

Name: _____ . Date: _____ .

Building a Dichotomous Key: Take home Assignment

Materials:

- Copy of Aliens Handout
- Question Sheet
- Dichotomous Key Sheet

Introduction:

A dichotomous key is a very useful tool. It helps you identify unknown organisms by using a system that breaks down the characteristics of a set of organisms into TWO groups over and over again until you only have one organism in a group (Di = two and you only have two choices at each splitting of groups). Building a dichotomous key is not as hard as you might think it would be. All it takes is a bit of concentration. In this lab, we will be classifying and creating a dichotomous key for a various Aliens.

Instructions:

How to make a simple dichotomous key for taxonomic identification

Dichotomous keys are based on the use of pairs of contrasting statements. That is, the pairs of statements are designed so that if a characteristic isn't described by one statement, it must be included in the contrasting statement. By setting up pairs of contrasting statements, you can set up a working key that leads the user to the correct identification. For example statement if 1a may be Alien does not have feet, then statement 1b would be Alien does have feet. Continue to break a group down by characteristics one at a time until you reach the correct classification. Then you continue with the next group.

Things to Remember:

- 1) Keep the descriptions simple.
- 2) Work with one sub-group at a time.
- 3) Make sure your number correspond to your descriptions!

Please complete and pass in the following:

1. Dichotomous Key for your candy specimens. This must include all 10 alien species. Please include new Genus and Species names for each alien. Ex. Alienus octus. The Genus name will be the same for all the aliens, while the species name will focus on one of their major characteristics.
2. Analysis Questions.

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Steps

1. Use the most general traits that can be used to divide organisms up into two categories. These two categories will become 1a and 1b. Example
 1a..... Go to 2
 1b..... Go to 3
2. The second step (2a and 2b) needs to consist of a pair of statements that will allow for the identification of one organism (2b should ID one organism).
3. Every statement after the second should allow for the identification of one or two organisms.
4. The last pair of statements (ex. 5a and 5b) should identify two organisms.
5. There should be one less step then the total number of organisms to be identified in your key (if you have 6 organisms, you should have 5 paired statements to identify them all).
6. The more similarities the group of organisms has, the more difficult it is to develop the key. Try to choose characteristics that are different to make classifying the organisms easier.

A Simple Example

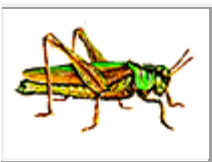
Suppose you have four insects - a ladybug, a housefly, a dragonfly and a grasshopper. After studying the insects, you might use wings covering, body shape and where the wings point towards.



To begin the key, you could start separating the four insects based on wing covering - "wings covered by exoskeleton" vs. "wings not covered by exoskeleton."

The first step in the key will be organized the following way:

1. a. wings covered by an exoskeleton
- b. wings not covered by an exoskeleton



Next, the statements need to lead the observer to the next step to narrow the identification further:

1. a. wings covered by an exoskeleton go to step 2
- b. wings not covered by an exoskeleton go to step 3



Step 2 needs to consist of a pair of statements that will allow for the identification of the ladybug and the grasshopper:

2. a. body has a round shape **ladybug**
- b. body has an elongated shape **grasshopper**



Step 3 needs to consist of a pair of statements that will allow for the identification of the housefly and dragonfly:

3. a. wings point out from the side of the body **dragonfly**
- b. wings point to the posterior of the body **housefly**

Dichotomous Key Activity

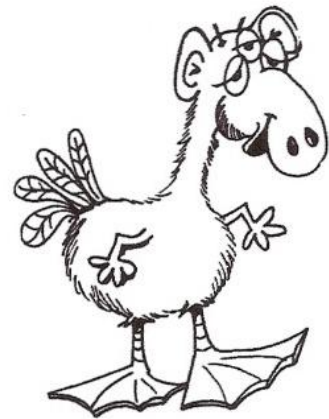
Directions: Give each of the following creatures a scientific name. Then create a dichotomous key to identify the organisms. Attach your key to this sheet.



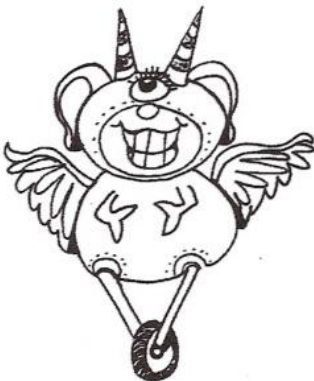
#1



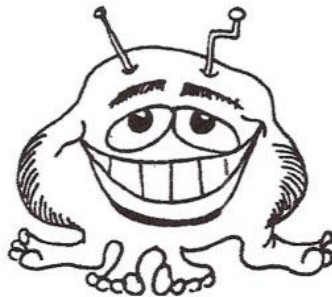
#2



#3



#5



#4



#7



#8



#6



#10



#9

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Dichotomous Key Using Candy

Steps of Dichotomous Key	Go to Step:
1 A	
B	
2 A	
B	
3 A	
B	
4 A	
B	
5 A	
B	
6 A	
B	
7 A	
B	
8 A	
B	
9 A	
B	

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QUESTIONS FOR ANALYSIS

1. What is the purpose of a dichotomous key (not just this key, but any key)?

2. Why is a dichotomous key called a dichotomous key?

3. Is it possible to create more than one dichotomous key for classifying and identifying the same group of objects?

4. When two people use the same dichotomous key to identify the same object, is it possible (should it be possible) for them to have different final answers?

5. Why are classification and identification important?
