

Culminating Project: Design a Creature's Genetics

Name: _____ Date: _____

LEARNING OBJECTIVE

Student will be able to apply Punnett square predictions to design and illustrate the possible offspring of two imaginary creature 'parents.'

MATERIALS NEEDED

- Paper
- ruler
- pencil
- colored pencils or markers
- index cards

HANDS-ON ACTIVITY

1. Invent a fictional creature and choose 2 traits it has, each controlled by one gene with a dominant and recessive version (e.g., wing color: Green G dominant / Blue g recessive; horn type: Curved H dominant / Straight h recessive).
2. Design and draw 2 parent creatures with specific genotypes for both traits (e.g., Parent 1: GgHh, Parent 2: GgHh), clearly labeling their genotypes and phenotypes.
3. Build a Punnett square (or two, one per trait) to predict the possible genotypes and phenotypes of their offspring.
4. Draw at least 3 different possible baby creatures based on your Punnett square results, labeling each one's genotype and phenotype.
5. Create a small 'field guide' index card for your creature species explaining the traits, the dominant/recessive rules, and probability of each offspring type.

QUESTIONS

1. What were the genotypes of your two parent creatures, and what traits did each control?

2. Based on your Punnett square, what percent of offspring would be expected to show both dominant traits?
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3. Describe one of your offspring creatures — what is its genotype, phenotype, and how did you determine its appearance from the genotype?

4. What was the most challenging part of predicting genetics for two traits at once instead of one?
