Name: _____ Date: _____ Sec: _____

Investigating Inherited Human Traits: Laboratory Exercise

Discussion:

Heredity is defined as the passing on of traits, or characteristics, from parent to offspring. The units of heredity are termed genes. Genes are located on chromosomes and carry the genetic material in all living organisms. The combinations of genes for each trait occur by chance. When one gene in a pair is stronger than the other gene, the trait of the weaker gene is hidden. The stronger gene is dominant, and the gene that is hidden is recessive. If both genes in a pair are the same, the trait is said to be homozygous. If the genes are not similar, the trait is said to be heterozygous, or hybrid. In certain cases, genes are neither dominant nor recessive and the result is a blending of traits.

The genetic makeup of an individual is its genotype. The observable physical characteristics of an individual that are the result of its genotype are known as its phenotype. In humans, the sex of an individual is determined by the particular combination of the two sex chromosomes. Individuals that have two X chromosomes (XX) are females, whereas those with an X and a Y chromosome (XY) are males.

In this activity, you will observe how the results of different gene combinations produce certain traits.

Procedure:

1. Determine which partner will toss for the female and which will toss for the male. ***Remember that there are only two genes per trait!***

2. Have one partner flip a coin to determine the sex of the offspring. If the coin lands heads up, the offspring is female. If the coin lands tails up, the offspring is male. Be sure to record the sex of your offspring on your Observations sheet.

3. For each coin toss you will now make, heads represent the dominant gene and tails will represent the recessive gene. You and your partner should now flip each of your coins at the same time. ***The coins should be flipped only once for each trait!***

4. Continue to flip the coins for each trait listed on the Traits Table. After each flip, record the trait of your offspring by placing a check in the appropriate box in the table.

5. Using your recorded traits, draw the facial features for your offspring in the space provided on your Observations sheet.