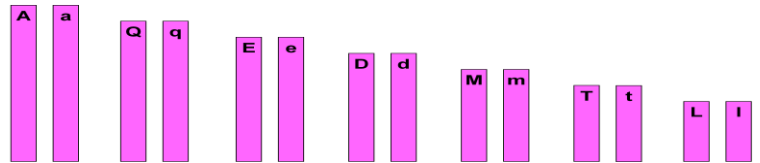


What are the colors of the chromosomes of your parents?

Female - _____ Male - _____

Procedure:

- Sort both sets of chromosomes out by color and length. Keep the chromosomes face down so you don't see the letters. You will have two sets (one color each) that when lined up, looks like a staircase.
- Now each partner should choose one chromosome from each set of chromosomes starting with the smallest chromosomes all the way up to the tallest chromosomes.
- Now you can look at the letters. You should have **one of each color** for **each length**.
- Now put the remaining chromosomes back into the correct envelopes.
- Write down the genotype of your "baby" in the table below.



Traits of your baby

Trait	Genotype	Phenotype
Body Segment		
Antenna		
Humps		
Nose		
Tail		
Eyes		
Legs		

- Now pair up with another group. Write down the genotype and phenotype of their baby.

Genes of other Baby

Trait	Genotype	Phenotype
Body Segment		
Antenna		
Humps		
Nose		
Tail		
Eyes		
Legs		

- Now take the chromosomes of your baby and the chromosomes of their baby and "mate" them, picking one chromosome from each length from each parent.
- The grandchild should potentially have four colors in its genes. Write down the genotype and phenotype.

Grandchild baby

Trait	Genotype	Phenotype
Body Segment		
Antenna		
Humps		
Nose		
Tail		
Eyes		
Legs		

9. Assemble your baby OR grandchild according to your traits.

Phenotype Key

AA – 1 antenna (colored toothpicks)

Aa – 2 antenna

aa – 3 antenna

MM – 1 green hump (mini marshmallows)

Mm – 2 green humps

mm – 3 green humps

QQ – Pink Nose (mini Marshmallow)

Qq – Orange Nose

qq – Yellow Nose

TT – Curly Tail (pipe cleaner)

Tt – Wavy tail

tt – Straight tail

EE – 1 eye (gold thumb tack)

Ee – 2 eyes

ee – 3 eyes

LL – 4 Blue legs (Colored tacks)

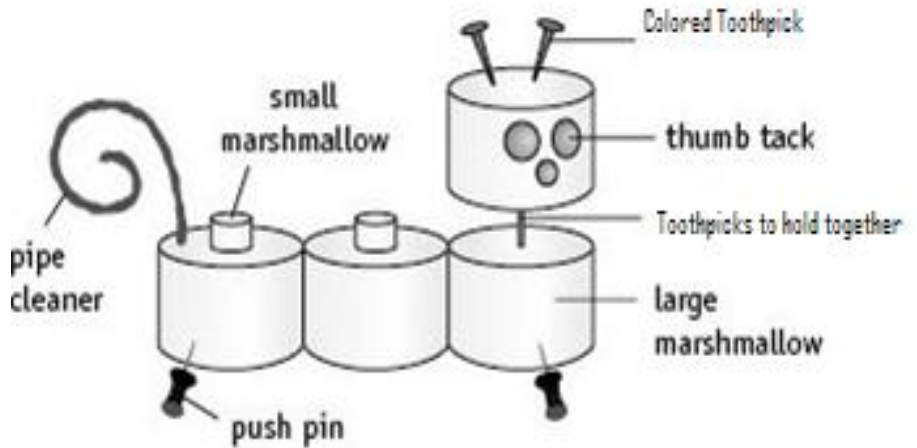
Ll – 2 blue legs

ll – 4 Red Legs

DD – 3 body segments and head (large marshmallows)

Dd – 3 body segments and head

dd – 2 body segments and head



10. How much genetic material does each parent provide? _____

11. Why do siblings in a given family look similar yet are all different?

12. If you picked the genes you wanted in your baby, what process would this be similar to?

Problems: You should use another sheet of paper. **What are the possible genotypes and phenotypes of the offspring?**

13. Cross two wavy tailed babies.

14. Cross a pink nosed, 3 antenna baby with a orange nosed, 1 antenna baby.

15. Cross a 4 blue legged and 2 body segmented baby with a 2 blue legged and homozygous 3 body segmented baby?

16. Before you eat your baby, please pose for a picture.

17. Return all thumb tacks to front. Clean your area.