

## Quiz 2 Review – What you should know for quiz 2

Know and be able to distinguish: somatic and germ cells, haploid and diploid cells  
What are homologous chromosomes and what do they have to do with ploidy  
Know the basic mechanics (steps) of the two cell divisions that compose meiosis and how they produce the end result of the process (4 haploid cells)  
Be able to define and distinguish: synapsis, chromatids, chromosomes, tetrad  
Know the important differences in both the processes and the outcomes of meiosis and mitosis  
Be able to recognize and label diagrams of cells undergoing meiosis  
Understand 3 ways that sexual reproduction promotes genetic variation  
Be able to define crossing over and independent assortment of chromosomes and how they promote genetic variation

Know the basic theory for inheritance before Mendel: the theory of blending inheritance, the theory of direct inheritance, and how Mendel's theory of inheritance differed from the earlier theories

Know what mono- and dihybrid crosses are and the expected ratios of phenotypes and genotypes from these crosses

Be able to define and distinguish among the following terms:

gene	dominant	homozygous	genotype	test cross
locus	recessive	heterozygous	phenotype	punnet square
allele	true breeding	hemizygous	karyotype	
homogametic, heterogametic				

Know and understand in modern terms, Mendel's 4 laws

Know what incomplete dominance and co-dominance are and how they are similar and different

Know the addition and product rules of probability and when to apply each to problems in patterns of inheritance

Know how each of the following change expected phenotypic and genotypic ratios:

- partial dominance (incomplete dominance and co-dominance)
- more than 2 possible alleles at a locus (e.g. human ABO blood groups)
- polygenic inheritance (multiple loci affecting a single trait)
- sex linkage (X-linkage, Y-linked traits)

Know what autosomes and sex chromosomes are.

Recognize several different chromosomal and non-chromosomal mechanisms of sex determination.

Know the consequences of non-homology of the sex chromosomes for sex-linked inheritance (X-linked and Y-linked inheritance)

**BE ABLE TO WORK PROBLEMS LIKE THOSE ON THE SET I GAVE YOU**  
(through #16)