Topic: Dihybrid Cross Punnett Squares

Summary: Students will learn about two trait crosses and Mendel's law of independent assortment.

Goals & Objectives: Students will be able to determine the probability of different human traits. Students will be able to explain the law of independent assortment.

Standards: CA Biology *2g. Students know* how to predict possible combinations of alleles in a zygote from the genetic makeup of the parents.

Time Length: 10 minutes

Prerequisite Knowledge: Students know how to complete a punnett square for dominant and recessive traits. Students know vocabulary words like homozygous, heterozygous, dominant, recessive, genotype and phenotype. Students know how to calculate ratios.

Materials:

- Textbook for reference
- Handouts and pencils

Procedures:
1. Students work on the handout by themselves.

Accommodations: Students with an IEP can take the handout home if they need extra time, and/or do the first punnett square and questions and the question on independent assortment.

Evaluation:
Correct gamete genotypes for each punnett square are worth 1 point each for a total of 3 points. Completed punnett squares are worth 2 points each for a total of 6 points. Each of the punnett square questions is worth one point each for a total of 4 points. Independent assortment question is worth 2 points. This assignment is worth a total of 15 points.

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Name: _____ Row: _____

Date:_____ Period:_____

Dihybrid Crosses

Complete the following punnett squares and answer the corresponding questions for human.

1) For humans, freckles and broad noses are dominant to no freckles and narrow noses. Use the punnett square below to determine the possible offspring from a cross between two heterozygous freckled broad nose people.

Genotypes: _____

Phenotypes: _____

_____

Phenotypic Ratios: _____

2) For humans, large eyes and nearsightedness are dominant to small eyes and normal vision. Use the punnett square below to determine the possible offspring from a cross between a person who is homozygous dominant for both traits and homozygous recessive for both traits. Mate one offspring from the F1 generation with a person who is homozygous recessive for both traits.

F_1

F_2

F_2 Phenotypic Ratios: _____

3) Explain how the two-trait punnett square demonstrates the law of independent assortment.

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