

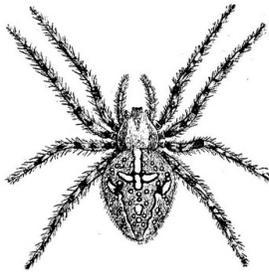
Name: _____

Date: _____

Student Exploration: Dichotomous Keys

Vocabulary: dichotomous key, genus, organism, scientific name, species, traits

Prior Knowledge Question (Do this BEFORE using the Gizmo.)



Jerome is walking through a park when he sees the spider shown at left. How could Jerome find out what type of spider it is?

Gizmo Warm-up

In the field, scientists often have to identify an unfamiliar **organism** (living thing). A reliable way to identify organisms is to use a **dichotomous key**. A dichotomous key is a series of paired statements or questions that lead to the identification of an organism.

The *Dichotomous Keys* Gizmo™ allows you to use five different dichotomous keys to identify a variety of organisms. To begin, make sure **California Albatrosses** and **Organism A** are selected.

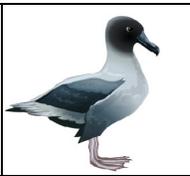


1. Read the two statements at lower right. Which of the two statements most closely matches the characteristics of the bird pictured?

2. Select that statement and click **Next**. Continue until you have correctly identified the albatross. If you change your mind about a choice, you can click the **Back** button. If you incorrectly identify the albatross, you can click the **Start Over** button and try again.

A. What is the name of the albatross? _____

B. The **scientific name** is shown in italics. Scientific names have two parts: the **genus** name and the **species** name. What is the scientific name of this albatross?

Activity A: Use a dichotomous key	<u>Get the Gizmo ready:</u> <ul style="list-style-type: none"> • Make sure the California Albatrosses key is selected. • Select Organism B. 	
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Introduction: As you saw on the previous page, a dichotomous key can help you identify an organism using its characteristics, or **traits**. The keys in this Gizmo use only physical traits, such as feather color, to identify organisms. In some cases, behavioral traits are used in dichotomous keys. For example, some frog species can be identified by their croaks.

Goal: Use a dichotomous key to identify albatross species found in California.

1. Compare: Take a close look at organism B.

A. How does organism B differ from organism A? _____

B. What physical traits do you think can be used to help identify organism B? _____

2. Identify: Use the Gizmo to identify organism B. Then, identify the other albatrosses included in the California Albatrosses key. Complete the table below.

California Albatrosses

Organism	Common name	Scientific name
A	Short-tailed albatross	<i>Phoebastria albatrus</i>
B		
C		
D		
E		
F		

3. Think and discuss: What do you think are some limitations of dichotomous keys?

Activity B: Identification practice	<u>Get the Gizmo ready:</u> <ul style="list-style-type: none"> • Select the Canadian Rockies Buttercups key. • Select Organism A. 	
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Introduction: Dichotomous keys are written for small, specific groups of organisms. For example, each dichotomous key in this Gizmo is used to identify six to eight related species found within a geographic region.

Goal: Identify a variety of organisms using dichotomous keys.

1. Practice: Use the Gizmo's dichotomous key to identify all the buttercups.

Canadian Rockies Buttercups

Organism	Common name	Scientific name
A		
B		
C		
D		
E		
F		

2. Analyze: Which traits were used to identify the flowers, and which of these traits did you think were most useful? _____

3. Practice: Select the **Texas Venomous Snakes** key. Use the Gizmo's dichotomous key to identify all the snakes.

Texas Venomous Snakes

Organism	Common name	Scientific name
A		
B		
C		
D		
E		
F		
G		

(Activity B continued on next page)

Activity B (continued from previous page)

4. Reflect: Why is it important to be able to tell a scarlet kingsnake apart from a coral snake?

5. Practice: Select the **Virginia Evergreens** key. Use the Gizmo's dichotomous key to identify all the trees.

Virginia Evergreens

Organism	Common name	Scientific name
A		
B		
C		
D		
E		
F		
G		
H		

6. Practice: Select the **Florida Cartilaginous Fishes** key. Use the Gizmo's dichotomous key to identify all the fishes.

Florida Cartilaginous Fishes

Organism	Common name	Scientific name
A		
B		
C		
D		
E		
F		
G		
H		

Activity C: Make your own dichotomous key	<u>Get the Gizmo ready:</u> <ul style="list-style-type: none"> Select the California Albatrosses key. 	
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Goal: Make a dichotomous key.

1. Observe: Now that you've learned how to use a dichotomous key, you get to practice making your own. We'll start with four organisms you've already seen:



Short-tailed albatross



Shy albatross



Wandering albatross



Laysan albatross

- A. What is one trait that could be used to separate these albatrosses into two groups of two birds each? (Hint: Look at the colors and patterns on their plumage and beaks.)

- B. Use this trait to write statement set #1 in the table below. The statements should be mutually exclusive. In other words, either the albatross has that trait or it doesn't.
- C. Observe the albatrosses described by statement #1a. Identify one trait that could be used to differentiate these organisms and use it to write statement set #2. Repeat this step for the albatrosses described by statement #1b.

Set	Statements	Identity of Organism
1	a.	Go to #2
	b.	Go to #3
2	a.	
	b.	
3	a.	
	b.	

2. Practice: Choose another key on the Gizmo. Take screen shots of all the organisms included in that key and place them in a separate document. Make a new dichotomous key that could be used to identify these organisms. Turn the key in with this worksheet.