Name _____ Class _____ Date _____

Critter Babies

Critters are adorable (imaginary) organisms that reproduce quickly and require minimal care. They live outside in fields and eat grass and other low-lying plants. They have some distinguishing traits—tail style, number of eyes, number of body segments (not including the head), nose length, and leg length—and each of these traits has two different versions, or alleles. You will model the inheritance of these five traits as you construct baby critters (offspring) produced by one set of critter parents.

You will create your baby critter with a partner. One of you will play the role of the "dad" critter and one will be the "mom." Both the mom and dad critters are *heterozygous* for each trait—they both have copies of each allele for each trait. You will flip a coin to determine which allele gets passed to the baby critter.

Procedure:

1. Flip a coin for each of the five traits that can be passed to the baby critter. If you flip "heads" for a trait, you supply the dominant allele; if you flip "tails" for a trait, you supply the recessive allele.

2. After each coin flip, each person fills in the data table to show which alleles are passed from parent to offspring (the offspring's genotype), and the offspring's physical trait (phenotype).

3. Once you have filled in the data table, gather the supplies you need to construct your critter. Use the "Body" Parts Key.

4. Assemble your baby critter, give it a name if you wish, and place it in the critter nursery your teacher has set up. Use a sticker or piece of masking tape to label your critter with your names (you can attach it to one of its legs!).

Critter Allele Key

Trait	Dominant Allele	Recessive Allele
Body segments	B = 2 segments	b = 3 segments
Leg length	L = long legs	l = short legs
Nose length	N = long nose	n = short nose
Eyes	E = two eyes	e = one eye
Tail style	T = curly	t = straight

Critter Body Parts Key

Body Parts	Materials
Body segments (and head)	Marshmallows
Legs	Straws
Nose	Brass fasteners
Eyes	Pins
Tails	Pipe cleaners

Additional materials:

Toothpicks (to hold body segments together and hold head to first body segment)
Coin (to determine which allele for each trait is passed to the Critter Baby)

Critter Data:

Trait/Alleles	Alleles from Parents (Genotype)		Phenotype
	Mom	**Dad**	
Body segments (B or b)			
Leg length (L or l)			
Nose length (N or n)			
Number of eyes (E or e)			
Tail style (T or t)			

Analysis/Interpretation:

1. Look at all of the critter babies. Are any exactly alike? Describe any variation.

   _____

   _____

   _____

2. Why are there so many different looking critter babies when they all came from the same parents? How does sexual reproduction increase genetic variation?

   _____

   _____

   _____

3. How does this activity explain why siblings (brothers and sisters) look similar but not completely different?

   _____

   _____

   _____

4. Let's say Critters live in an environment where there are predators – organisms that eat Critters. It is advantageous for Critters to have short legs and only two body segments so they can fit into hiding spaces better. What genotypes would a short-legged Critter with two body segments have (for these two features)?

_____

_____

_____

5. Would your critter be likely to survive in this environment? What about some of the other Critters in the nursery? Explain your answer.

_____

_____

_____

_____

_____