

# Bikini Bottom Genetics Review

Name \_\_\_\_\_

1. Use your notes to complete each definition.

Purebred - Also called \_\_\_\_\_ and consists of gene pairs with genes that are the \_\_\_\_\_.

Hybrid - Also called \_\_\_\_\_ and consists of gene pairs with genes that are \_\_\_\_\_.

Genotype is the actual \_\_\_\_\_ makeup represented by \_\_\_\_\_.

Phenotype is the \_\_\_\_\_ appearance of a trait, such as a \_\_\_\_\_ body color.

2. Classify each of the following gene pairs as heterozygous (He) or homozygous (Ho).

TT \_\_\_\_\_ Bb \_\_\_\_\_ dd \_\_\_\_\_ Ff \_\_\_\_\_ Rr \_\_\_\_\_

3. Give the possible genotypes for each trait based on the information provided in the chart.

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

Purebred squarepants - \_\_\_\_\_ Blue body - \_\_\_\_\_

Hybrid round eyes - \_\_\_\_\_ Purebred roundpants - \_\_\_\_\_

Heterozygous squarepants - \_\_\_\_\_ Homozygous yellow body - \_\_\_\_\_



4. Give the phenotypes for each genotype based on the information provided in the chart.

SS - \_\_\_\_\_ Yy - \_\_\_\_\_ rr - \_\_\_\_\_

Rr - \_\_\_\_\_ ss - \_\_\_\_\_ YY - \_\_\_\_\_

5. Spongebob's cousin, SpongeJimBob, is a heterozygous yellow sponge. He recently married a blue sponge gal. Create a Punnett square to help you answer the questions.


What are the possible genotypes and phenotypes for the offspring?

What percentage would be yellow? \_\_\_\_\_ %

What percentage would be blue? \_\_\_\_\_ %

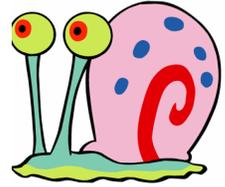
6. SpongeJimBob has oval eyes, while his bride is believed to be homozygous for her round eye shape. Create a Punnett square to help you answer the questions.


What are the possible genotypes and phenotypes for the offspring?

What percentage would have round eyes? \_\_\_\_\_ %

What percentage would have oval eyes? \_\_\_\_\_ %

Shelley, one of Gary's cousins, has a beautiful hot pink shell that is a result of incomplete dominance. The gene for a red shell is represented with an R, while W is used the gene for a white shell. A snail with both of those genes (RW) has a pink shell. Use this information to answer the questions.



7. If a snail with a red shell were crossed with one with a white shell, what color shell would the children have? Create a Punnett square to help you. Explain.


8. Sherry, who is a pink-shelled snail, would like to have kids with red shells. What type of snail would she need to marry in order for the best chance for kids with red shells? Explain your answer.


**Bikini Bottom Genetics Review**

**Answer Key**

1. Use your notes to complete each definition.

Purebred - Also called **HOMOZYGOUS** and consists of gene pairs with genes that are the **SAME**.

Hybrid - Also called **HETEROZYGOUS** and consists of gene pairs that are **DIFFERENT**.

Genotype is the actual **GENE** makeup represented by **LETTERS**.

Phenotype is the **PHYSICAL** appearance of a trait, such as a **YELLOW** (or **BLUE**) body color.

2. Classify each of the following gene pairs as heterozygous (He) or homozygous (Ho).

TT **HO**

Bb **He**

dd **HO**

Ff **He**

Rr **He**

3. Give the possible genotypes for each trait based on the information provided in the chart.

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)

Purebred squarepants - **SS**

Blue body - **yy**

Hybrid round eyes - **Rr**

Purebred roundpants - **RR**

Heterozygous squarepants - **Ss**

Homozygous yellow body - **YY**

4. Give the phenotypes for each genotype based on the information provided in the chart.

SS - **Squarepants**

Yy - **Yellow body**

rr - **Oval eyes**

Rr - **Round eyes**

ss - **Roundpants**

YY - **Yellow body**

5. Spongebob's cousin, SpongeJimBob, is a heterozygous yellow sponge. He recently married a blue sponge gal. Create a Punnett square to help you answer the questions.


What are the possible genotypes and phenotypes for the offspring?

**Yy - yellow and yy - blue**

What percentage would be yellow? **50 %**

What percentage would be blue? **50 %**

6. SpongeJimBob has oval eyes, while his bride is believed to be homozygous for her round eye shape. Create a Punnett square to help you answer the questions.


What are the possible genotypes and phenotypes for the offspring?

**Rr - round**

What percentage would have round eyes? **100 %**

What percentage would have oval eyes? **0 %**

Gary's cousin, Shelley, has a beautiful hot pink shell that is a result of incomplete dominance. The gene for a red shell is represented with an R, while W is used the gene for a white shell. Shelley's shell is pink, which has the genotype is RW. Use this information to answer the questions.

7. If a snail with a red shell were crossed with one with a white shell, what color shell would the children have? Create a Punnett square to help you. Explain.


The children would all have pink shells with the genotype RW.

8. Sherry, who is a pink-shelled snail, would like to have kids with red shells. What type of snail would she need to marry in order for the best chance for kids with red shells? Explain your answer.


She would have a 50% chance for red-shelled children if she marries a snail with a red shell. If she married a pink-shelled snail, she would only have a 25% chance for a red-shelled kid.