Name_____

Monster Babies!

MS-LS3-2 Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

You have learned about many different patterns of inheritance. Some are simple dominant or recessive, as in Mendelian traits. Some are more complex, such as incomplete dominant or codominant traits. In this lab you will investigate how a combination of these genes work together to create an organism.

Part 1 Procedure:

1. Flip a coin twice to determine the genotype for each trait and record it in the data table.
Heads = allele 1, Tails = allele 2 (Example: if you flipped heads twice, your monster will have two copies of allele 1 for his genotype.)
2. Determine the phenotype resulting from the allele pair for each trait.
3. Repeat steps 1-2 for each trait and complete the female monster's Table 1.

Table 1: Genotypes and Phenotypes for Female Monster

Trait	Allele 1	Allele 2	Genotype	Phenotype
Eyes	Two small eyes (E)	One large eye (e)		
Eye Color (incomplete)	Red (R)	White (R')		
Skin Color (codominant)	Green (G)	Blue (B)		
Tail Shape	Curly (C)	Straight (c)		
Tail Color	Purple (P)	Orange (p)		
Tail (regulatory gene)	Have tail (T)	No tail (t)		
Teeth	Sharp (S)	Round (s)		
Feet (incomplete)	Four toes (F)	Two toes (F')		
Horn Color	Purple (W)	White (w)		
Ear Shape	Pointy (Y)	Round (y)		
Ears (regulatory)	No ears (N)	Two ears (n)		
Claws	Long (L)	Short (l)		

Part 2 Procedure:

The female monster (described in Table 1) is married to a male monster (see Table 2 below) and they plan to have baby monsters. They are interested in finding out the probabilities of which traits their offspring will have.

1. Fill in the missing genetic information in the table for the male.

Table 2: Genotypes & Phenotypes for Male Monster

Trait	Genotype	Phenotype
Eyes	ee	
Eye Color (incomplete)		White
Skin Color (codominant)		Green
Tail Shape		Straight
Tail Color	Pp	
Tail (regulatory gene)		No tail
Teeth		Round
Feet (incomplete)	FF’	
Horn Color	ww	
Ear Shape	yy	
Ears (regulatory)		Have 2 ears
Claws		Short

2. Complete the Punnett Squares to predict what traits would result from a cross between the two monsters for each trait, and answer the following questions:

a. Eyes – What percent of offspring will have only one eye? _____

b. Eye Color – What percent of offspring will have red eyes? _____

c. Skin Color – What percent of offspring will have green skin? _____

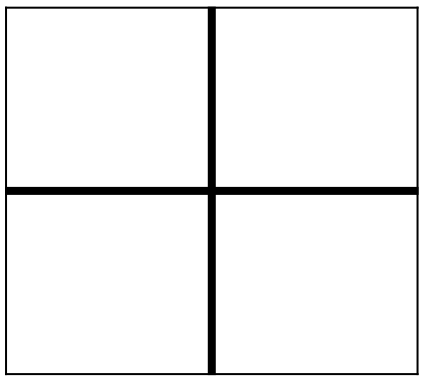
d. Tail – What percent of offspring will have a tail? _____

