

Al Dominant and Recessive Traits

What are dominant and recessive traits?

Traits are characteristics that an organism can pass onto its offspring. **NASA** scientists have discovered living organisms on the planet **Geneticus**. They have asked you to research a species named **Creaturus crazarius**—commonly called crazy creatures. To begin your research, you will take an inventory of the facial traits of crazy creatures to determine their basic patterns of inheritance.

STOP AND THINK:

a. Think about the forms of the traits. What are the **advantages**, if any, to having either form of each trait? What are the **disadvantages**, if any, to having either form of each trait? Explain your answers.

b. Why is there variation in the facial features of the crazy creatures? Explain your answers.

Examine the laminated colored sheets of creature faces. There are 50 faces. Count how many organisms you find with each form of the trait and record the totals into the appropriate columns of Table 1.

Table 1: Population data for facial traits

Trait	Number of organisms with form 1	Number of organism with form 2
Antenna	Long:	Short:
Antenna shape	Star:	Knob:
Ears	Mouse:	Elephant:
Eyebrows	Unibrow:	Separate:
Beak	Crusher:	Trumpet:

THINKING ABOUT WHAT YOU OBSERVED:

- a. For each trait, which form was most common?

- b. Why do you think one form is more common than the other?

- c. Think about the sample size. How might the results have been different if you looked at a smaller sample? What about a larger sample? Describe how many sample size might affect the results.

- d. In organisms found on Earth, traits are determined by units called genes. For each trait, an organism gets one gene from its mother and one gene from its father. Different forms of the same gene are called alleles. For each trait, there is a dominant allele and a recessive allele. The dominant allele masks the effect of the recessive allele for the trait. Based on your population data, so you think the traits of crazy creatures have dominant and recessive alleles? Use your data to explain your results.

- e. Based on your data. Hypothesize which allele is dominant and which allele is recessive. Record your predictions in the chart below. Once you have predicted, ask your teacher which alleles are dominant and recessive. Were your predictions correct? Why or why not?

Trait	Predicted Dominant Allele	Predicted Recessive Allele	Actual Dominant Allele	Actual Recessive Allele
Antenna				
Antenna shape				
Ears				
Eyebrows				
Beak				

- f. Sometimes people incorrectly assume that the dominant alleles are always more common. Was this true? Use evidence to explain your answer.