**Protein Synthesis, Meiosis & Mutation Unit**

**What to Study**

1. Handwritten Notes (Difference between DNA & RNA, Transcription & Translation), first day
2. RNA & Protein Synthesis explore learning gizmo
3. Amoeba sisters DNA vs. RNA & Protein Synthesis video recap worksheet
4. Translation labeled diagram (completed in class)
5. Book questions (p. 190 honors, p. 306 advanced)
6. Amoeba sisters meiosis video review sheet
7. Meiosis online activity sheet (done in class)
8. Mutation worksheet

**Concepts to Understand and tasks to be able to complete**

1. What are the 3 main structural differences between DNA & RNA? (notes, amoeba sisters sheet)
2. What are the 3 types of RNA? (Amoeba sisters recap sheet)
3. Be able to describe the process of transcription (notes, hw, amoeba sisters sheet)
4. Be able to describe the process of translation (notes, hw, amoeba sisters sheet)
5. Where does transcription take place in the eukaryotic cell?
6. Where does translation take place in the eukaryotic cell?
7. Be able to label a diagram of translation (mRNA, protein, ribosome, codon, anti-codon, tRNA, amino acid, protein) (diagram from class)
8. Know the stages of Meiosis AND what happens in each (Prophase I, Metaphase I, Anaphase I, Telophase I, Prophase II, Metaphase II, Anaphase II, Telophase II) (Online meiosis activity)
9. Understand the major differences between mitosis and meiosis (Amoeba sisters recap sheet and do now #5)
10. Understand what a mutation is (Any change in the DNA sequence)
11. Understand that a mutation can be silent (have no effect), can have a positive effect or a negative effect
12. Understand why a mutation might be silent (in substitution mutations there is more than one possible code for many amino acids, large parts of the DNA sequence are non-coding regions).
13. Understand the difference between a gene and chromosome mutation
14. Understand the different types of gene mutations (substitution, silent, insertion, deletion, frameshift)
15. Understand the different types of chromosome mutations (deletion, duplication, inversion, insertion, translocation)

**Some Vocabulary to Know (Not An Inclusive List, but these are important)**

1. haploid cell
2. diploid cell
3. crossing-over
4. mutagen (something that causes a mutation)
5. gamete
6. zygote
7. homologous chromosomes
8. gene
9. types of mutations (see above section, concepts to understand, #14 & #15)
10. recombinant chromosomes