



SpongeBob Genetics

Characteristic	Dominant Gene	Recessive Gene
Body Shape	Squarepants (S)	Roundpants (s)
Body Color	Yellow (Y)	Blue (y)
Eye Shape	Round (R)	Oval (r)
Nose Style	Long (L)	Stubby (l)

1. Use the information for SpongeBob's traits to write the phenotype (physical appearance) for each item.

- (a) LL- _____ (e) Rr- _____
(b) yy- _____ (f) ll- _____
(c) Ss- _____ (g) ss- _____
(d) RR - _____ (h) Yy - _____

2. Use the information in the chart in #1 to write the genotype (or genotypes) for each trait below.

- (a) Yellow body - _____ (e) Stubby nose - _____
(b) Roundpants - _____ (f) Round eyes - _____
(c) Oval eyes - _____ (g) Squarepants - _____
(d) Long nose - _____ (h) Blue body - _____

3. For each genotype below, indicate whether it is a heterozygous (He) OR homozygous (Ho).

TT	Bb	DD	Ff	tt	dd
Dd	ff	Tt	bb	BB	FF

Which of the genotypes in #1 would be considered purebred?

Which of the genotypes in #1 would be hybrids?

4. Determine the phenotype for each genotype using the information provided about SpongeBob.

Yellow (Y) body color is dominant to blue (y).

YY _____ Yy _____ yy _____

Square shape is dominant to round.

SS _____ Ss _____ ss _____

5. For each phenotype, give the genotypes that are possible for Patrick.

A tall head (T) is dominant to short (t).

Tall = _____ Short = _____

Pink body color (P) is dominant to yellow (p).

Pink body = _____ Yellow body = _____

6. SpongeBob SquarePants recently met SpongeSusie Roundpants at a dance. SpongeBob is heterozygous for his square shape, but SpongeSusie is round. Create a Punnett square to show the possibilities that would result if SpongeBob and SpongeSusie had children.

HINT: Read question #4!

		SpongeBob	
Susie			



A. List the possible genotypes and phenotypes for their children.

Genotypes: _____

Phenotypes: _____

B. What are the chances of a child with a square shape? ____ out of ____ or ____%

C. What are the chances of a child with a round shape? ____ out of ____ or ____%

7. Patrick met Patti at the dance. Both of them are heterozygous for their pink body color, which is dominant over a yellow body color. Create a Punnett square to show the possibilities that would result if Patrick and Patti had children.

HINT: Read question #5!

		Patrick	
Patti			



A. List the possible genotypes and phenotypes for their children.

Genotypes: _____

Phenotypes: _____

B. What are the chances of a child with a pink body? ____ out of ____ or ____%

C. What are the chances of a child with a yellow body? ____ out of ____ or ____%

8. Everyone in Squidward's family has light blue skin, which is the dominant trait for body color in his hometown of Squid Valley. His family brags that they are a "purebred" line. He recently married a nice girl who has light green skin, which is a recessive trait. Create a Punnett square to show the possibilities that would result if Squidward and his new bride had children. Use B to represent the dominant gene and b to represent the recessive gene.

		Squidward	
Nice Girl			



A. List the possible genotypes and phenotypes for their children.

Genotypes: _____

Phenotypes: _____

B. What are the chances of a child with light blue skin? _____ %

C. What are the chances of a child with light green skin? _____ %

D. Would Squidward's children still be considered purebreds? _____ Explain! _____

9. Mr. Krabs and his wife recently had a Lil' Krabby, but it has not been a happy occasion for them. Mrs. Krabs has been upset since she first saw her new baby who had short eyeballs. She claims that the hospital goofed and mixed up her baby with someone else's baby. Mr. Krabs is homozygous for his tall eyeballs, while his wife is heterozygous for her tall eyeballs.

Some members of her family have short eyes, which is the recessive trait. Create a Punnett square using T for the dominant gene (tall) and t for the recessive one (short).

		Mr. Krabs	
Mrs. Krabs			



A. List the possible genotypes and phenotypes for their children.

Genotypes: _____

Phenotypes: _____

B. Did the hospital make a mistake? _____ Explain your answer. _____