

# Design an Alien

Objective: \_\_\_\_\_

\_\_\_\_\_

Research:

dominant traits: \_\_\_\_\_

\_\_\_\_\_

recessive traits: \_\_\_\_\_

\_\_\_\_\_

Incomplete dominance: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Procedure:** Using the Alien Data Sheet, record your work in the provided table.

1. First, determine your alien's gender. The mother always contributes an X chromosome to the child.

For the father's contribution, flip the coin:

\* Heads = X chromosome, so the alien child is a girl (XX)

\* Tails = Y chromosome, so the alien child is a boy (XY)

2. Determine the Mother Alien's body characteristics by flipping a coin. Use the "heads" and "tails" columns to find each trait and record the allele that will be passed on in the "mother" column.

3. Do the same for the Father alien and record the allele in the "father" column.

4. After determining both parents allele contributions, calculate the alien baby's genotype. Record the results in the "baby" column.

5. Circle the phenotype in the data table based on the genotype of your baby alien.

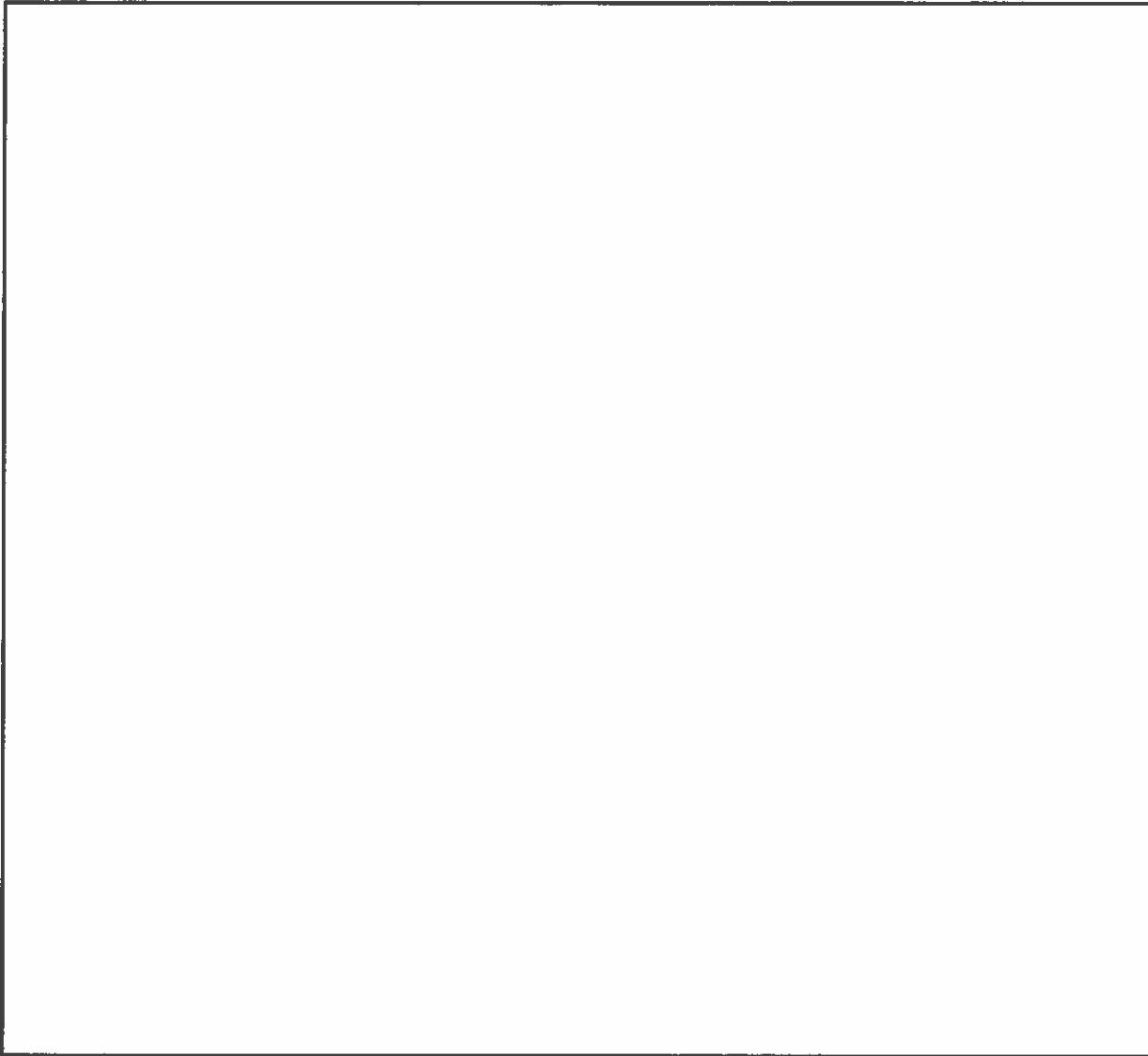
6. Draw your alien baby using ALL of the phenotypes (traits) your alien should have based on the genes it received from the male and female parent.

Trait	Heads	Tails	Mother	Father	Genotype	Phenotype (circle results)		
Gender	X	Y	X			Female		Male
Body Shape	S	s				peanut SS	peanut Ss	hershey's kiss ss
Head Shape	H	h				octagon HH	Octagon Hh	twinkie hh
Legs	L	l				tentacle LL	tentacle Ll	chicken ll
# of Legs	F	f				four FF	four Ff	three ff
# of Arms	D	d				2 DD	2 Dd	4 dd
Wings	G	g				wings GG	wings Gg	no wings gg
Tail	T	t				tail TT	tail Tt	no tail tt
Eyes	E	e				3 eyes EE	3 eyes Ee	2 eyes ee
Color	B	Y				Blue BB	Green BY	Yellow YY
Mouth	M	m				with fangs MM	with Fangs Mm	without fangs mm
Tongue	T	t				short TT	short Tt	long tt
Nose	Q	q				snout QQ	snout Qq	slits qq
Ears	R	r				average RR	Average Rr	dumbo rr
Hair	A	B				afro AA	dreds AB	braid BB
Antennae	P	p				no antennae PP	no antennae Pp	antennae pp
Horns	D	d				horns DD	horns Dd	no horns dd

\* Capital letter represents a dominant allele

\* Lower case letter represents a recessive allele

\* Incomplete dominance will use two capital letter, no lower case, and neither is dominant.



**Discussion Questions:**

1. What is a genotype? Explain using an example from your alien data.

\_\_\_\_\_

2. What is a phenotype. Explain using an example from your alien data.

\_\_\_\_\_

3. List the traits that show incomplete dominance in your aliens. (Hint: the hybrid does not show the dominant trait)

\_\_\_\_\_

4. For body shape the dominant trait is \_\_\_\_\_

5. For tongues, the dominant trait is \_\_\_\_\_

6. For body color, the dominant trait is \_\_\_\_\_

7. List and explain several things you learned doing this activity

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_