e. Feet – What percent of offspring will have three toes? _____

f. Horn Color – What percent of offspring will have purple horns? _____

g. Ears – What percent of offspring will have ears? _____

h. Claws – What percent of offspring will have long claws? _____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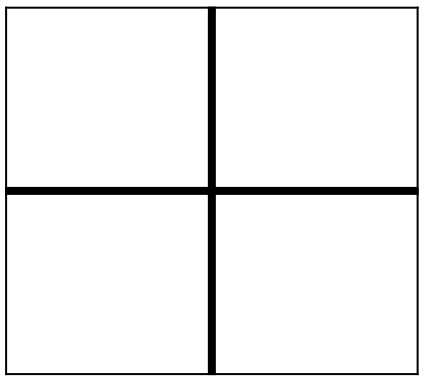
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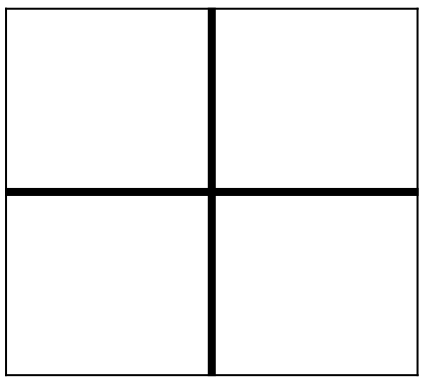
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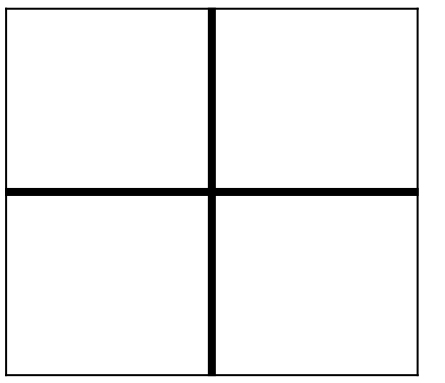
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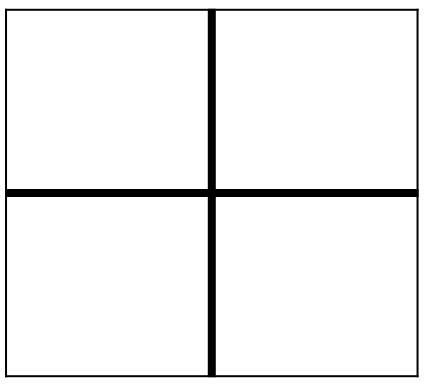
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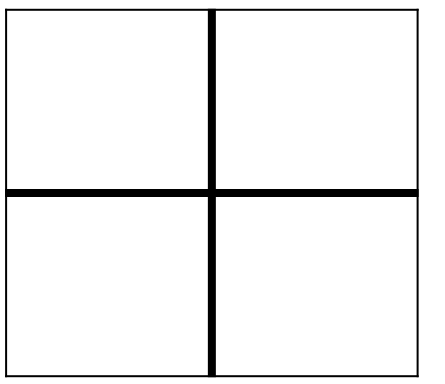
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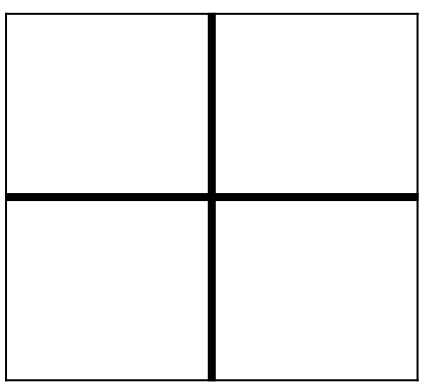
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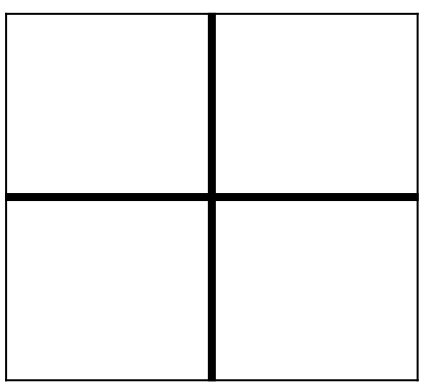
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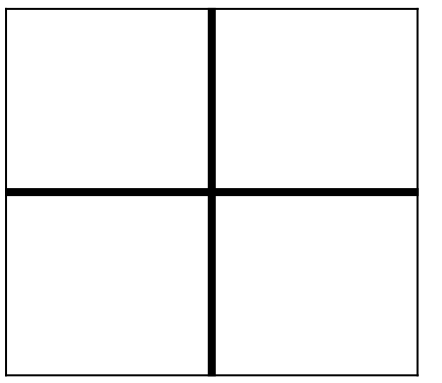
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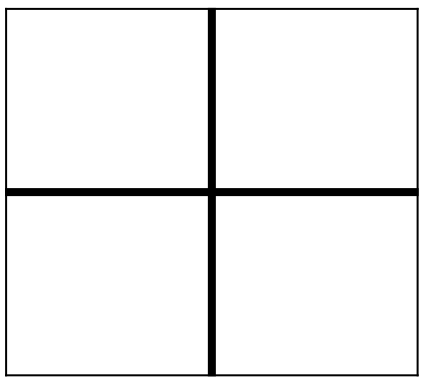
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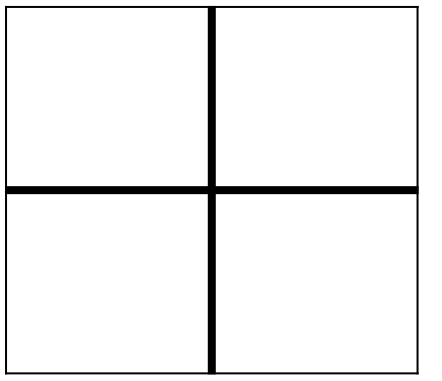
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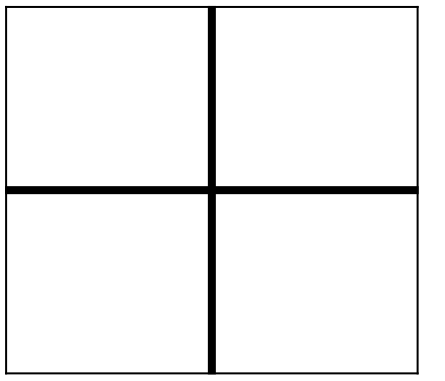
Claws

Adapted from: http://www.nlm.nih.gov/exhibition/harrypottersworld/education/lessonplans/science.html

Name_____

Monster Babies!

