

Heredity Lab

/14

NAME _____ hr _____

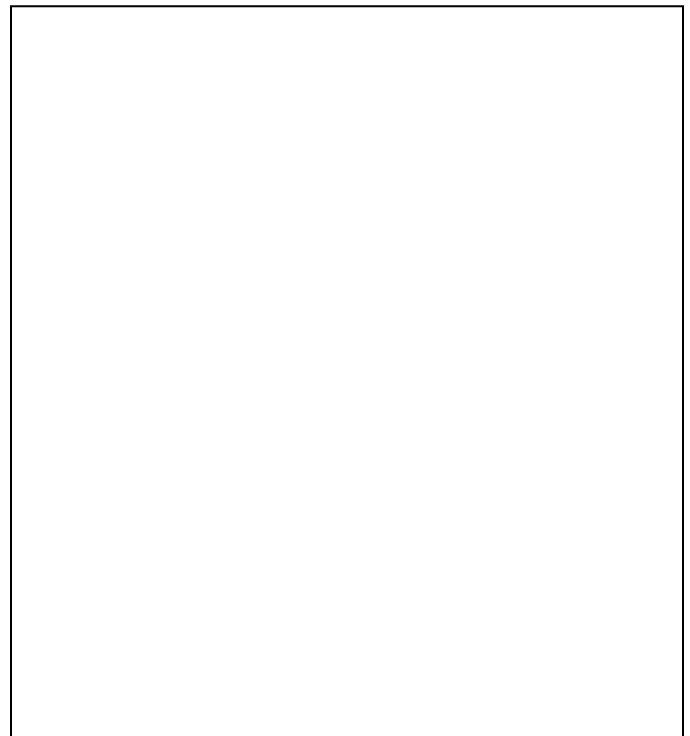
One day long, long ago, in a galaxy far, far away two scientists were trying to breed the perfect alien. They had two “creatures” named Monch and Ocean. Monch and Ocean both have many dominant and recessive traits that they received from their parents. In this lab you will simulate the random way genes are donated by each parent, then determine the different traits of their offspring.

DIRECTIONS: Flip a coin to see which **allele** Monch donates to his child. If it is heads, he donated a **DOMINANT GENE (CAPITAL)**. If it is tails, he donated a **RECESSIVE GENE (LOWERCASE)**. Do the same for Ocean. Repeat the coin flipping for each trait. Combine the alleles from each parent to make the genotype and enter that into the genotype column. Finally, using the genotype & phenotype chart, fill in the phenotype column.

Creature Family Traits				
Trait	From "Monch"	From "Ocean"	Offspring's Genotype	Offspring's Phenotype
<i>EXAMPLE</i>	<i>X</i>	<i>x</i>	<i>Xx</i>	<i>Blue Hair</i>
Number of body segments (s)				
Antennae number (a)				
Tail Shape (c)				
Number of leg pairs (L)				
Nose shape (n)				
Foot shape (f)				
Number of Eyes (e)				

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Genotypes and Phenotypes	
SS or Ss - 3 body segments	ss - 2 body segments
AA or Aa - two antennae	aa - four antennae
CC or Cc - curly tail	cc - straight tail
LL or Ll - 3 pairs of legs	ll - 2 pairs of legs
NN or Nn - wide nose	nn - long skinny nose
FF or Ff - clawed feet	ff - hooved feet
EE or Ee - 2 eyes	ee - 3 eyes



Analysis Questions /14

1. Look at the creatures made by your classmates. Are they all alike? They both have the same parents, why are they so different?

2. What is a phenotype?

3. What is a genotype?

4. If both parents were heterozygous, what were the odds (Percent chance) that the new offspring would have hooved feet? (you might have to do a Punnett square for this)

5. If both parents were heterozygous, what were the odds (percent chance) that the new offspring would have clawed feet?

6. Which trait is dominant: wide nose or long skinny nose?

7. Which trait is recessive: curly tail or straight tail?

8. What is the difference between asexual and sexual reproduction?

9. If Monch had all of the dominant traits and reproduced asexually, how many eyes would her offspring have?

10. Imagine that humans introduced a parasite on the planet that Monch and Ocean lived on. This parasite causes organisms with clawed feet to shrivel up and die. How would sexual reproduction give Monch and Ocean's offspring a chance to survive?

11. Describe the advantages and disadvantages of sexual and asexual reproduction. (4pts)

	Advantage	Disadvantage
Sexual reproduction		
Asexual reproduction		