Mendelian Genetics, Pedigrees and DNA Study Guide

Mendelian Genetics

General:

1. Be able to take a phenotype of a parent and construct the possible genotypes
2. Know what 2 factors affect phenotype:
3. What does natural selection act on and why?
4. Know the terms:

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Trait

•Heredity

•Genetics

•Punnett Square

•Monohybrid Cross

•Dihybrid Cross

•Phenotype

•Genotype

•Genotypic ratio

•Phenotypic ratio

•Homozygous

•Heterozygous

•Dominant

•Recessive

•Allele

•Law of Segregation

•Law of independent assortment

•Laws of Inheritance

•Law of Dominance

•Incomplete Dominance

•Codominance

•Sex-linked

Traits

**Flash Card** set at: http://quizlet.com/10807965/genetics-flash-cards/

Monohybrid Crosses:

1. Be able to make a punnett square given the P generation
2. Interpret/calculate phenotypic and genotypic ratios
3. Identify any major trends
	1. 1:2:1 (KNOW WHAT THIS MEANS!)

Dihybrid:

1. Be able to “Foil” P generation genotypes for genetic combinations
2. Set up a dihybrid cross
3. Interpret/calculate phenotypic and genotypic ratios
4. Identify any major trends
	1. 9:3:3:1 (KNOW WHAT THIS MEANS!)

Pedigree

1. Be Able to create and interpret a pedigree

Practice:

|  |  |
| --- | --- |
| The great-great maternal grandmother of a boy was a carrier for color-blindness, an X-linked disorder. His great uncle on his mother’s side was colorblind but this great uncle’s father was unaffected. The boy’s mother has 2 brothers (1 colorblind, 1 unaffected) and 1 sister (unaffected). The boy’s grandmother on his mother’s side had 1 brother who was colorblind and 3 sisters. Two of these sisters were unaffected and one was a carrier. The boy’s great grandmother on his mother’s side had 4 sisters. The boy has one unaffected sister and he is colorblind. What is the probability of the boy’s sons being colorblind if he marries a non-carrier?  | To the right is a pedigree for an inherited brain disease.  Provide the genotypes of each of the individuals marked with lower case letters.a)\_\_\_\_\_\_\_\_\_b)\_\_\_\_\_\_\_\_\_\_\_\_c)\_\_\_\_\_\_\_\_\_\_\_\_http://www.yhc.edu/external/jasonb/previous_semesters/Bio103_Su2004/Links_of_Interest/pedigr2.gifd)\_\_\_\_\_\_\_\_\_\_\_\_ |

Genetics

1. What is the function of DNA?
2. What is the structure of DNA?
3. Why does it take that structure?
4. What makes up each piece of that structure? (Be able to label)
5. 
6. What is the basic subunit of DNA?
7. What pairs to what?
8. What is base pairing?
9. What is a nucleotide?