

## ACTIVITY

## dichotomous keys

## overview

Scientists use dichotomous keys to identify the specimens they collect in the field. A dichotomous key, or an identification key, is a tool that helps identify a plant or insect specimen. A key asks the user to choose between two oppositional statements. The statement the user chooses directs her to the next step. The user continues through the steps until the specimen is identified. (Look through the Resources for several examples of dichotomous keys.)

**Dichotomous Key Example**

Let's imagine we want to create a dichotomous key of fish found in a pond near New York. We catch four different specimens: A, B, C, and D. We look very closely at our fish and use external characters to differentiate between them. We might construct a table of characters that looks like this:

	color	shape	eye size	scales
Specimen A	gray	round	small	absent
Specimen B	green	round	large	present
Specimen C	gray	flat	small	absent
Specimen D	gray	flat	small	present

This table becomes the basis for our key. The key might look like this:

1.	Body color gray	Go to number 2.
	Body color green	Your fish is Specimen B.
2.	Body shape round	Your fish is Specimen A.
	Body shape not round	Go to number 3.
3.	Scales present	Your fish is Specimen D.
	Scales not present	Your fish is Specimen C.

**Create a Key**

Students will enjoy working in pairs or groups of three to create their own keys from specimens they have collected themselves, such as leaves, shells, or feathers. If it is not possible to use students' own specimens, you can provide some, such as fruit, flowers, or nuts. Students should:

- look closely for distinguishing features (examples: shape, color, texture, edges)
- list these features along the top of a table
- number all specimens
- write the specimen numbers on the rows of the table
- fill in the blanks of the table by closely observing the specimens
- use the table to construct a key

After students have completed their keys, ask groups to switch specimens and keys. Are they able to identify the specimens using the keys their peers created?