Name _____          Date _____

# People Eater Genetics

1. Find a partner to work with. One of you will spin on your chromosome spinner for the male parent and one will spin for the female parent. The parents are heterozygous for all the People Eater traits. You will spin to determine which allele the parent will pass on.
2. Record the result for each parent by circling the correct letter.
3. Use the results and the People Eater Traits Guide to determine the genotype and phenotype for each trait.

| Trait | Female Parent | Male Parent | Genotype | Phenotype |
|---|---|---|---|---|
| Eye | E    e | E    e | | |
| Horn | H    h | H    h | | |
| Flyer | F    f | F    f | | |
| Color | P    p | P    p | | |
| Diet | M    m | M    m | | |
| Body Shape | W    w | W    w | | |
| Ear Shape | R    r | R    r | | |
| Ears | N    n | N    n | | |
| Tail | T    t | T    t | | |
| Eye Color | Y    y | Y    y | | |

**Gender:** To determine the sex of your monster, flip the coin for the male parent. Heads would represent X, while tails would be Y.

| Gender | X | X    Y | | |
|---|---|---|---|---|

**People Eater Traits Guide**

| Trait | Dominant Allele | Recessive Allele |
|---|---|---|
| Eyes | One eye (E) | Three eyes (e) |
| Horn | One horn (H) | No horn (h) |
| Flyer | Has wings (F) | No wings (f) |
| Color | Purple (P) | Orange (p) |
| Diet | People-eater (M)-they will need pointy teeth | Vegetarian (m)-they can have flat teeth |
| Body Shape | Round (W) | Skinny (w) |
| Ear Shape | Round (R) | Pointy (r) |
| Tail | Curly (T) | Straight (t) |
| Eye Color | Yellow (Y) | Red (y) |
| Claws | Long/sharp (C) | Short/smooth (c) |
| Gender* | Female (XX)-give her pretty eyelashes | Male (XY)-give him a good scar on his face |

*eyelashes and scars don't really work like this; I just had to make it school appropriate

**Follow up Questions**

1. What is the probability that a people eater will be orange? _____ out of _____ or ____ %

2. In the class, how many people eaters are orange, which is a recessive trait? _____ out of _____ or ____ %

3. How does your predicted probability for an orange people eater (1) compare to the actual results (2)? Explain.

4. Why did you only need to flip the male parent coin to determine the sex of your people eater?

5. In this simulation, both parents were heterozygous for all traits. How would the phenotypes of the offspring have changed if one of the parents were homozygous dominant for all the traits?

6. How would the phenotypes of the offspring have changed if one of the parents were recessive for all the traits while the other was heterozygous?

7. Uncle Baldy, who is heterozygous for one horn, married a woman without a horn. Create a Punnett square to help you find the possible genotypes and phenotypes of their potential offspring.
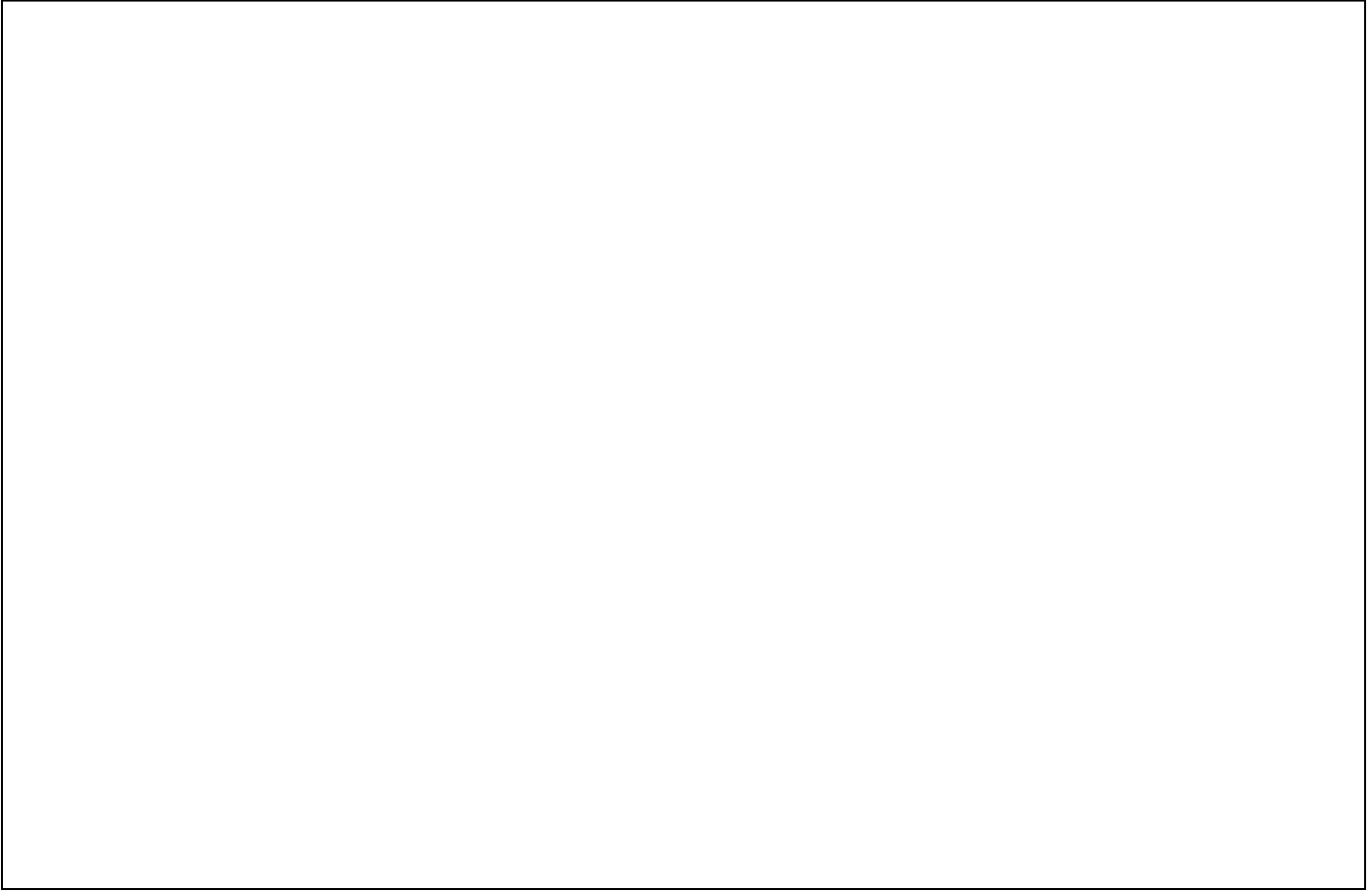   Show the cross _____ x _____
   List the possible genotypes: _____
   _____
   List the possible phenotypes: _____
   _____

   | | |
   |---|---|
   | | |
   | | |

8. Penelope and Peter are two lovely purple people eaters. They are quite excited about the birth of their first child. To Peter's dismay, his baby is orange! He's not sure the baby is his! How could you explain to Peter whether or not the child is his. Use a Punnett square to help you.

9. Uncle Baldy's sister, Aunt Hairyette, has the cutest pointed ears, but she's afraid her kids won't inherit her adorable ears. She falls in love with Harry who had rounded ears. Should Hairyette find a new people eater for the sake of her future kids' ears? Or is there still a chance with Harry? Use a Punnett square to help you answer.

**People Eater's Name** _____