

**This is your instructions sheet...Do NOT write on this paper!**

## **The Monster Match...**

You and your partner will be the surrogate parents of a beautiful baby monster. You must follow the directions carefully for each step. Be sure to fill out the genotype/phenotype chart as you work so that you will have data for each trait.

**DO NOT JUST DRAW A MONSTER!!** Your portrait will be graded based on how well it matches the data in your chart.

Each person will flip a coin for each trait and record the results. (To flip your coin, you can just drop it on your desk.) Each person should keep his or her own record of the data. When you have completed the entire chart, you will draw your monster.

### **Step One: Mom or Dad?**

Determine who will flip for the mom's gene contributions and who will flip for the dad's gene contributions. Record this information on your data chart.

### **Step Two: Girl or Boy?**

Determine the sex of the baby monster. "Dad" should flip his coin. If it lands on heads, it is an X chromosome and the baby is a girl. If it lands on tails, it is a Y chromosome and the baby monster is a boy. Record this information on your data chart.

### **Step Three: Name Your Monster**

Decide on a sex-appropriate name for your monster and record it on your data chart.

### **Step Four: Flip for the Traits**

For each monster trait, each person will need to flip his or her coin once.

- If the coin lands on heads, that parent donates a *dominant* gene (allele) to the baby. Record this as a CAPITAL letter.
- If the coin lands on tails, that parent donates a *recessive* gene to the baby. Record this as a lower case letter.

### **Step Five: Determine the Monster's Genotypes and Phenotypes**

Use the information on the back of this page to determine what traits your monster will have.

### **Step Six: Portrait**

Use the information from your data chart to draw a portrait of your monster. Remember that it must be drawn according to the traits you determined with your flipping. Any colors that are not specified in the traits chart are up to you. Use your imagination!

<b>Traits</b>	<b>homozygous dominant (both heads)</b>	<b>heterozygous (one heads, one tails)</b>	<b>homozygous recessive (both tails)</b>
Head size	Large (HH)	Medium (Hh)	Small (hh)
Head shape	Circle (CC)	Circle (Cc)	Square (cc)
Horns on head	Yes (HH)	Yes (Hh)	No (hh)
Body length	Long (BB)	Medium (Bb)	Short (bb)
Body size	Fat (FF)	Medium (Ff)	Skinny (ff)
Tail length	Long (BB)	Medium (Bb)	Short (bb)
Tail end	Spikes (SS)	Spikes (Ss)	No spikes (ss)
Teeth	Sharp (TT)	Sharp (Tt)	Flat (tt)
Fur color	Blue (FF)	Purple (Ff)	Red (ff)
Spots on body	Yes (SS)	Yes (Ss)	No (ss)
Spot color	White (SS)	White (Ss)	Black (ss)
Eyes	Large (EE)	Large (Ee)	Small (ee)
Eye shape	Straight (SS)	Straight (Ss)	Slanted (ss)
Eyelashes	Long (EE)	Short (Ee)	None (ee)
Nose	Small (NN)	Small (Nn)	Large (nn)
Mouth	Large (MM)	Large (Mm)	Small (mm)
Tongue	Forked (TT)	Forked (Tt)	Not forked (tt)
Ear shape	Pointed (PP)	Pointed (Pp)	Flat (pp)
Hair in ears	No (HH)	No (Hh)	Yes (hh)
Number of legs	Four (LL)	Four (Ll)	Two (ll)
Legs	Long (LL)	Medium (Ll)	Short (ll)
Feet	Large (FF)	Large (Ff)	Small (ff)
Wings	Yes (WW)	Yes (Ww)	No (ww)
Spikes on back	Yes (SS)	Yes (Ss)	No (ss)

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

## Monster Match

Parent's Names: \_\_\_\_\_ and \_\_\_\_\_

Monster's Name: \_\_\_\_\_

Trait No.	Traits	Gene from Mother	Gene from Father	Genotype	Phenotype
	Sex	X			
1	Head size				
2	Head shape				
3	Horns on head				
4	Body length				
5	Body size				
6	Tail length				
7	Tail end				
8	Teeth				
9	Fur color				
10	Spots on body				
11	Spot color				
12	Eyes				
13	Eye shape				
14	Eyelashes				
15	Nose				
16	Mouth				
17	Tongue				
18	Ear shape				
19	Hair in ears				
20	Number of legs				
21	Legs				
22	Feet				
23	Wings				
24	Spikes on back				

## Questions/Problems:

1. Use a Punnett square to show the possible offspring of a cross between two organisms heterozygous for a trait. Use **A** and **a** to represent the alleles.
2. Based on your Punnett square, it is *more probable* that the offspring will show the dominant trait or the recessive trait? Explain your answer.
3. Give an example from the activity of a **heterozygous** genotype. \_\_\_\_\_
4. List at least three traits for which your monster was heterozygous.
5. Give an example from the activity of a **homozygous dominant** genotype. \_\_\_\_\_
6. List at least three traits for which your monster was homozygous dominant.
7. Give an example from the activity of a **homozygous recessive** genotype. \_\_\_\_\_
8. List at least three traits for which your monster was homozygous recessive
9. Using an example from the activity, describe the difference between genotype and phenotype.

**Bonus Opportunity: Choose one of the following questions and answer it in PARAGRAPH form on your own paper.**

10. A fifth-grade friend that is not lucky enough to be in Miss Bolduc's life science class ☺ has seen a picture of your "child" and asks you to explain how kids get their traits from their parents. Using this activity as an illustration, write an explanation for this friend.
11. Explain how this activity does and does not represent what happens in real life.