Chapter 11 & 14 test: What to know

- Genes, alleles, traits
- Mendel
  - Explain P, F_1, F_2 generations for single trait and 2-factor cross
  - Monohybrid & dihybrid crosses: typical phenotype ratios for F_2 generation
  - Principle of dominance and concept of "carrier"
  - Principle of independent assortment
- Probability principles - basic
- Homozygous, true breeding
- Heterozygous, hybrid, "carrier"
- Punnett squares
  - For single factor crosses:
    - Given a written description, be able to assign symbols to dominant & recessive traits, show the cross that is described, draw a Punnett square and plot the gametes from each parent, list the phenotypic ratios and genotypic ratios of the offspring
  - Be able to create a Punnett square for a 2-factor cross. Be able to interpret a 2-factor cross Punnett square
- Beyond dominant & recessive: incomplete dominance, codominance, multiple alleles, polygenic traits
- Meiosis:
  - haploid (N), diploid (2N)
  - crossing over
  - How are the results of meiosis different than the results of mitosis?
  - What kind of cells are produced by meiosis?
  - Nondisjunction and its result
- Human genetics:
  - Karyotype
  - normal number of chromosomes in a human karyotype
  - sex chromosomes (X & Y, probability of male or female offspring)
  - autosomal chromosomes
  - chromosomal abnormalities (Down syndrome, Turner's syndrome, Klinefelter's syndrome)
- Blood group genetics
  - Rh group and ABO group
  - universal donors, universal recipients
- Gene maps & gene linkage
- Pedigrees:
  - know how to read them,
  - be able to assign genotypes for autosomal and sex-linked traits,
  - be able to determine phenotype from genotype,
  - why X-linked recessive traits more often expressed in males