**Meiosis, Non-Disjunction, Karyotypes and Fertilization**

Class Copy

Be able to define all vocab terms and do each “be able to.”

**You may use a whiteboard for all drawings and diagrams, if you like**

**Meiosis**

Vocabulary: gametes, somatic diploid, haploid, homologous chromosomes, tetrad, crossing over, independent assortment, Interphase (I & II), Prophase (I & II), Metaphase (I & II), Anaphase (I & II), Telophase (I & II), Cytokinesis (I & II)

You should be able to:

 Draw a cell in each stage of Meiosis

 Diagram the process of Meiosis from Interphase I through the end of Cytokinesis II

 Describe what is happening to the DNA during each phase of Meiosis

 Define what form the DNA is in for each phase of Meiosis

 Describe the major differences between Meiosis and Mitosis

 Explain the evolutionary benefit to both crossing over and independent assortment

 Know what “**n**” means in regards to the number of chromosomes and homologous pairs present in an organism

 Track the progression of a cell’s n number, and know when it changes from diploid to haploid

 Describe why gametes are haploid

**Non-Disjunction**

Vocabulary: aneuploidy, monosomy, trisomy

You should be able to:

 Draw a cell showing non-disjunction I and II

 Predict the n number (either n-1 or n+1) for all gametes produced by either non-disjunction I or II

 Describe the effect of aneuploidy for an organism

**Karyotypes/Genetic Disorders**

Vocabulary: karyotype, Klinfelter’s Syndrome, Turner Syndrome, Down’s Syndrome

You should be able to:

 Read a karyotype

 State all the rules for organizing a karyotype

 Describe the uses of a karyotype

 Know the number of chromosomes in a human, as well as the number of homologous pairs

Understand the genetic basis for each of the chromosomal disorders discussed in class including 1) what form of aneuploidy causes them and 2) which chromosome # is effected

Understand how the 23rd chromosome pair determines a human’s biological sex (XX or XY)

**Fertilization**

Vocabulary: differentiation, embryo, zygote, oogenesis, spermatogenesis, fetus

You should be able to:

 Describe how two gametes make a zygote

 Explain why gametes have half the chromosomes of somatic cells

 Know the terms, in order, for each stage of development, from zygote to baby.

 Describe how an egg is produced during oogenesis

 Explain how oogenesis produces only one functional haploid gamete

 Describe how sperm is produced during spermatogenesis

 Describe the difference between oogenesis and spermatogenesis