DRAGON GENETICS LAB
-- Principles of Mendelian Genetics

Dr. Pamela Esprivalo Harrell, University of North Texas, developed an earlier version of "Dragon Genetics"
which is described in the January 1997 issue of Science Scope, 20:4, 33-37.
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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. Using the pictures at the end of the handout, they will cut out these traits and paste them together to have a picture of their baby.

PROCEDURE

1. Choose a partner carefully. You and your spouse will share the grade for this lab. Your instructor does not care which partner worked the hardest. This is a no divorce classroom. The lab must be completed on time.
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 pages 3-4.
5. The decoding chart on page 2 indicates the phenotypic effect 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. The students will cut out the traits for their baby. Fit them together and produce a picture of the baby. Students may trace the traits to produce their baby's picture or just glue them to the page.
7. The baby's colors will be added to the picture, if possible; otherwise indicate the baby's colors below the picture.