

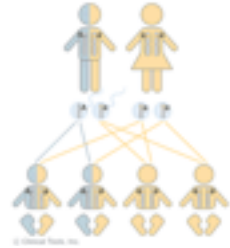
## Genetics Web Quest -2

Name: \_\_\_\_\_

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

This web quest takes you through various websites to better understand genetics. Record the information to the questions as you find it.

Find the links for this assignment on our science class website (no need to type in web addresses).



### First, Go to this site:

[http://www.glencoe.com/sites/common\\_assets/science/virtual\\_labs/E09/E09.html](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html)

-Read through the directions and perform your genetic crosses for each of your creature's traits.

**List the genotypes and phenotypes of your creature:**

<u>Trait:</u>	<u>Genotype</u>	<u>Phenotype</u>
Eyes		
Ears		
Nose		
Mouth		
Fur		
Feet		



### Next, Go to this website:

[http://www.biology.arizona.edu/mendelian\\_genetics/problem\\_sets/monohybrid\\_cross/01q.html](http://www.biology.arizona.edu/mendelian_genetics/problem_sets/monohybrid_cross/01q.html)

Answer Problem #1 on this page. You can use this Punnett Square:


Now skip ahead to Problem #4 by clicking through the problem button (in orange text) on the lower part of page.

Answer Problem #4 on this page. You can use this Punnett Square:


#4. Write your answer here: \_\_\_\_\_. Click on it to see if you are correct. If not it will teach how to do it correctly. The "Tutorial" button will help too.



Now go to this site: <http://www.athro.com/evo/gen/genefr2.html>



Eye color determined by at least three alleles ( a polygenic trait) and other genes for the cell structure of the eye. It is thus very complex about what color offspring eyes will be and how they may change color.

1. Scroll down to the Eye Color Calculator!
2. First, select the Parents' eye colors:

Eye Color of: \_\_\_\_\_ X Eye Color of: \_\_\_\_\_  
 Mother Father

3. Now select the parents' eye color genes: please circle the genotype (gene pair) you chose for each.

Mother's Genes:

Father's Genes:

Brown/Blue gene & Green/Blue gene

Brown/Blue gene & Green/Blue gene

Brown/Brown                      Green/Green

Brown/Brown                      Green/Green

Brown/Blue                      Green/Blue

Brown/Blue                      Green/Blue

Blue/Blue                      Blue/Blue

Blue/Blue                      Blue/Blue

4. Now produce a child by clicking on the "Produce" button. Please do this 20 times.
5. Record the number of children that had the following eye color:

Brown eyed Children: \_\_\_\_\_ Green eyed Children: \_\_\_\_\_ Blue eyed Children: \_\_\_\_\_

Try to rank the dominance of the three eye color genes starting with the gene that is most dominant to the one most recessive: #1 \_\_\_\_\_, #2 \_\_\_\_\_, #3 \_\_\_\_\_.



**Please go to the website:** [http://biologica.concord.org/webtest1/web\\_labs.htm](http://biologica.concord.org/webtest1/web_labs.htm)

**Click on: Dragon Genetics:** This activity explores the relationship between genotype and phenotype using both dominant and recessive traits. By changing alleles (genotype), you create corresponding changes in the dragon's physical appearance (phenotype).

Scroll down and follow the directions-it says to make nine dragons (any combination of male and female) until you see the "NEXT" button show up in the lower left corner and then click on it.

**As you follow the directions in the pink section**-(after changing the genes a while for the upper left dragon it will give you a new dragon in the lower left corner to change—after the next button and egg are clicked on)



1. How many chromosome pairs (yellow and purple paired; 'chr' is the abbreviation for chromosome) does a dragon have? \_\_\_\_\_
2. How many gene pairs are there on chromosome 2? \_\_\_\_\_
3. What combination (pairing) of alleles makes your dragon have a unicorn horn? \_\_\_\_\_ & \_\_\_\_\_
4. What combination (pairing) of alleles makes your dragon have blue skin?  
Color 1 genes: \_\_\_\_\_ & \_\_\_\_\_ ; Color 2 genes: \_\_\_\_\_ & \_\_\_\_\_
5. What combination (pairing) of alleles makes your dragon breathe red fire? \_\_\_\_\_ & \_\_\_\_\_
6. Did changing your dragon's genes (genotype) always change what it looked like (phenotype)? Explain: \_\_\_\_\_  
\_\_\_\_\_
8. There is a combination of alleles for color that will cause your dragon to die (as shown by the skeleton picture and no other genes can be changed).  
What is it? \_\_\_\_\_ & \_\_\_\_\_



What other games did you play? Describe the game.

#1. \_\_\_\_\_

#2. \_\_\_\_\_