In a land far, far away there lives a community of monsters. Most of these monsters have one eye and easily lose their tempers. But in the past few generations several monsters have been born that have either 2 eyes or mild tempers. This concerns the King and Queen of the One Eyed Easy Temper Loser Monsters. They are concerned because they do not want to have a monster with a Mild Temper. They do not feel that a Mild Tempered monster would have what it takes to rule over Easy Temper Loser Monsters. They want to know what chance, if any, they have of having mild mannered offspring.

So the King and his Queen decided to have a meeting of the great minds of the time. Included are the local doctors, medicine men, Mr. Mendel and YOU! After explaining the situation, all the great minds make their way to tackling the problem.

Mr. Mendel figures that One-Eye and the Temper-Losing traits are both dominate because they are the traits that keep appearing. So you assign letters for the traits:

One eye = E Temper-Looser = T
Two eyes = e Mild temper = t

The medicine man is able to decipher that the King is Heterozygous for both traits while the Queen is two eyed and Heterozygous for losing her temper.

What are the genotypes for the King? ___________________ Queen _______________________

With Mendel's help you must figure out all the gametes possible for both King and Queen. Believing in independent assortment, you decide to figure the 4 possible gametes for both the King and Queen.

King __________, __________, __________, __________
Queen __________, __________, __________, __________

Now that you have the possible gametes you must figure out all possible offspring combinations: Go for it! (2 trait Punnet Square!)

Mendel suggests that you figure out all possible phenotypes, not just Temper-Losing just in case the King wants to know. (His temper is terrible you know!) List all possible phenotypes and their numbers below.

What is the phenotypic ratio?____________________

When you, Mendel and the other great minds meet back with the King, you explain what you have found. He goes crazy saying he doesn't understand what conclusion you have come to. He wants to know the percentage of children that could possibly be mild tempered. Back to the drawing board!

% children the may have mild tempers__________________
Going back to the King, he is able to keep his temper under control long enough to ask some more questions. You are the spokesperson for the group and must field all his questions. Good luck!

1) How could he and his Queen have a Two-Eyed, Mild Mannered Monster if both of them are Easy-Temper Loser Monsters?

2) He expected that since he had one eye and his Queen had two that some of their monster children would have 3 eyes. Why was that not included as a possible phenotype?

3) If the royal couple did have a child that was Mild-Tempered would there be any possibility that the King could have a normal (Easy Temper Loser) monster grandchild? Explain this to him.

4) What would the genotype of a Homozygous One Eyed and Heterozygous temper looser monster be?

5) Genotype of a Two-Eyed, Mild-Tempered monster?

6) Now the King wants your advice. He and his Queen do not want a mild mannered offspring. They want to know if they should take a chance and try and have a monster. What do you tell him? You are a professional, so use the data you have found and then give him your scientific opinion.

**Genetic Short Story Assignment:**

Write your own Genetic story. Use this One Eyed Easy Temper Loser Monster story as your guide. **It may not be identical. Do not use the same questions! Come up with your own creations to mate/mutate.**

Your story must have the following.

- Original characters to be set up in the genetic storyline
- 2 sets of traits (real or made up)
- Letters assigned to each trait
- Clues to lead the reader to the genotypes of the parents
- Place for reader to write out gametes
- A 2 factor cross
- Either a phenotype or genotype ratio for reader to find
- At least 6 questions referring to the cross and the overall genetic scheme storyline
- Yes- spelling and grammar count!

THIS IS DUE _____________________________