treatment of diabetes
        + Some bacteria produce human insulin
        + With this advancement, came other things
      * Human growth hormone (HGH)
      * Erythropoietin
  + Curing disease
    - Some things cannot be cured without severe side effects
    - Sometimes the cure is only temporary
  + Gene Therapy difficulties
    - Difficulty getting the working gene into the specific cells where it is needed
    - Difficulty getting the working gene into enough cells and at the right rate to have a physiological effect
    - Problems with the transfer organism getting into unintended cells
* Preventing diseases
  + The chance that a certain set of parents will give birth to a diseases baby
  + Will a baby be born with a genetic disease?
    - Cystic fibrosis
    - Sickle-cell anemia
    - Down syndrome
    - others