

Dichotomous Keys

4th or 5th Grade

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Benchmarks:

(4th) SLC 4: Students will use a dichotomous key, flow chart or tables to distinguish between objects.

(5th) SLC 1: Given a key, students will classify objects, organisms, and/or phenomena.

Objectives:

To illustrate why scientists use dichotomous keys.

Materials:

- Digital pictures of all the students printed out on paper
- Large sheets of paper
- Scissors
- Pencils

Initial Demonstration:

Ask the class, “How do we know a cup is called a cup? Or water, water, etc?” Scientists use classification of objects to describe what they look like, how they are different from other objects and to give them a name that everyone can learn to know that a cup is what we know to be a cup.

We are going to try a classification of our own using the students in this class. Break the class up into groups of 3-4 students. Pass out (digital) pictures of each student and a big sheet with the start of the key’s break down to each group. Each group is to write their names and the names of up to 12 other students under their appropriate picture, cut the pictures out, and place them all at the top of the big dichotomous key paper.

The groups need to divide the pictures in front of them into 2 categories. There can be no overlap – we need to have 2 well-defined categories; using opposites is best. I gave the boy/girl example and walked around to each table to make sure they used 2 categories that were like this.

After the first division, look at only one category you separated. Now separate that into 2 more categories using similar thinking (i.e. obviously boy/girl will not work this time). Do this for the other category, so you have 4 categories, with no one able to go in more than one category. Have the students keep doing this until there are 16 categories with one person in each. The category for each group is their name.

Target Observations:

- We use descriptions of the cup and water to determine what they are
- Students can be divided up into categories until there is only one student per category

Target Model:

*-Classification can help us know what objects are and what properties they have.
-Students can be divided into categories by picking opposites (i.e. boy/girl, dark hair/light hair,...).*

Procedure:

Invite the groups that seem to have gotten to the front of the class, bringing up their key and all the students they used in it. By going over and separating the students, you can see if they understand, did it right, and also are able to show the class an example.

Tell the students that when someone sorts things like this, we call what they did a “Dichotomous Key” –write on the board. Review how you start off with one group and split and split...until everyone has a group of their very own. Ask the students where we see dichotomous keys? Why might this be important not only in science, but also in your lives?

Target Observations:

- A dichotomous key divides things into twos in classifying them
- Dichotomous keys are found in naming animals, in the library, etc...
- Dichotomous keys are important for everyday life because it is important to know what is what, the correct name of something, how to describe something like a bluebird without seeing it, etc...

Target Model:

*-Classification can help us know what objects are and what properties they have.
-Students can be divided into categories by picking opposites (i.e. boy/girl, dark hair/light hair,...).
-Dividing things by picking opposites is called making a Dichotomous key.
-Dichotomous keys help us categorize and describe everyday things.*