

Determining Genotypes from Phenotypes Lab

Name _____ Per. _____

Genotype: The genes you have for a certain trait.

Genotypes are written as one letter for each gene in a pair of genes. If the genes are dominant, a capital letter is used. If it is recessive, a lower-case letter is used.

For eye color, B could stand for brown eyes and b for blue eyes. An individual with brown eyes would have a genotype of _____ or _____. Blue eyes would be _____.

Phenotype: The physical appearance of a trait.

For example, a phenotype for eye color would be blue, brown, or green.

Lab: Record your phenotype and possible genotype in the table.

1. Toe Length

Some people's big toe is longer than their second toe and some people's second toe is longest. Check your toes. Which one is longest? A longer big toe is dominant, so we will label that gene B. A longer second toe has a gene called b. If you have a long big toe, your genotype is either BB or Bb. But if your second toe is longer, your genotype has to be bb.

2. Hairline

You have a widow's peak if your hairline comes to a point in the middle of your forehead. Straight hairline (WW or Ww) is dominant over widow's peak (ww).

3. Eyelash Length

Long eyelashes (EE or Ee) are dominant over short eyelashes (ee).

4. Tongue Rolling

The ability to roll your tongue by curling both sides up is dominant (RR or Rr). The inability to roll your tongue is recessive (rr).

5. Hitchhiker's Thumb

The ability to bend your thumb back (hitchhiker's thumb) is dominant (HH or Hh) over a straight thumb (hh).

6. Hair Texture

Curly hair (CC) and straight hair (SS) are both incompletely dominant. Wavy hair is the hybrid (CS).

Data Table

	Dominant		Recessive	Your Phenotype	Your Possible Genotype
Toe Length	Long Big Toe		Long 2 nd Toe		
Hairline	Straight		Widow's Peak		
Eyelashes	Long		Short		
Tongue	Rolling		Nonrolling		
Thumb	Hitchhiker's		Straight		
Hair Texture	Curly	Wavy	Straight		

Color Blindness

Color blindness (cc or c_) is a recessive trait that is carried on the X chromosome. Since it is recessive, it does not show up when the normal gene, which is dominant, is also present.

8. For girls (XX), the color vision trait is written like this: X_CX_C or X_CX_c or X_cX_c . Circle the color blind girl.

9. For boys (XY), the color vision trait is written like this: X_CY or X_cY . Circle the color blind boy.

10. Would more boys or girls be color blind? _____ Why?

11. Now take the color blind test from the screen. This test is NOT for diagnosing a condition, but only for lab purposes.

Do you have color blind vision or normal vision? _____

Fill in this table with the number of each in this class:

	Normal Vision	Colorblindness
Boys		
Girls		

12. Which traits do you have that are dominant?

13. Which traits do you have that are recessive?