* Vocabulary
  + Monohybrid crosses: crosses between parents that differ in a single characteristic
  + P (parental) generation: first generation of a cross
  + F1 (First filial) generation: offspring of parent generation
  + Reciprocal cross: changing the sexes of phenotypes to ensure that characteristics are not sex-linked
  + F2 (Second filial) generation: offspring of F1 generation
* What Monohybrid crosses Reveal
  + F1 display phenotype of only one parent, inherit genetic factors from both parents because F2 has both phenotypes
    - Must be two genetic factors encoding a characteristic
  + Two characteristics separate when gametes are formed
    - Two gametes produce a zygote, alleles unite to produce genotype
    - Dominant and recessive phenotypes
      * Dominant: phenotype which appears in F1 generation
      * Recessive: phenotype which disappears in F1 generation but reappears in F2 generation
  + Two alleles of plant separate with equal probability into gametes
  + Principle of segregation: individual diploid organism possesses two alleles for any particular characteristic, one from maternal and one from paternal
  + Concept of dominance: if two different alleles are present in genotype, only dominant allele observed in phenotype
* The Molecular Nature of Alleles
  + Alleles represent DNA sequences
    - Round vs. wrinkled: wrinkled contains mutation error, extra 800 bp of DNA to disrupt normal coding sequence of gene
* Predicting the Outcomes of Genetic Crosses
  + The Punnett Square
    - Draw a grid, put gametes produced by one parent across top edge and gametes produced by other parent down left side
      * Each cell contains allele from corresponding gametes
    - Backcross: cross between F1 genotype and either parental genotype
    - Determine which gametes produced by each parent (principle of segregation)
    - Fill out square, determine ratios
  + Probability as a Tool of Genetics
    - Probability: likelihood of occurrence of event
      * Times an event takes place divided by all outcomes
      * Fraction or decimal
    - Know how or how often something happens
  + The Multiplication Rule
    - Probability of two or more events taking place together is calculated by multiplying independent probabilities
    - One outcome cannot influence the outcome of another
  + The Addition Rule
    - Probability of one of two or more mutually exclusive events is calculated by adding probabilities of events
  + Applying Probability to Genetic Crosses
    - Useful for more complex crosses where Punnett squares are not as clear or quick
  + Conditional Probability
    - Additional information modifies the probability
    - Heterozygous testcross, know that the progeny has dominant phenotype, know that there is a probability of 2/3 that the progeny is heterozygous
  + The Binomial Expansion and Probability
    - (p + q)n
      * P = probability of one event
      * Q = probability of alternative event
      * N = number of times event occurs
    - For one single type of event (i.e. 5 children, probability 3 are albinos)
      * P = (n!/s!t!) \* psqt
        + Probability of event p occurring s times and q occurring t times
* The Testcross
  + One individual of unknown genotype crossed with homozygous recessive genotype for trait in question to reveal unknown genotype
* Genetic Symbols
  + Wild type: common allele for a character
    - Denoted with plus sign (i.e. ye+)
  + Slash: alleles present in an individual genotype
    - Goat heterozygous for restricted ears: El+/ElR or +/ElR
  + Unknown genotype: underscore
    - I.e. A\_ means could be AA or Aa