Biology Hour\_\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Wexler/Fennelly

What Will Your Face Look Like? Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:

**Introduction:**  In class we have introduced genetics—the study of how traits are passed through reproduction from parents to offspring. From our meiosis unit, we learned that each person receives half of their genetic information from their mom and half from their dad. The combination of genes that you receive from your parents for a specific trait depends on how that trait will show. In this activity, you will model parents giving specific alleles to offspring and you will be drawing the traits determined by these allele combinations.

Note: you will not be picking the genes yourselves. Just like in real life (meiosis), the alleles that come together for each trait are completely random.

*In this investigation, both parents are heterozygous for all traits and therefore may each donate either allele for each.*

1. Determine which partner will toss for the female parent and which will toss for the male parent.
2. Have the partner who is representing the male toss a coin to determine the gender of the offspring. If the coin lands heads up, the offspring is a female. If the coin lands tails up, the offspring is a male. Record the gender of the offspring in the data table provided.

**For all the coin tosses you will now make, heads will represent the dominant allele and tails will represent the recessive allele.**

1. Toss your coin with your partner so that you are making one toss together to determine each trait in your offspring. Record your results in the table provided. When you are done, draw a picture of your offspring and answer the questions below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Trait | Mom | Dad | Child Genotype | Child Phenotype |
| Hair Color  D=Dark; d=Light |  |  |  |  |
| Hair Texture  T=Curly; t=straight |  |  |  |  |
| Eye Color  B=Brown; b=Blue |  |  |  |  |
| Nose  L=Long; l=Short |  |  |  |  |
| Eyebrow  H=Heavy; h=Thin |  |  |  |  |
| Eyelash  Q=Thick; q=Thin |  |  |  |  |
| Eye Shape  E=Elliptical; e=Round |  |  |  |  |
| Facial Hair  F=Present; f=None |  |  |  |  |
| Cleft Chin  C=No Cleft; c=Cleft |  |  |  |  |
| Teeth  G=Gap; g= No Gap |  |  |  |  |
| Lips  L=Thick; l=thin |  |  |  |  |
| Widow’s Peak  W=None; w=Peak |  |  |  |  |
| Nostril Size  N=Large; n=Small |  |  |  |  |
| Ear Size  Z=Large; z=Small |  |  |  |  |
| Ear Lobes  M=Lobed; m=attached |  |  |  |  |
| Gender (Flip only Father’s)  Heads=X; Tails=y | **X** |  |  |  |

**Observations:**

Sex of the offspring: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Drawing of offspring representing the traits determined by coin toss: Make sure your drawing is large and carefully drawn.