

HOW TO USE A DICHOTOMOUS KEY

Dichotomous means 'divided or cut into two parts'. A dichotomous key is a tool used by scientists to classify organisms into categories. The key is made up of a series of categories, and within each category are two opposing statements called couplets.

To use the key, you always start at the first category (look for a '1' in the first column). Read the two statements (labeled 'a' and 'b' in the second column) and consider them carefully. If you do not know the meaning of a word, as some of these terms are technical, look it up (www.dictionary.com is a great site).

Now, look at your organism. Choose the statement (a or b) that best fits your organism. All parts of the statement must be true. (Here's an example: If your organism has an irregular shape, it must also have pores.) At the end of the statement you will come to a word or a number.

If you come to a word or phrase you have found the phylum, class or genus that your organism belongs to, and you are finished identifying the organism!

If the true statement has a number at the end, go to that category (skip all the others) and read the couplet (a and b statements) you find there.

Again, you would choose the statement that best describes a characteristic of your organism, and follow the number to the next couplet. Continue until you come to the classification of your organism.

Here's an example: Lobster

Category 1:

- a) Irregular-shaped body; structure with many pores -- Phylum Porifera
- b) Regular-shaped body (with right and left halves or a cylindrical shape) -- 2

The funny thing about scientists is that they have a language all their own. So an 'irregular shape' really means something with no clear, recognizable shape. A blob is a good example. A 'regular shape' on the other hand, means anything with a recognizable shape. It could be round or square, or shaped like something you've seen often; a star or a fish or a dog, for example. **The lobster has a regular shape (it looks like a lobster, crayfish, or insect) and it has right and left sides, so choose statement b and go to Category 2.**

Here are the statements for Category 2:

- a) Radial symmetry (disk-shaped or barrel-shaped) -- 4
- b) Bilateral symmetry (similar right and left body halves) -- 3

You may want to look up the terms radial and bilateral. Radial means having rays like the sun or a daisy. Bilateral means having two sides. **The lobster is not shaped like a star or disk, it is bilaterally symmetric, so go to Category 3.**

- a) Animal has internal skeleton -- 19
- b) Animal has external skeleton or no apparent skeleton -- 6

The lobster has an external skeleton -- its shell. If you are not sure about a characteristic of the organism, you could use www.google.com to help you determine if

a statement is true or false. For example, you could look up the key words 'lobster' and 'skeleton'. You will find sites that describe the lobster's exoskeleton. Go to Category 6:

- a) Hard outer covering -- 6
- b) No hard outer covering -- 7

A lobster's shell is hard, go to Category 10.

- a) Body has jointed legs -- 14
- b) Body inside shell is soft, has no jointed legs -- 13

Even though the body inside the shell is soft (and delicious), the lobsters legs are jointed so the second part of statement b is false. Since the legs are jointed you would choose a, and go to Category 14.

- a) Jointed appendages on most body sections -- 15
- b) Jointed appendages on certain body segments; not all appendages are legs --

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Even though it looks like there jointed appendages on most of the sections of the lobster, it also has antennae and claws, so not all the appendages are legs, choose statement b, and go to Category 16

- a) Two pairs of antennae, large claws often present -- Class Crustacea.
- b) One pair of antennae or none, no large claws -- 17.

The lobster has large claws -- Class Crustacea!

Present your work in this format: List the name or organism number, then each of the numbers for each step of the key, then the class or phylum of the organism.

The key for a lobster is:

1b, 2b, 3b, 6a, 10a, 14b, 16a, Class Crustacea.

This way you demonstrate that you used the key, and you can get partial credit even if you ended up at the wrong answer.