

HS Lesson 2 Student Handout: GENETICS OF PARENTHOOD

Name: _____

Date: _____

- In this activity, we will be looking at four traits:
 - HITCH-HIKER'S THUMB – Don't have it (S) (straight thumb) Have it (s)
 - WIDOW'S PEAK – Have it (P) Don't have it (p)
 - TONGUE ROLLER – Roller (R) Non-roller (r)
 - PRESENCE OF FRECKLES – Freckles (F) Non-freckled (f)

For each of the traits, you need to determine whether you have or do not have the trait. Record this information under phenotype. For example, if you do not have a hitchhiker's thumb you would write Don't Have it. Then, record your genotype. If you have the dominant trait, for the purpose of this activity make your genotype heterozygous. For example, if you do not have a hitchhiker's thumb, you could be SS or Ss. For our purposes you will record a Ss since that is the heterozygous genotype.

YOUR TRAITS		PARTNER'S TRAITS	
Phenotype	Genotype	Phenotype	Genotype

- Now, write your genotype allele on the squares of construction paper given to you by your teacher. These squares represent chromosomes, which are made up of two identical sister chromatids. Use a different color for each trait and put one allele per pair of squares. For example, if your genotype is Ss, you would write an 'S' on each of one pair of red squares and write an 's' on each of the other pair of red squares. Your partner should do the same for his or her traits. Be sure to color coordinate with your partner so that if you chose red for your freckle trait that your partner also chooses red for freckles.
- Now, "do meiosis" with your alleles, by making two stacks. Each stack gets one one pair of each color of squares. Choose your alleles randomly – without looking! You have just completed Meiosis I. Now, separate each stapled pair into individual squares so that you end up with four stacks. You have just completed Meiosis II and each stack represents the gametes for your possible baby! Write your alleles chosen below:

_____, _____, _____, & _____

- Choose one of your gametes from #3 and fill in your column in the table below. Share your gamete information with your partner, fill in the table and determine the phenotype of your first child (congratulations!). Randomly choose another gamete and repeat this step to determine the characteristics of Baby #2.

	BABY #1				BABY #2			
	Allele From You	Allele From Partner	Genotype	Phenotype	Allele From You	Allele From Partner	Genotype	Phenotype
Hitchhiker's Thumb								
Widow's Peak								
Tongue Roller								
Freckles								