Name: _____

⚒ Project 4.1.6 Family Traits

Purpose

Segments of DNA constitute genes. Genes define physical traits of living organisms. These traits are passed onto offspring as the DNA is replicated and eventually combined with another parent's DNA to form a unique DNA sequence for each individual. However, some of the parent's traits are lost in the process of combining DNA where other parental traits are clearly noticeable in the offspring.

Traits define the unique characteristics of an individual within a species. You are able to trace back certain physical traits through relatives and different generations to find the source of the trait. The understanding of genetics and genetic inheritability is important to the industry of agriculture to produce animals and plants that have desired traits used for products and longevity.

Materials

Per student:

- Computer station with printing capabilities
- Concept mapping software
- *Agriscience Notebook*
- Pencil

Procedure

Using the categories of traits identified in *Activity 4.1.5 Our Physical Features*, you will develop a descriptive family tree identifying the traits that each of your relatives possess. You will use concept mapping software to develop a diagram illustrating the required information.

Part One – Researching Family Traits

The first step to completing this project is to research the traits of your family members as homework. Identify as many of the trait categories as possible from *Activity 4.1.5 Our Physical Features* in each of your family members. Find at least three for each person. In addition, to your parents and siblings, it is valuable to include maternal and paternal grandparents, if possible. The more family members you include, the easier it is to identify from whom you inherited a trait.

Part Two – Using Concept Mapping Software

Your teacher will provide a demonstration of how to use the software being used by your class. The following instructions will help you navigate the program. Upon completion of the demonstration, explore the program to learn the options and functions available prior to developing your family tree.

Part Three – The Family Tree

Use the functions in the concept mapping software to develop an illustration of your family tree. Your illustration must include the following. See Figure 1 as an example.
- A bubble or shape for each member of your family
- Characteristics of your immediate family including siblings and parents
- Every relative must have at minimum three physical characteristics identified
- You must indicate the traits that relatives have in common with your personal characteristics
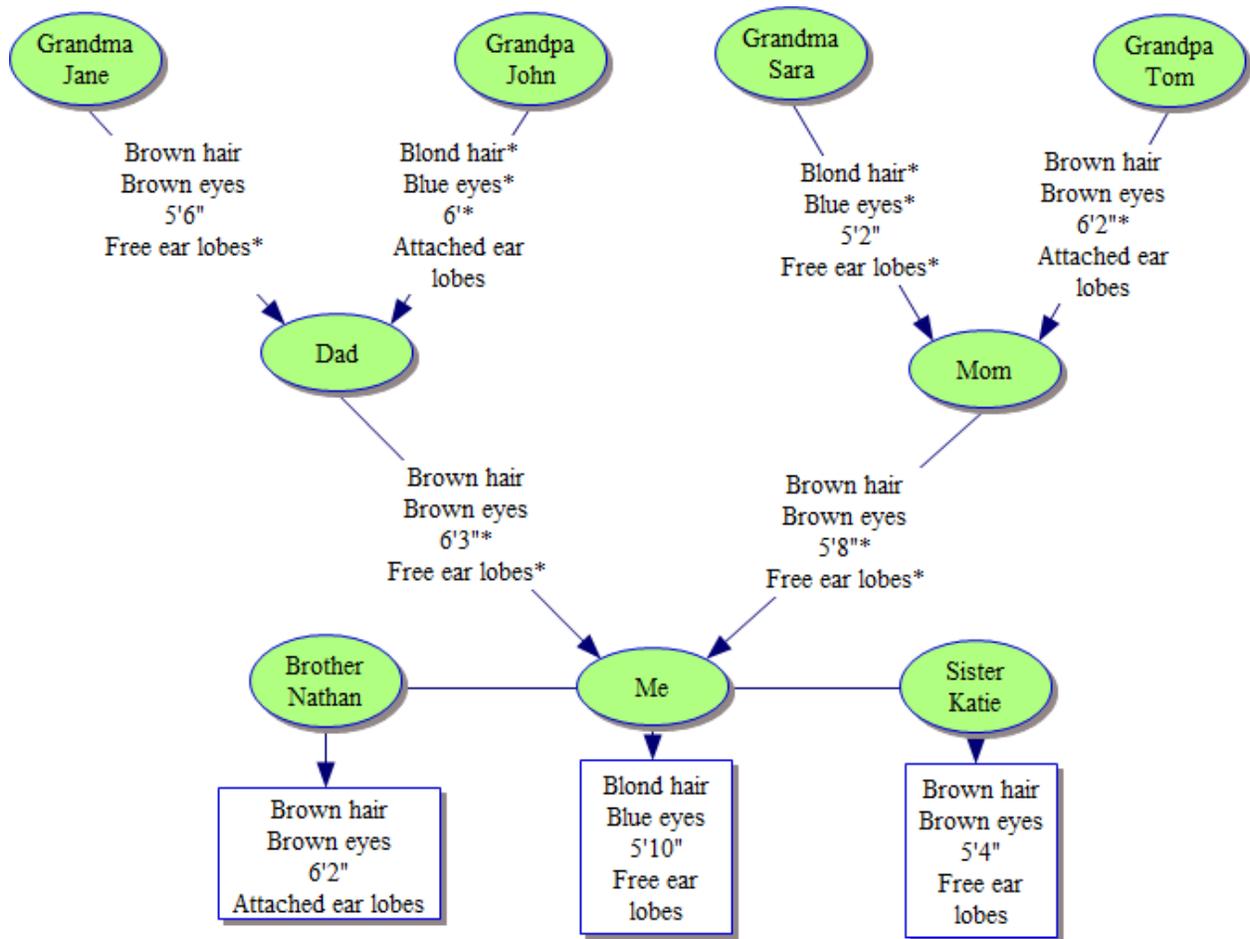
(* Indicates traits in common with me)

Figure 1. Example Family Tree

Follow the instructions of your teacher to submit your work once your illustration is complete.

Conclusion

1. What were the most common traits expressed in your family?

2. Based on your knowledge of DNA and genetics, why might there be a person in your family who is the only one to express a trait?

1. What traits might transfer across generations within animal species?