The Monster family is so excited to announce the birth of their new Monster baby! Help them share the good news by creating a card for them to send to their family and friends. You may want to include:

- The baby's name and birthday
- It's weight and height
- Whose eyes (or eye) does the baby have?

Have fun drawing a family portrait to show off their individual traits!

It's a !

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Part 2 Procedure:

The female monster (described in Table 1) is married to a male monster (see Table 2 below) and they plan to have baby monsters. They are interested in finding out the probabilities of which traits their offspring will have.

1. Fill in the missing genetic information in the table for the male.

Table 2: Genotypes & Phenotypes for Male Monster

Trait	Genotype	Phenotype
Eyes	ee	One large eye
Eye Color (incomplete)	R'R'	White
Skin Color (codominant)	GG	Green
Tail Shape	cc	Straight
Tail Color	Pp	Purple
Tail (regulatory gene)	tt	No tail
Teeth	ss	Round
Feet (incomplete)	FF'	Three toes
Horn Color	ww	White
Ear Shape	yy	Round
Ears (regulatory)	nn	Have 2 ears
Claws	ll	Short

2. Complete the Punnett Squares to predict what traits would result from a cross between the two monsters for each trait, and answer the following questions:

a. Eyes – What percent of offspring will have only one eye? _____

b. Eye Color – What percent of offspring will have red eyes? _____

c. Skin Color – What percent of offspring will have green skin? _____

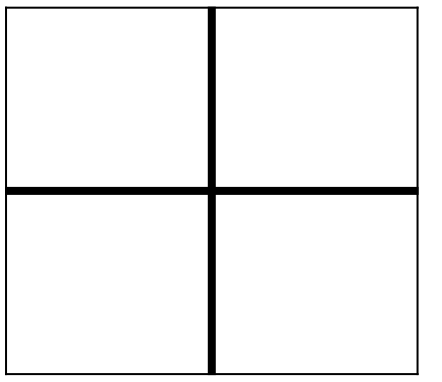
d. Tail – What percent of offspring will have a tail? _____

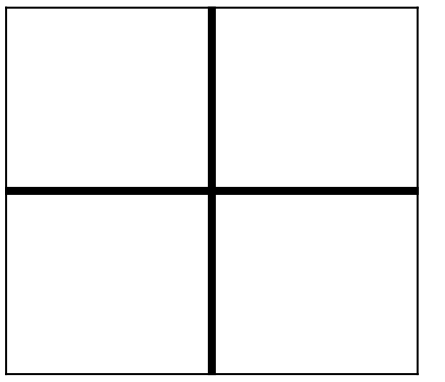
e. Feet – What percent of offspring will have three toes? _____

f. Horn Color – What percent of offspring will have purple horns? _____

g. Ears – What percent of offspring will have ears? _____

h. Claws – What percent of offspring will have long claws? _____


Eyes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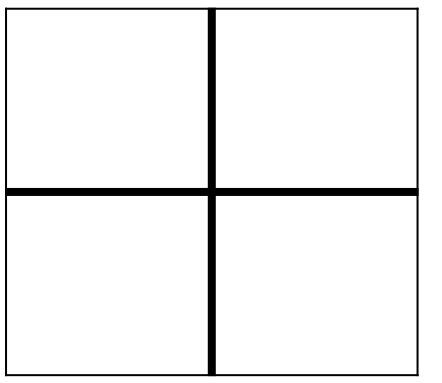
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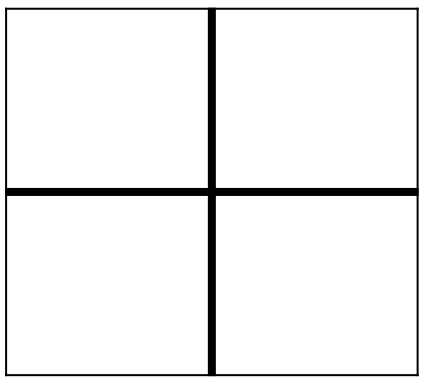
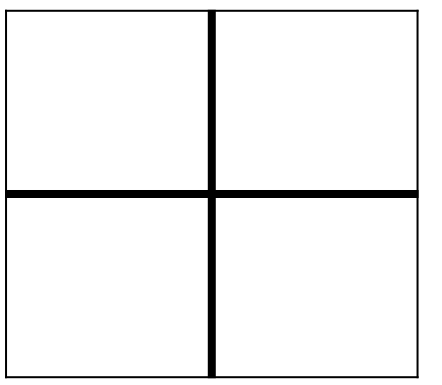

