11/03

* Chapter 5: DNA, Gene Expression, and Biotechnology
  + “The DNA 240”
    - Knowledge about DNA is increasing justice in the world
    - 240 people have been freed because their DNA wasn’t in the evidence
  + DNA, and three things
    - Structure
      * Backbone of sugars and phosphates for nucleic acid
      * Adenine, Guanine, Thymine, Cytosine
      * Is two polynucleotides twisted in a double helix
      * A and T always paired, and G and C are always paired
      * The sequence of the nitrogenous bases carries genetic information
    - How it works
      * DNA to proteins
    - How it replicates, when and where.
  + Two important features
    - DNA contains the instructions on how to create a body and control its growth and development
    - Passed down from parents to offspring
  + Genes are sections of DNA that contain instructions for making proteins
    - All DNA is basically the same from being to being, plants to invertebrates, invertebrates to vertebrates.
    - Not all DNA produces proteins
    - About 95% doesn’t produce anything, it just turns things on and off
  + So how does it work?
    - Transcription and translation
      * Turning DNA sequence to an RNA sequence
      * RNA making proteins
    - DNA to RNA
      * Nucleus has DNA
        + DNA can’t leave the nucleus because the nucleic membrane is like the evil stepmother that keeps the princess in the tower
        + So DNA makes a coded copy called RNA replacing all of the T with U so that gene can leave
      * To make the code
        + Unzip the DNA
        + Take the complement
        + Replace all T’s with U’s

After the complement!!!

* + - * + Viola, RNA molecule!

Vocabulary

Gene – a sequence of DNA calling for a specific trait

DNA – a molecule that contains all of the information to create a living being. It has a sugar phosphate back with nitrogenous bases

Chromosome – the entire six feet of DNA in each cell, a packaging of gene basically

Genome – complete collection of genes. Found in pretty much every cell in a living creature’s body

Alleles – alternate versions of a gene that code for the same trait. Ex: Allele 1 will give you hair, albeit brown hair while Allele 2 will still give you hair, albeit red hair.

Genotype – all of the genes in an organism…what you don’t see…duh

Phenotype – the physical manifestations of the instructions. It’s what you see

For Tuesday Lab

Randomly put together 21 bases of DNA in notebook

Start with TAC