Day 4 Review

Mendelian Genetics

What You Must Know:

1. The differences between asexual and sexual reproduction
2. Advantages of asexual vs. sexual reproduction
3. The role of meiosis and fertilization in sexually reproducing organisms
4. The importance of homologous chromosomes to meiosis
5. How the chromosome number is reduced from diploid to haploid in meiosis
6. Three events that occur in meiosis but not mitosis
7. The importance of crossing over, independent assortment, and random fertilization to increasing genetic variability
8. Know when a cell goes from diploid to haploid
9. Terms associated with genetics problems: P, F1, F2, dominant, recessive, homozygous, heterozygous, phenotype and genotype
10. How to derive the proper gametes when working a genetics problem
11. The difference between an allele and a gene
12. How to read a pedigree
13. How to use data sets to determine Mendelian patterns of inheritance
14. Know when to use rule of addition and multiplication in genetics
15. How the chromosome theory of inheritance connects the physical movement of chromosomes in meiosis to Mendel’s laws of inheritance
16. The unique pattern of inheritance in sex-linked genes
17. How alteration of chromosome number or structurally altered chromosomes (deletions, duplications, etc.) can cause genetic disorders
18. How genomic imprinting and inheritance of mitochondrial DNA are exception to standard Mendelian inheritance
19. Predict a null hypothesis and calculate a Chi-Square analysis