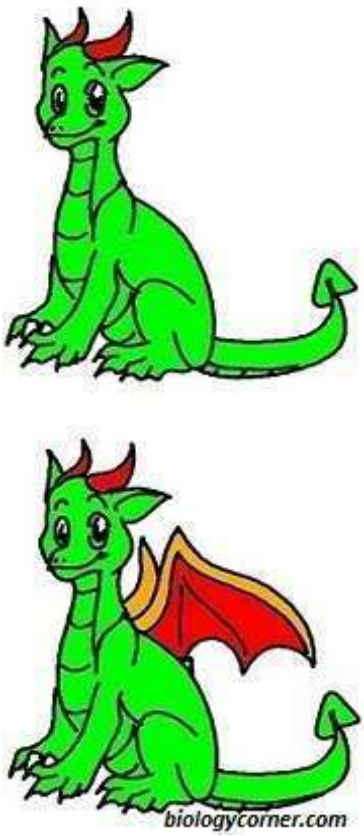
Name:_____Due Date_____

Genetics Project - Design a Species

Objective: Genetics follows certain rules, as illustrated by punnet squares, principles of dominance and recessiveness, and rules related to the location of alleles on the chromosomes. In animals, such as mouse, certain traits are expressed in predictable ways. In this project, you are going to design your own imaginary hybrids, and create traits for the hybrids that follow genetic rules that you have already studied.

The creature should have at least 5 genetic traits from the following list. You are free to create whatever traits you like (such as hair color, size, shape, or other features)

- 4 Single-allele traits
- 1 Codominant trait (or incomplete dominance)



This student used dragons for her creation, but you don't need to make yours this fancy.

In this example, wings are a dominant trait, the top dragon has the genotype ww, and the bottom dragon has the genotype WW

Your final project should have the following elements:

1. Describe or sketch each of the traits from the list, listing genotypes and phenotypes for each. Partial sketches are fine in this case.

2. Sketch two examples of your creation – one male and one female. The two examples must have different genotypes. Each sketch should have the genotype listed for all traits.

3. Show a dihybrid cross (using your 2 single allele traits—ex: AaBb x AaBb) List the phenotypic ratios.

4. Create 5 practice problems, using any of the traits. These should be word problems. Do not just write Aa x Aa.

5. Write two paragraphs about your hybrid. One paragraph should describe what traits your hybrid has, the genotypes for each trait and the phenotypes for each trait. The second paragraph should describe the procedures used to create the hybrid.

Genetics Project Grading Rubric			
	Unsatisfactory (3 pts)	**Satisfactory (4pts)**	**Excellent (5 pts)**
Traits and pictures	Some do not follow genetics "rules", pictures not clear	Follows genetics rules, pictures are small or lacking in creativity or effort	Follows genetics rules, pictures are drawn large and clearly. Colored. Creative.
Creature examples	Genotype doesn't follow phenotype, pictures not	Genotype follows phenotype, all traits included,	Genotype follows phenotype, pictures drawn

	included or unclear	pictures somewhat unclear or not neat	clearly, neatly and creatively, and colored
Paragraphs	Paragraph missing or did not respond to prompt	Paragraphs not complete or unclear	Paragraphs complete and fully responds
Dihybrid Cross	Punnett square not set up correctly, phenotypic ratios not given or incorrect	Punnett square set up correctly, minor errors in counting and ratios	Square set up correctly, phenotypic ratios given correctly
Practice problems	Less than 5 problems given, more than 1 is impossible to solve	5 problems given, somewhat unclear or unsolvable	All 5 problems are written well and can be solved
TOTAL			