

Heredity II Test Topics

Meiosis & Reproduction

1. Meiosis vs. Mitosis (compare/contrast, homologous chromosomes, haploid vs. diploid, somatic vs. germ cells)
2. Phases of Meiosis
3. Genetic Variation (crossing over, independent assortment in meiosis, fertilization, gametes → fertilization → zygote)
4. Asexual vs. Sexual Reproduction (types & advantages/disadvantages of each)
5. Genetic Linkage

Genetics

1. Gregor Mendel & his experiments with pea plants
2. Genetics vocabulary/terms
3. 1-factor & 2-factor crosses using Punnett squares (analyzing probability of the outcomes)
4. “Notable crosses”: other patterns of inheritance (sex-linked, codominance, incomplete dominance, polygenic, multiple allele)
5. Examples of disorders on autosomes & sex chromosomes

Biotechnology & Applied Genetics

1. Pedigrees
2. Karyotypes
3. Genetic Testing & Genetic Disorders (including translocation & nondisjunction - monosomy & trisomy)
4. Selective Breeding (inbreeding & crossbreeding/hybridization)
5. Cloning
6. Manipulating DNA & Genetic Engineering (plasmids, restriction enzymes, recombinant DNA, gel electrophoresis)
7. DNA Fingerprinting
8. Transgenics/GMOs
9. Genetic Screening & Gene Therapy
10. Bioethics