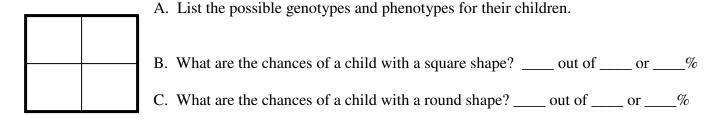
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Name

Scientists at Bikini Bottoms have been investigating the genetic makeup of the organisms in this community. Use the information provided and your knowledge of genetics to answer each question.

1. Fo	r each genotyp	be below, indi-	cate whether it i	s a heterozygo	us (He) OR h	omozygous (Ho).		
	TT	Bb	DD	Ff	tt	dd		
	Dd	ff	DD Tt	bb	BB	FF		
	Which of the	e genotypes in	#1 would be co	onsidered pureb	ored?			
	Which of the genotypes in #1 would be hybrids?							
2. De	termine the pl	nenotype for e	ach genotype us	sing the inform	ation provide	d about SpongeBob.		
	•	color is dom			уу			
		e is dominant						
3. For			Ssenotypes that a					
	`	T) is dominan	* *	Short =				
	Pink body co	olor (P) is don	ninant to yellow	(p). Yellow bod	ly =			

4. 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 #2!



5. 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 #3!

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

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 ____%

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who has light green sk	alley. His family brags that they are a "purebred" line. He recently married a nice girl in, which is a recessive trait. Create a Punnett square to show the possibilities that yard and his new bride had children. Use B to represent the dominant gene and b to gene.
	A. List the possible genotypes and phenotypes for their children.
	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!
	Squidward's sons, who is heterozygous for the light blue body color, married a girl gous. Create a Punnett square to show the possibilities that would result if they had
	A. List the possible genotypes and phenotypes for their children.
	B. What are the chances of a child with light blue skin?% C. What are the chances of a child with light green skin?%
Krabbs has been upset goofed and mixed up h while his wife is hetero	wife recently had a Lil' Krabby, but it has not been a happy occasion for them. Mrs. since she first saw her new baby who had short eyeballs. She claims that the hospital ner baby with someone else's baby. Mr. Krabbs is homozygous for his tall eyeballs, ozygous for her tall eyeballs. Some members of her family have short eyes, which is eate a Punnett square using T for the dominant gene and t for the recessive one.
	A. List the possible genotypes and phenotypes for their children.
	B. Did the hospital make a mistake? Explain your answer.

6. Everyone in Squidward's family has light blue skin, which is the dominant trait for body color in his

Bikini Bottom Genetics

Answer Key

1. Ho He Ho He Ho Ho Ho

Purebreds - TT, DD, BB, FF, ff, dd, bb, tt Hybrids - Dd, Bb, Ff, Tt

- 2. Yellow body Yellow body Blue body Square shape Square shape Round shape
- 3. Tall TT or Tt Short tt Pink PP or Pp Yellow -pp
- 4. SS square shape, Ss square shape, and ss round shape
 B. 2 out of 4 or 50%
 C. 2 out of 4 or 50%

NOTE: Some of your students may feel that the roundpants gene should be the dominant trait as SpongeBob's TV parents are both roundpants. However, these are only his parents on the TV show and his real parents are both heterozygous for squarepants.

- 5. P PP Pp pp Pp pp
- A. PP pink body, Pp pink body, and pp yellow body
- B. 3 out of 4 or 75%
- C. 1 out of 4 or 25%
- 6. BBBb BBBb
- A. Bb light blue skin
- B. 100%
- C. 0%
- D. Squidward's children would not be considered purebred, since each would have a gene pair made up of a dominant gene and a recessive gene.
- 7. T TT Tt TT TT TT
- A. TT tall eyeballs or Tt tall eyeballs
- B. The hospital must have made a mistake, since the genotype "tt" would not be possible based on the genotypes of Mr. and Mrs. Krabbs.

NOTE: Students may come up with other possible scenarios, such as

Mr. Krabbs not really a homozygous tall-eyed crab or a mutation. A few of my students suggested that Mr. Krabbs might not be the father!

NOTE: Some of your students may comment that Mr. Krabbs was married to a whale. However, this was only for the TV show and he is happily married to a beautiful crab in real life. (Ok, so it's not "real" life!)