

SpongeBob Genetics Quiz

Name _____

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

TT _____ Pp _____ dd _____ Ff _____ Tt _____ FF _____

Which of these genotypes would be considered purebred? _____

2. Use the chart to determine the genotype for each phenotype listed below.

Purebred squarepants - _____

Heterozygous squarepants - _____

Homozygous yellow body - _____

Purebred blue body - _____

Hybrid round eyes - _____

Trait	Dominant Gene	Recessive Gene
Body Shape	Squarepants (S)	Roundpants (s)
Body Color	Yellow (Y)	Blue (y)
Eye Shape	Round (R)	Oval (r)

3. In Squidward's family, a blue body color (B) is dominant to green (b). Determine the PHENOTYPE for each genotype below based on this information.

BB _____ Bb _____ bb _____

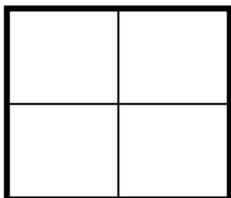
4. If tall eyeballs (T) are dominant to short eyeballs (t), give the GENOTYPES that are possible for members of Mr. Krabbs' family.

Tall eyeballs = _____ Short eyeballs = _____

5. SpongeBurt is known for his big round eyes (R), which is dominant over an oval eye shape (r). If he is heterozygous for his round eye shape and marries a woman with oval eye shape, what type of eyes might the kids have?

A. List the genotypes for each:

Heterozygous Round Eyes - _____ Oval Eyes - _____



B. Complete the Punnett square to show the possibilities that would result if SpongeBurt had children with an oval-eyed woman.

C. What are the chances of a child with round eyes? _____%

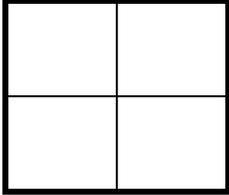
D. What are the chances of a child with oval eyes? _____%

More on back ...

6. Patrick recently married Patti, a cute girl he met at a local dance. He is considered a purebred for his tall head shape (T), which is dominant over a short head (t). If Patti is a short-headed woman, what type of heads would their children have?

A. List the genotypes for each: Patrick - _____ Patti - _____

B. Complete the Punnett square to show the possible offspring.



C. Which type of head is most likely: tall or short? Explain.

D. Would the children be considered purebreds? Explain.

For questions #7 & 8, remember that Poofkins are a result of INCOMPLETE DOMINANCE. Poofkins can be red (RR), blue (BB), or purple (RB).

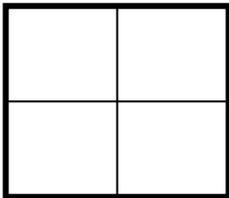
7. What would happen if SpongeBob crossed two Poofkins with purple flowers? Complete the Punnett square to show the probability for each flower color.



If SpongeBob planted 100 seeds from this cross, how many should he expect to have of each color?

Purple flowers - _____ Blue flowers - _____ Red flowers - _____

8. If SpongeBob had a container of PURPLE Poofkins, which color should he choose to cross it with for the BEST CHANCE of BLUE poofkins? Complete the Punnett square and explain your answer.



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Answer Key:

1. Ho - TT, dd, FF; He - Pp, Ff, Tt; Purebred = TT, dd, FF
2. BB - blue, Bb - blue, bb - green
3. Tall eyeballs - TT, Tt; short eyeballs - tt
4. A. Heterozygous round = Rr, Oval = rr
B. See square at right
C. Rr - round & rr - oval
D. 50%
E. 50%
5. A. Patrick - TT, Patti = tt
B. See square at right
C. Tall head is most likely, since all genotypes that result would represent a tall head (100%).
D. The children would not be considered purebreds, since they would each have a dominant gene and a recessive gene.
6. He should cross the purple Pookfins with blue ones for the best chances for blue flowers.