GENETICS WITH A SMILE **Adapted from: Genetics with a smile by T.Trimpe 2003 http://sciencespot.net**

Part A: Smiley Face Traits

(1) Obtain two coins from your teacher. You and your partner will each represent one parent in this lab. The oldest person in your group will be the "male" and the youngest person in your group will be the "female". If you are working by yourself, you will just flip the coin twice, once for the male, once for the female.

(2) For each trait, flip the coin for the parent you represent.

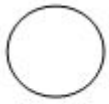
- If the coin lands with **heads** up, it represents a **dominant** allele.
- If the coin lands **tails** up it indicates a **recessive** allele.

(3) Record the result for each parent by **circling** the correct allele (letter). Use the results and the Smiley Face Traits page to determine the genotype and phenotype for each trait.

TRAIT	FEMALE	MALE	GENOTYPE	PHENOTYPE
Face Shape	C c	C c		
Eye Shape	E e	E e		
Hair Style	S s	S s		
Smile	T t	T t		
Ear Style	V v	V v		
Nose Style	D d	D d		
Face Color	Y y	Y y		
Eye Color	B b	B b		
Hair Length	L l	L l		
Freckles	F f	F f		
Nose Color	R r	R r		
Ear Color	P p	P p		

Part C: Create Your Smiley Face!
Use the Smiley Face Traits chart and your results from Part A to create a sketch of your smiley face on a piece of white paper. You may use crayons, colored pencils, or markers to add appropriate color to your smiley face.

SMILEY FACE TRAITS

FACE SHAPE		NOSE STYLE	
Circle (C) 	Oval (c) 	Down (D) 	Up (d) 
EYE SHAPE		**FACE COLOR**	**EYE COLOR**
Star (E) 	Blast (e) 	Yellow (Y) Green (y)	Brown (B) Blue (b)
HAIRSTYLE		**HAIR LENGTH**	**FRECKLES**
Straight (S) 	Curly (s) 	Long (> 1 inch) (L) Short (< 1 inch) (l)	Present (F) Absent (f)
SMILE		**NOSE COLOR**	**EAR COLOR**
Thick (T) 	Thin (t) 	Red (R) Orange (r)	Purple (P) Pink (p)
EAR STYLE		**SEX**	
Curved (V) 	Pointed (v) 	XX = female XY = male	

On another page: Draw your smiley face then answer the following questions

(1) How many dominant traits did your smiley face have? _____

(2) How many recessive traits did your smiley face have? _____

(3) What is the probability that a smiley face will have a green face, given that the parents were both hybrids, Yy x Yy? _____ out of _____ or _____ %

(4) How would the smiley faces change if one of the parents were homozygous dominant for all the traits while the other was heterozygous?

(5) How would the smiley faces change if one of the parents were recessive for all the traits while the other was heterozygous?