

Chapter 12 & 15 test: Chromosomal inheritance: What to know

- Genes, alleles, traits
- Mendel
 - Explain P, F₁, F₂ generations for single trait and 2-factor cross
 - Monohybrid & dihybrid crosses: typical phenotype ratios for F₂ 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)
 - X chromosome inactivation
 - 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