

Evaluate: Squoovian Genetic Counseling

Introduction: Stan and Sally Esquadooole are Squinty Squoovians. Squinty Squoovians have a skinny body, two legs, no tail, orange or purple or green fur, four eyes, a tuft of hair on top of their head, antennae, pointed ears on the side of their head, and no noses (they use their antennae...duh!). You are a Squinty Squoovian genetic counselor. Due to your expertise as a geneticist, you know that orange fur is recessive to both purple and green fur which are codominant to each other.

Stan is a handsome (if not overly bright) Squoovian with both purple and green fur. His lovely wife, Sally, has purple fur only. The Squoovians are getting ready to have little Squoovians and have some questions for you.

PROCESS AND PROCEDURES

Answer the following questions in your notebook using complete sentences.

1. The Esquadooolees want to know what color fur their offspring might have. You offer to use a Punnett square to share with Stan and Sally what their kids might look like. List Stan and Sally's genotypes. If you need more information to determine their genotypes, ask your instructor any questions you might ask Stan and Sally.
2. Construct a Punnett square showing Stan, Sally, and their possible offspring. List the genotypes and phenotypes of the possible children and the percentage chance of each genotype and phenotype.
3. Stan is a simple Squoovian and doesn't understand all this fancy schmancy genetic mumbo jumbo. Draw a family sketch showing Stan and Sally and their possible little Squoovians. Be sure to have the numbers of kids showing different traits reflect the percentages you gave in your list of phenotypes.

ANALYSIS

Answer the following questions in your notebook using complete sentences.

1. After you go over the suave Squoovian furs that the Esquadooolees' kids will have, Stan and Sally become increasingly nervous. They finally admit that they came to you for a completely different reason: they have a family secret. Some of the folks in their family have had tails. As a geneticist, you know that this is a somewhat rare trait in Squinty Squoovians. It's a recessive sex-linked trait on the X chromosome. Stan admits that he used to have a tail, but they had it surgically removed. The Esquadooolees want to know whether their kids could end up having tails. Stan is worried that since he had one, all his sons will have one. Is this true? Explain, as you would to Stan, whether or not Stan can pass the gene on to his sons.
2. Ask your instructor any questions you need to determine the genotypes for both Stan and Sally. Construct a Punnett square for the Esquadooolees and explain to them the chances of their kids either having tails or being carriers for the trait.
3. Would you recommend that Stan and Sally have kids? Why or why not?