13A Creature Cladogram

What type of information can be used to create a cladogram?

We use systems of classification in everyday life. We classify products in a grocery store. We classify people in a phone book using their last names. Organizing a collection of information into groups makes it easier for others to understand the relationship between the objects in the collection. *Taxonomy* is the science of grouping living things on the basis of like characteristics. Organisms are classified according to their structures and evolutionary relationships. Sometimes organisms that appear very different end up in the same group together. In this investigation, you will identify common characteristics in a group of imaginary creatures and use this information to create a *cladogram* that shows how the creatures are related.

Materials

- Creature sheet from your teacher
- Large sheet of paper
- Colored pencils or markers

1 Setting up

1. Examine the creature cards. Compare and contrast the characteristics of the creatures.
2. Make a list in Table 1 of the different characteristics of the creatures that may provide a way to divide them into groups.

Table 1: Imaginary creature characteristics

Creature number	Characteristics
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

2 Stop and think

a. What types of characteristics are contained in Table 1?

b. Are there some common characteristics that all of the creatures share?

3 Doing the experiment

1. Fill in the table below as you try to determine relationships among different creatures. NOTE: You may also make up other categories that are not listed in Table 2. Examples may include: type of food, behavior, or any other characteristics you observe.

Table 2: Classification data

Classification	Feature	Creature number
Habitat	Land	
	Water	
	Land and water	
Type of appendages	Tentacles	
	Fins	
	Legs	
	Other	
Movement	Walking/crawling	
	Slithering	
	Swimming	
	Other	
Mouth	Beak	
	Tube	
	Regular mout	
	Lips	
	Other	
Other Features	Horns	
	Antennae	
	Fins on back	
	Claws/talons	
	Hands/feet	
	Flippers	

2. Use the information in Table 2 to divide the organisms into different groups that you believe are related to each other somehow. Try to reach some agreement in your group based on the evidence you observe.

4 Applying your knowledge

a. Based on your answers in Table 2, which creatures are most closely related?

b. Which creatures are the most distantly related?

c. Using your information in Table 2 create a ***cladogram*** that illustrates relationships among your creatures. An example cladogram is shown to the right. Your cladogram will look much different than the one shown. It may resemble a tree with many branches. Be creative!

d. Choose a point on your diagram where two organisms branch. Describe what their common ancestor may look like. Be creative!

5 Exploring on your own

Once you have completed the investigation, pick one creature and using the information collected above, write a brief description of the creature's habitat, food, and predators. The goal of this activity is to be creative and use as much information as you can in describing the habitat of this creature.