

# Genetics with a Smile

## Wrapping It Up!

Name \_\_\_\_\_

(1) How does your smiley face compare to the ones created by your classmates? Pick two smiley faces that are displayed near your smiley face and compare each of the 12 traits. Indicate the phenotype for each smiley face for each trait in the chart.

Trait	My Smiley Face	Smiley by _____	Smiley by _____
Face Shape			
Eye Shape			
Hair Style			
Smile			
Ear Style			
Nose Style			
Face Color			
Eye Color			
Hair Length			
Freckles			
Nose Color			
Ear Color			

(2) Which smiley face has the most dominant traits? \_\_\_\_\_ How many? \_\_\_\_\_ traits

(3) Which smiley face has the most recessive traits? \_\_\_\_\_ How many? \_\_\_\_\_ traits

(4) Which traits were a result of incomplete dominance?

(5) What is the probability that a smiley face will have a green face? \_\_\_\_\_ out of \_\_\_\_\_ or \_\_\_\_\_ %

(6) How many smiley faces have a green face, which is a recessive trait? \_\_\_\_\_ out of \_\_\_\_\_ or \_\_\_\_\_ %

(7) How does your predicted probability for a green face (#5) compare to the actual results (#6)? Explain.

(8) What is the probability that a smiley face will have an orange nose? \_\_\_\_\_ out of \_\_\_\_\_ or \_\_\_\_\_ %

(9) How many smiley faces have an orange nose? \_\_\_\_\_ out of \_\_\_\_\_ or \_\_\_\_\_ %

(10) How does your predicted probability for an orange nose (#8) compare to the actual results (#9)? Explain.

- (11) Why did you only need to flip the male parent coin to determine the sex of your smiley face?
- (12) How would the smiley faces change if one of the parents were homozygous dominant for all the traits while the other was heterozygous?
- (13) How would the smiley faces change if one of the parents were recessive for all the traits while the other was heterozygous?
- (14) Uncle Smiley, who is heterozygous for a yellow face, married a woman with a green face. Both of them have always wanted a large family! If they were to have 12 children, what is the probability that the children would have yellow faces? How many would have green faces? Create a Punnett square to help you find your answers.
- (15) Grandma and Grandpa Smiley are heterozygous for the star eye shape. If one of their heterozygous children married a girl with blast-type eyes, what percentage of their grandchildren should have starry eyes? What percent would have blast-type eyes? Create a Punnett square to help you find your answers.
- (16) Baby Smiley has curly hair, but neither of her parents do! Is this possible? Create a Punnett square to help you find your answer.
- (17) Aunt Smiley has the cutest pointed ears and would love to have children with pointed ears! What type of ears would her husband need to have in order for her to get her wish? Give the genotype and phenotype as part of your answer.