

### Genetics with a Smile

**Part A: Smiley Face Traits**

(1) Obtain two coins from your teacher. Choose which partner will represent the “Female” and which partner will represent the “Male”. The parents are heterozygous for all the Smiley Face traits.

(2) Each parent will flip their coin for each trait. If the coin lands with **heads** up, it represents a **dominant** allele. A coin that lands **tails** up indicates a **recessive** allele. Record the result for each person by circling the correct letter. Use the results and the Smiley Face Traits on the back of your page to determine the genotype and phenotype for each trait.

(Some of the traits do not follow the dominance and recessive rule so make sure that you use the trait guidelines).

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    T	P    T		

**Part B: Is it a Boy or a Girl?**

To determine the sex of your smiley face, flip the coin for the male parent. Heads represents an X allele and tails represents a Y allele.

Chromosome #23	Female	Male	Genotype	Phenotype
Sex	X	X    Y		

**Part C: Create Your Smiley Face!**

Use the Smiley Face Traits chart (on the back) and your results from Part A to create a sketch of your Smiley Face Child in the box. Don't forget to give your smiley face a name!

**Answer the following:**

1) Why was the Male in your group the only individual to flip a coin for the sex of your Smiley Face?

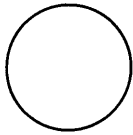
2) How does a dominant trait result in offspring?

**Baby Name:**

## Smiley Face Traits

### Face Shape

Circle (C)

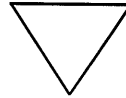


Oval (c)

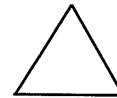


### Nose Style

Down (D)



Up (d)

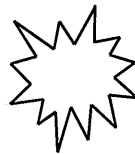


### Eye Shape

Star (E)



Blast (e)



### Face Color

Yellow (Y)

Green (y)

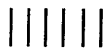
### Eye Color

Blue (B)

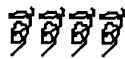
Red (b)

### Hair Style

Straight (S)



Curly (s)



### Hair Length

Long (L)

Short (l)

### Freckles

Present (F)

Absent (f)

### Smile

Thick (T)



Thin (t)



### Nose Color

Red (RR)

Orange (RY)

Yellow (YY)

### Ear Color

Hot Pink (PP)

Purple (PT)

Teal (TT)

### Ear Style

Curved (V)



Pointed (v)



### Sex

To determine the sex, the flip the coin for the male parent. Heads equals X and tails equals Y.

XX - Female - Add pink bow in hair

XY - Male - Add blue bow in hair