

**Investigate Using a Dichotomous Key**

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# Contents

Part 1: Using a Dichotomous Key for Insects . . . . .	1
Data for Part 1: Using a Dichotomous Key for Insects . . . . .	2
Part 2: Using a Dichotomous Key for Trees . . . . .	2
Data for Part 2: Using a Dichotomous Key for Trees . . . . .	3
Analyze Data and Draw Conclusions . . . . .	3

### Part 1: Using a Dichotomous Key for Insects

1. Go outside and find an insect (a bug with six legs and a segmented body). Gently trap the insect in a jar or other sealable container. **Be sure to wear gloves and use safety precautions for handling live animals.** *Do not trap a bug with more than six legs or one that looks like a worm.* If you prefer, take several photos of the insect from different angles instead of trapping it.
2. Attach the best photo of your insect, or make a careful sketch of it, in the space provided under Data for Part 1. Below the picture, write a few sentences that describe the insect in detail.
3. Click link #1 on the lab landing page to go to the website of the Insect Identification Key. On the page that appears, you will find a question about your insect. Read the tips above and below the question before you start using the key.
4. Find the **Click one of the following:** heading, and reading the two possible answers to the questions (Yes,...and No,...) that follow. Decide which answer describes your insect, and start a list showing which answer you chose (e.g. Question 1: Yes) under Data for Part 1. Click on the correct answer for your insect. This will take you to a new page with a new question.
5. Continue selecting the answer to the question on each new page until you reach a page that has no question. This page will show a picture of your insect, name the order it belongs to, and give its common name. The common name that follows the order to which your insect belongs.
6. Record the name of the order our insect belongs to and its common name in the place provided under Data for Part 1. Then complete the list of answers you chose as you went through the key. Also list the characteristics that placed the insect in the order you identified.

**Data for Part 1: Using a Dichotomous Key for Insects**

- Photo or sketch of your insect:
  
  
  
  
  
  
  
  
  
  
- Detailed description of your insect:
  
  
  
  
- Identity of your insect:  
My insect belongs in the order     and its common name is .
  
  
- List of answers chosen in the key:
  
  
  
- What traits does the insect have that identify it as belonging to the chosen group?

**Part 2: Using a Dichotomous Key for Trees**

8. Go outside and find a tree with leaves. Pick one leaf from the tree. **Be sure to wear gloves and use the safety precautions for handling live plants.** If you prefer, take several photos of the leaf and the tree from different angles instead of picking a leaf.
  
  
  
  
  
9. Attach the best photos of your leaf and tree, or make a careful sketch of each one, in the space provided under Data for Part 2. Below the pictures, write a few sentences that describe the leaf and the tree in detail.
  
  
  
  
  
10. Click a link on the landing page to go to one of the following sources: “Trees of Texas” by the Texas A&M Forest Service, “Go Botany” by the New England Wild Flower Society, or Tree Identification Key (PDF). On the first page of an interactive key, you will find a menu of additional links. Determine which of these links best matches your leaf. Then click that link and compare your leaf with the new descriptions that appear.

11. Continue through the key, comparing your leaf with each set of descriptions and making choices until you have identified the species of tree your leaf came from. Notice that the websites have turned a dichotomous key into a series of links that correspond to different descriptions. Thus, the interactive keys serve the same function as a traditional dichotomous key such as the Tree Identification Key (PDF).
12. Record the scientific name of your tree in the place provided under Data for Part 2. Then list the steps you chose as you went through the key, as well as the characteristics that placed the tree in the species you identified.

### **Data for Part 2: Using a Dichotomous Key for Trees**

- Photo or sketch of your leaf and tree:
- Describe your leaf and tree in detail.
- Identity of the tree your leaf came from: My leaf came from a tree in the species .
- List of steps chosen in the key you used:
- What traits does the tree have that identify its species?

### **Analyze Data and Draw Conclusions**

1. Was it easier to identify the insect or the leaf? Explain your answer.
2. Describe how biologists would use dichotomous keys while observing nature. How useful do you think they are?
3. Select a topic, and make a dichotomous key of that topic. Select something with many parts that can be separated by characteristics (for example, superheroes, cars, clothes, sports, sports teams, ice cream flavors, etc.)