Tail Shape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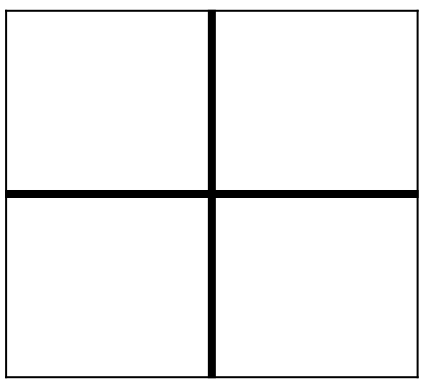
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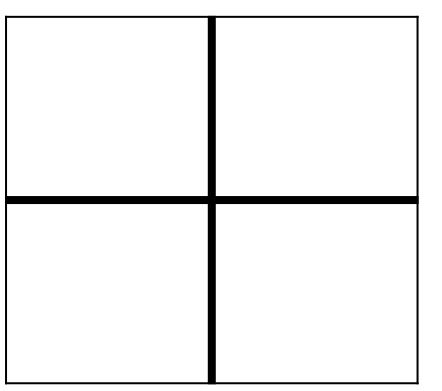
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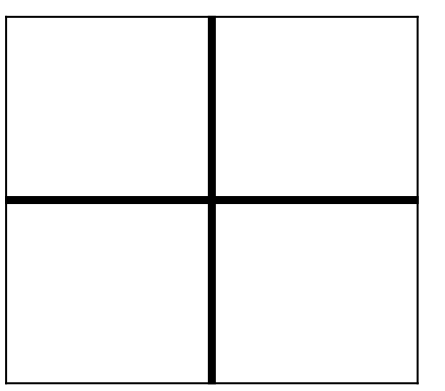
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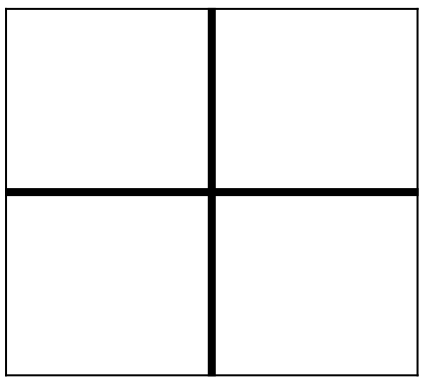
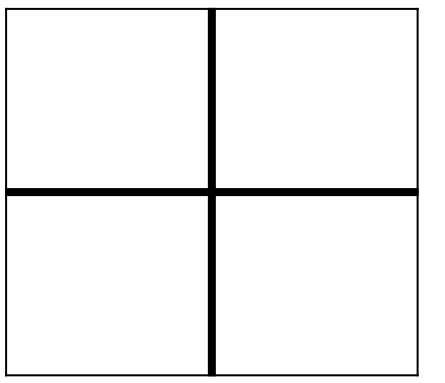
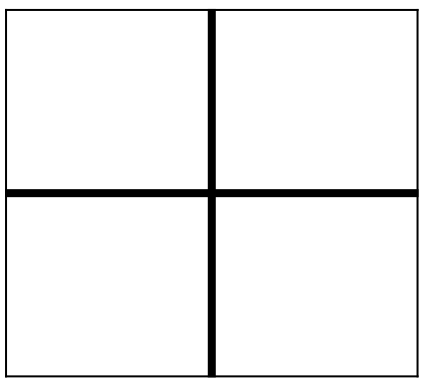
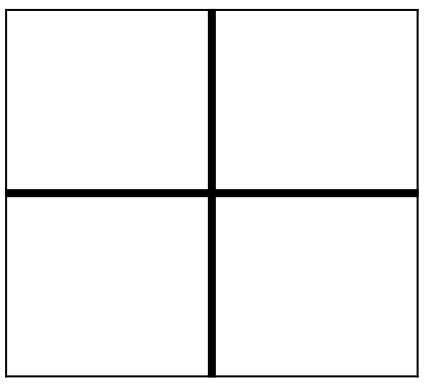

Horn Color


Ear Shape


Ears


Claws

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