# Genetics Project: Design a Species

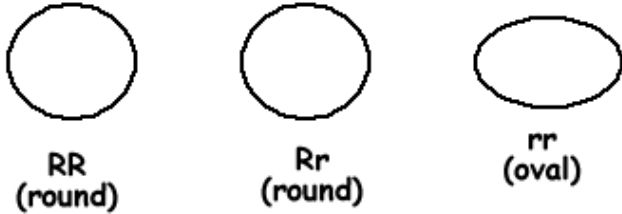**Create and Imaginary Creature.** The creature must have at least 6 genetic traits from the following list

- 2 Single Allele Traits
- 1 Co dominant Trait
- 1 Multiple Allele Trait
- 1 Sex Linked Trait

1. Describe and sketch each of the traits on the list, showing genotypes and phenotypes for each (see sample)

2. Sketch two examples of your creature. The two examples must have different genotypes

3. Pick one of your single allele traits and create a sample pedigree for your creature which includes at least 4 generations

4. Show a dihybrid cross using your two single allele traits ( Ex: AaBb x AaBb ). Show the Punnet square and the ratios produced

5. Create 5 practice problems using any of your traits. You do not have to actually solve these problems, but they should be solvable.
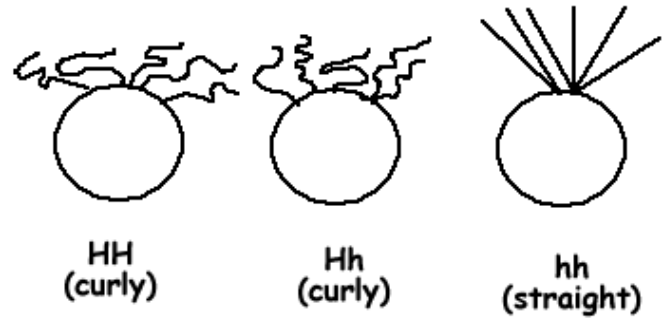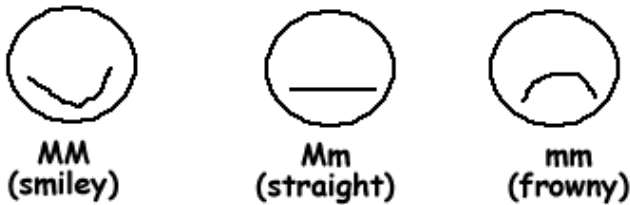
# GENETICS PROJECT SAMPLE
## Smiley Creatures
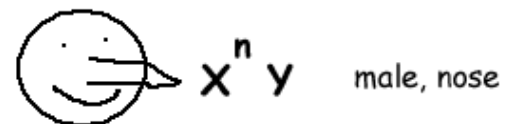
### Single Allele Trait (shape of head)

RR
(round)

Rr
(round)

rr
(oval)

### Single Allele Trait (hair)

HH
(curly)

Hh
(curly)

hh
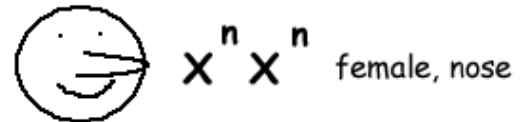(straight)

### Codominant Trait (mouth shape)

MM
(smiley)

Mm
(straight)

mm
(frowny)

### Sex-Linked Trait (noses)

$X^N X^N$  female, no nose

$X^N X^n$  female, no nose

$X^n X^n$  female, nose

$X^N y$  male, no nose

$X^n y$  male, nose
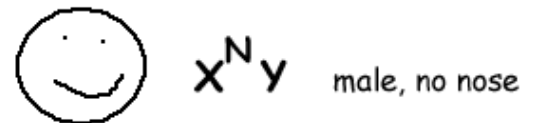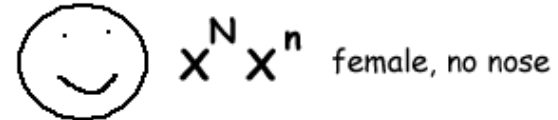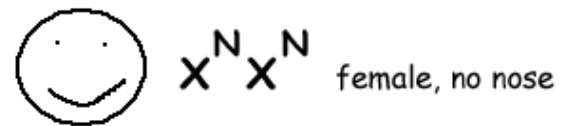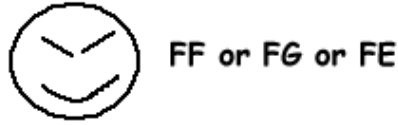
### Multiple Allele Trait (eye shape)

E = circle eyes
F = slant eyes
G = dot eyes
EG = circle dot
(slant eyes are dominant,
circle and dots are codominant)

EE

FF or FG or FE

GG

EG

Genotype

Phenotype

RrhhmmGG $X^N X^n$