NAME: _____

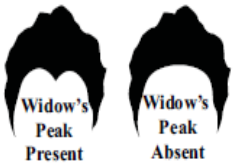
TRAITS LAB:

DETERMINING PHENOTYPES AND POSSIBLE GENOTYPES

Humans have 23 pairs of chromosomes. One of those pairs is the sex chromosomes, either XX or XY; the other 22 chromosomes pairs are autosomes. These chromosomes are homologous. One chromosome came from the maternal side and one from the paternal side.

Some traits on these chromosomes are dominant and some are recessive. If an individual receives one or two copies of the dominant trait, that trait will be expressed in their phenotype and the recessive trait will not. If the individual receives two copies of the recessive trait, the individual will express the recessive trait and not the dominant trait. Genotypes are called **homozygous** or **heterozygous** depending on whether they possess two of the same allele or one of each.

Human Autosomal Characteristics			
Feature	**Phenotype**	**Dominant**	**Recessive**
Hair	Widow's peak (P)	Having a widow's peak (PP or Pp)	No peak (pp)
Eye	Length of lashes (L)	Long	Short
	Shape of eyelid (A)	Almond	Round
Ear	Lobe (F)	Free	Attached
Cheek	Dimples (D)	Dimples	No dimples
	Freckles (F)	Freckles	No freckles
Mouth	Lips (T)	Thick	Thin
Chin	Y-shaped fissure (C)	Cleft	No cleft
Hands	Thumb folding (L)	Left over right	Right over left
	Little finger (C)	Curved	Straight
	Mid-digital hair (H)	Hair	No hair
	Thumb (N)	Normal	Hitchhiker
Arms	Arm folding (L)	Left over right	Right over left



Almond-Shaped Eyes

Free Lobe Attached Lobe

Curved Little Finger

Cleft Chin

Hitchhiker Thumb

Non-Hitchhiker Thumb

DATA AND OBSERVATIONS:

PHENOTYPE	YOUR PHENOTYPE	YOUR GENOTYPE	IMAGINARY MATE'S GENOTYPE	POSSIBLE PROGENY PHENOTYPE
WIDOW'S PEAK (P)				
Length of Lashes (L)				
Shape of Eyelid (A)				
Earlobe (F)				
Dimples (D)				
Freckles (F)				
Lips (T)				
Cleft Chin (C)				
Thumb Folding (B)				
Little Finger (G)				
Mid-digital Hair (H)				
Hitchhiker's thumb (N)				
Arm folding (Q)				

CONCLUSION QUESTIONS:

1. What is the difference between a phenotype and a genotype? Give an example.

2. When making predictions for your progeny, what influenced your decision? Why?

3. What is an allele? Give an example of an allele that you have.

4. What is a homozygous trait? Was it possible for you to determine whether you were homozygous or heterozygous for any of your traits? Why or why not?