

Lesson Title: Creating a Dichotomous Key

Grade levels: Grades 4 and 5

Applicable SOL:

Science: Investigations: 3.1, 4.1, 5.1

4.4 (plant structure) 5.5 (classification of organisms)

English: 4.9 (using information resources)

5.9 (using research resources)

Materials:

- Leaf samples of schoolyard trees, labeled (Students could collect and label these as a follow-up to lesson 9)
- Large paper, such as bulletin board paper

### **Procedure:**

Building Supporting Knowledge:

Students should have already had practice using a dichotomous key.

Use lesson 9 for this practice.

Main Lesson: (60 minutes)

1. Explain to students that they used a standardized dichotomous key to identify trees in the schoolyard. Now they will create their own key, for use with only those particular trees.

2. Use the bulletin board paper to create a t-chart. Explain that to create a dichotomous key, they must continually group the leaves into two distinct groups.
3. Begin with the first group. Lay out all of the leaves and ask for suggestions for two categories that the leaves could fit within. After agreeing on those two categories, the students should sort them into the two groups.
4. At this point, one leaf must be chosen to continue the key. Have students look at the leaves on only the side of the t-chart of the chosen leaf. They should decide on a way to divide those leaves into two groups. Divide that side of the t-chart into two columns below the original grouping, as shown below:

Category 1		Category 2	
Category 1A		Category1B	
Category 1A1	Category 1A2		

- Continue in this manner until you are down to the originally picked leaf. Have a student copy each category, ending with the name of the leaf.
5. Use the same categories already established to put the other leaves into the chart which began in category 1. More categories will need to be created to eventually narrow down to the name of each leaf. Have different students copy the categories for each leaf.
  6. It may take more than one lesson period to complete the leaves, depending on the number of trees which you have in your schoolyard.
  7. Split the class into as many groups as you have types of trees. Have them use the created dichotomous key to identify the y trees. If they find any errors, they should be discussed and fixed.
  8. Publish your dichotomous key, for other classes in your school to use. You may want to use line drawings of the leaves (done by the students) in the published work. (A review discussion about why line drawings are more useful in a key than are photos may be needed.)

Follow-up:

1. Have students discuss in small group, and then large group, the process through which they went. Do they now have different categories or groupings they think would be an improvement? Why are dichotomous keys a more efficient way to identify things, rather than looking through a series of labeled pictures?
2. Team up with another class. Have students use the dichotomous key to identify the trees. (This is a great way to test their key!)

Assessment Opportunities:

Students can write about the process. To assess their knowledge of creating a key, give the students different leaves (3 or 4), or another item, like school supplies, for which to create a key, either alone, or in small groups.