Bio I
Lab: Ugly Baby

Heredity is the passing on of traits or characteristics, from parent to offspring. The units of heredity are called genes. Genes are found on the chromosomes in a cell. The combinations of the 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 masked, or hidden. The stronger gene is the dominant gene, and the gene that is masked is the recessive gene. Dominant genes are written as capital letters and recessive genes are written as lowercase letters. If both genes in a gene pair are the same, the trait is said to be *homozygous*, or pure. If the genes are not similar, the trait is said to be *heterozygous*, or hybrid. Sometimes genes are neither dominant nor recessive. The result of such a situation is a blending of traits.

The genetic makeup of an individual is known as 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 investigation, you will observe how the results of different gene combinations produced certain traits.

Materials
2 coins
pencil
2 borders (textbooks)

Procedure
1.   Place the textbooks on the lab table so that they form a triangular well in which to toss the coins.
2.   Determine which partner will toss for the female and which will toss for the male. Remember that there are two genes per trait.
3.   Have the partner who is representing the male flip a coin into the well to determine the sex of the offspring. If the coin lands heads up, the offspring is a female. If the coin lands tails up, he offspring is a male. *Record the sex of the offspring on your Data Sheet*.
4.   For all the coin tosses that you now make, the following will be the standards:
     Heads = Dominant gene
     Tails = Recessive gene
5.   You and your partner should now flip your coins into the well at the same time. NOTE: The coins should be flipped only once for each trait.
6.   Continue to flip the coins for each trait listed in the table below. After each flip, record the trait of your offspring by placing a check on your Data Sheet for the traits being expressed.
7.   Using the traits acquired from the #6, draw the facial features for your offspring in the space provided on your Data Sheet.