**Study Guide for Unit 6 Test**

Honors Biology

February 24 & 25, 2016

**Unit 6: Classical Genetics**

**Chapter 6: Meiosis and Mendel**

1. **Mendel** (what he studied, discovered, & disproved)
2. **True breeding (Purebred) & Hybrid Organisms** (explain the importance of each)
3. **Patterns of Inheritance** (Mendel’s observations of P, F1, & F2 generations)
4. **Mendel’s Law of Segregation** (two main conclusions)
5. **Genotype** vs. **Phenotype** (meaning & how to make **ratios, percentages, or fractions** of each)
6. **Allele** (meaning, **Dominant** vs. **Recessive**)
7. **Homozygous** vs. **Heterozygous** (relate to phenotype; which allele is expressed?)
8. **Punnett Squares** (understand how to use them & how **probability** works with them)
9. **Monohybrid Cross** vs. **Dihybrid Cross** (meaning, purpose, & when/how to use them)
10. **Carriers** (their role in inheritance)
11. **Testcross** (what it is and how it is used)
12. **Law of Independent Assortment** (as related to meiosis and dihybrid crosses)
13. **HONORS ONLY Crossing Over** (definition & its relation to **genetic linkage**)

**Chapter 7: Extending Mendelian Genetics**

1. **Sex-linked** Genes (meaning, when traits are expressed, & why different genders are affected differently)
2. **Patterns of Inheritance** (meaning of each & able to perform crosses of each)
   1. **Incomplete Dominance** Inheritance
   2. **Codominant** Inheritance
   3. **Multiple Allele** Inheritance
   4. **Polygenic** Inheritance
   5. **Prepare to answer questions that involve more than one pattern of inheritance.**
3. **Environmental Influences** on Traits
4. **HONORS ONLY Pedigrees** (meaning & how to use them – be able to complete these!)

**Chapter 9: Frontiers of Biotechnology**

1. **HONORS ONLY Genetic Screening** (describe use)

**Science and Engineering Practices**

1. **Statistics** (analyze probability and results to determine validity of experiment)