

Our Baby!!

Dragon Genetics

BACKGROUND

Students will work in pairs in the lab to produce a dragon from the random mixing of genetic traits. Each student will be a surrogate dragon parent. They will pick up a complete set of dragon chromosomes. Surrogate dragon

parent partners must be of the opposite sex, therefore one parent must pick up the double X chromosomes while the other must pick up the X/Y chromosomes. The homologous chromosomes will be separated according to Mendel's law of Independent Assortment. The genetic codes that are passed on to the baby will be recorded on the following pages. The surrogate parents must then decode the genes inherited by their bundle of joy to determine the phenotype traits of their baby. Students will sketch and label a final picture of their baby dragon and then place them in a correct biome and specific location on our planet. The location needs to make sense for the traits that the dragon possesses.



PROCEDURE

1. Choose a partner carefully. You and your "spouse" will turn in separate completed labs but you may work on assisting the other through the drawings and questions.
2. Each partner must pick up five Popsicle sticks -- one of each color of autosome, and one sex chromosome stick. Each side of a stick represents a chromosome, and the two sides together represent a pair of homologous chromosomes.
3. For each color autosome and then for the sex chromosomes, each parent will randomly drop his or her stick on the table. The side of the stick that is up represents the chromosome that is passed on to the baby.
4. The alleles from each pair of homologous chromosomes will be recorded in the data chart on following pages.

5. The decoding chart - "Decoding of the Genes" on the next page indicates the phenotypic effect (what is physically shown) of each gene. The trait produced by each pair of alleles should be recorded in the data chart. Remember that a CAPITAL letter is **dominant** over a small letter **[recessive]** unless the decoding chart indicates those traits are codominant, sex-influenced, or sex-limited.

6. Once you have your traits start to draw your baby. I have examples I can share. You can use pictures from online to trace or freehand your own.

7. Color should be added and **needs to be color pencil.**

8. Once the sketch is completed be sure to label the different traits on the image so it is easy to tell.

9. Finally you need to place the dragon on this planet on the correct biome and a specific location for it to survive and live.

Example - a wingless, coldblooded dragon who is serpent like might live in a lake area such as the Great Lakes.

Dragon Genetic Questions

Your Name(s)_____ Your Cohort and Class? _____

Lab Partner: _____

What is your Dragon's Name: _____

Male or Female? _____

Where does it live? _____

Overall Characteristics: Give a specific description of your dragon and the traits he/she inherited.

1. In your own words, what are alleles? How many are found in the Dragon DNA Project?

2. Explain how dropping the popsicle stick shows how alleles are sorted during meiosis.

3. Did you have any mutations in your dragon? What might have accounted for this?

4. Where should your dragon live based on your description of them? Search up the specific location on Google Maps (be creative) based on external traits and cold/warm-blooded status. What traits allow them to adapt to this location?

See links on the Agenda.

***Extension (Not needed)**

What are Sex-linked Traits? What traits are more likely to be found in males?

***Extension (Not needed)**

What is Codominance? Give an example of when it happens.