Genetics Review Cards Part 2

Mendel's Laws (remember he laid groundwork for genecs but these rules can all be broken looking at chromosome theory and molecular genecs)

a. Law of Dominance- one allele will be expressed over another (ex. Aa – if big A is purple it will be seen over lile a which is white)
b. Law of Segregaon - alleles pairs separate from each other during meiosis
c. Law of Independent Assortment- alleles assort independently during meiosis IF they are on separate chromosomes (i.e. AaBb can make gametes AB, Ab, aB or ab)

Probability, Paerns and Excepons to Mendel's Rules

a. product rule- mulply chance of one event happening by the chance of another event happening to get the chance of both events occurring together
b. autosomal vs. sex-linked (on the X or Y chromosome)
c. monohybrid cross; one trait; 3:1 (Aa x Aa); 1:1 (Aa x aa) or 4:1 (AA x_), (aa x aa)
d. dihybrid cross; 9:3:3:1 genotype (AaBb x AaBb) or test cross 1:1:1:1(AaBb x aabb)

a. incomplete dominance- red X white → pink; both protein product are expressed and blended
b. codominance- red x white → red and white; both protein products are equally expressed ex.AB blood type
c. linked genes- genes on same chromosome that are inherited together (can be unlinked by crossing over); recombinaon frequency calculated by recombinants/ total; used for chromosome mapping; genes further apart cross over more oen
d. gene/environment- phenotypes affect by environment, Siamese cat, flower color with soil pH, seasonal color in arcc animals, human height and weight

Human Genecs

a. karyotype- 22 pair autosomes & 1 pair sex chromosomes + 46 total chromosomes
b. Chromosomal Mutaons (occur during gamete formaon)
    1. deleon, inversion, addion of genes as a result of crossing over mistakes
    2. chromosomal number abnormalies